American Journal of Psychiatric Rehabilitation

Expert Opinion Article

Access Internet And Academic Success For The UG Students In Karimganj District Of Assam: A Case Study

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Abstract

The study investigates the relationship between internet access and academic performance among undergraduate students in Karimganj District, Assam. The district, characterized by both urban and rural disparities, provides a compelling setting to examine how internet accessibility, usage frequency, and purpose of use impact students' academic outcomes. A total of 140 students were surveyed using a structured questionnaire, and data were analyzed through descriptive statistics and multiple linear regression using SPSS. The regression model revealed that internet access, duration of use, and purpose of usage collectively explain 28.8% of the variance in students' CGPA, suggesting a moderate positive impact of digital connectivity on academic performance. While the majority of students affirmed that internet access improved their academic understanding and resource availability, issues such as overreliance on mobile data, digital distractions, and inconsistent engagement with online academic platforms were evident. The study emphasizes the need for inclusive digital infrastructure, institutional support for e-learning, and student training on effective internet use. These findings hold policy relevance for enhancing digital equity and academic success in underdeveloped regions.

Keywords: Internet Access, Academic Performance, Digital Divide, Higher Education

1. Introduction:

In the modern digital era, internet access plays a crucial role in shaping academic success. The availability of online resources, digital learning platforms, and virtual academic support has transformed traditional learning processes. However, disparities in internet access continue to impact students differently, especially in rural and semi-urban areas. This study aims to explore the relationship between internet access and academic performance among degree students in Karimganj District. This district is characterized by its diverse socio-economic background, presents an interesting case for examining how digital connectivity influences students' educational outcomes. While some students benefit from uninterrupted internet access, others face challenges due to poor infrastructure, financial constraints, and lack of digital literacy. These differences create a digital divide that may affect academic achievements, participation in online learning, and overall skill development. By understanding the role of internet access in shaping academic success, this study aims to highlight existing gaps and propose recommendations for bridging the digital divide. The findings could assist policymakers, educational institutions, and stakeholders in developing strategies to ensure equal access to digital learning resources for all students, thereby fostering academic excellence in Karimganj District and beyond.

The rapid shift to digital education, accelerated by the COVID-19 pandemic, has profoundly transformed global higher education, revealing both opportunities and challenges. Literature across diverse contexts indicates that while online learning offers flexibility, accessibility, and continuity (Maheshwari, 2021; Muthuprasad et al., 2021), its effectiveness is constrained by infrastructural limitations, digital literacy gaps, and motivational challenges (Kapasia et al., 2020; Dutta & Smita, 2020). Studies employing the PROER model demonstrate that students' willingness to engage in digital learning is shaped by psychological readiness, institutional support, and contextual factors (Singh et al., 2021; Phutela & Dwivedi, 2020). In developing regions, disparities in internet access and technological infrastructure persist, widening the digital divide and affecting equitable learning outcomes (Lembani et al., 2020; Graves et al., 2021). While platforms like MOOCs and social media have emerged as valuable alternatives (Mohan et al., 2020; Dutta, 2020), issues such as limited interaction, digital fatigue, and inconsistent quality remain prevalent (Al Rawashdeh et al., 2021; Yuhanna et al., 2020). The collective findings suggest that successful digital education depends on inclusive policies, investment in infrastructure, and

pedagogical innovation tailored to learner diversity and local contexts.

2. Significance of the Study:

This study is significant as it provides insights into the role of internet access in academic achievement, particularly in a region where digital infrastructure is still developing. By analyzing the extent to which internet accessibility affects students' academic performance, the study will help identify key barriers to digital learning and suggest ways to overcome them.

The findings of this research can be beneficial for multiple stakeholders, including students, educators, policymakers, and institutions. Students can better understand how to optimize their internet usage for academic growth. Educators and institutions can design targeted interventions to support students with limited access, while policymakers can formulate strategies to enhance digital infrastructure in rural and underserved areas.

Additionally, the study contributes to the broader discourse on the digital divide and educational equity, providing empirical evidence to advocate for policies that ensure inclusive and accessible education for all students. By addressing internet accessibility issues, the study has the potential to enhance academic outcomes and foster a more digitally inclusive learning environment in Karimganj District and beyond.

This study holds significance in multiple ways, particularly in assessing the impact of internet accessibility on students' academic achievements in a region where digital infrastructure is still developing.

3. Objectives of the Study

1. To evaluate the extent of internet access among degree students in Karimganj district, Assam.
2. To examine the relationship between internet access and academic performance among these students.
3. To assess the impact of internet usage patterns (frequency and purpose) on students' academic success.

4. Hypothesis of the Study:

1. There is no significant relationship between internet access and academic performance among degree students.
2. The frequency of internet usage has no significant effect on academic performance.
3. The purpose of internet use significantly impacts academic performance.

5. Data and Methodology of the Study:

This study investigated the relationship between internet access and academic success among degree students in Karimganj district, Assam. A quantitative research design was adopted, utilizing a structured questionnaire to gather primary data.

The target population for this study comprises all degree students enrolled in colleges within Karimganj district, Assam. This population was selected to ensure a comprehensive understanding of the influence of internet access on academic outcomes across diverse demographic and socio-economic groups. The inclusion of students from both urban and rural areas allows for an in-depth comparison of the impact of digital connectivity on academic performance in varied educational environments.

A multi-stage sampling technique was employed to ensure a representative and unbiased sample. In the first stage, Karimganj district is divided into two primary strata based on geographical location: urban and rural. This stratification accounts for infrastructural and socio-economic differences between the two regions. In the second stage, specific colleges are purposively selected from each stratum. This approach ensures that the sample captures a broad spectrum of students with varying levels of internet accessibility, thereby enhancing the generalizability of the findings.

The urban stratum included three prominent colleges: Karimganj College, R. K. Nagar College, and N.C. College. From the rural stratum, three colleges have been selected: Patharkandi College, Swami Vivekananda College, and DDU Model College. The inclusion of these colleges ensured coverage of diverse academic settings and access conditions. This stratified sampling frame facilitated the examination of potential disparities in internet usage and academic achievement between urban and rural students, offering critical insights into the digital divide's impact on higher education.

The present study employs a mixed-method approach, combining both qualitative and quantitative techniques to analyze student experiences and academic engagement in the newly implemented FYUG and CBCS curricula. A case study approach was adopted, focusing on six selected degree colleges from both urban and rural strata in Karimganj district.

To ensure a representative sample, three colleges were selected from the urban stratum: Karimganj College (21 students), R. K. Nagar College (27 students), and N. C. College (14 students), a total of 62 respondents. Similarly, three colleges were chosen from the rural stratum: Patharkandi College (37 students), Swami Vivekananda College (29 students), and DDU Model College (12 students),

contributing 78 respondents. Thus, a total of 140 student samples were collected for the study.

The sample selection was based on a stratified random sampling method to ensure an equitable representation of students from both the Four-Year Undergraduate Programme (FYUG) and the Choice-Based Credit System (CBCS). Data collection was conducted through structured questionnaires and semi-structured interviews, focusing on key aspects such as curriculum effectiveness, academic challenges, and student adaptability.

Primary data were gathered through direct student interactions, while secondary data were sourced from institutional reports, academic publications, and policy documents. Data analysis involved both descriptive and inferential statistical methods, with tools such as percentage analysis and comparative evaluation used to identify trends and insights. Qualitative responses were analyzed using thematic categorization to capture student perspectives comprehensively.

The analysis investigates the impact of internet access, frequency of use, and purpose of usage on academic performance among degree students. Using a quantitative approach, the study employs **Multiple Linear Regression Analysis** to assess how these independent variables influence student GPA or percentage scores. The dependent variable, **academic performance (Y)**, is modeled against **internet access (X_1), frequency of internet use (X_2), and purpose of internet use (X_3)**.

Dependent Variable (Y): Academic Performance (measured through GPA or percentage)

- **Independent Variables:**
  - X_1: Internet Access (dummy variable: 1 = Yes, 0 = No)
  - X_2: Frequency of Internet Use (hours/day – continuous)
  - X_3: Purpose of Internet Use (dummy variables: Academic, social media, Entertainment, etc.)

The regression model is specified as:

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$

Where:

- β_0 is the intercept
- $\beta_1 - \beta_3$ are regression coefficients
- ε is the error term

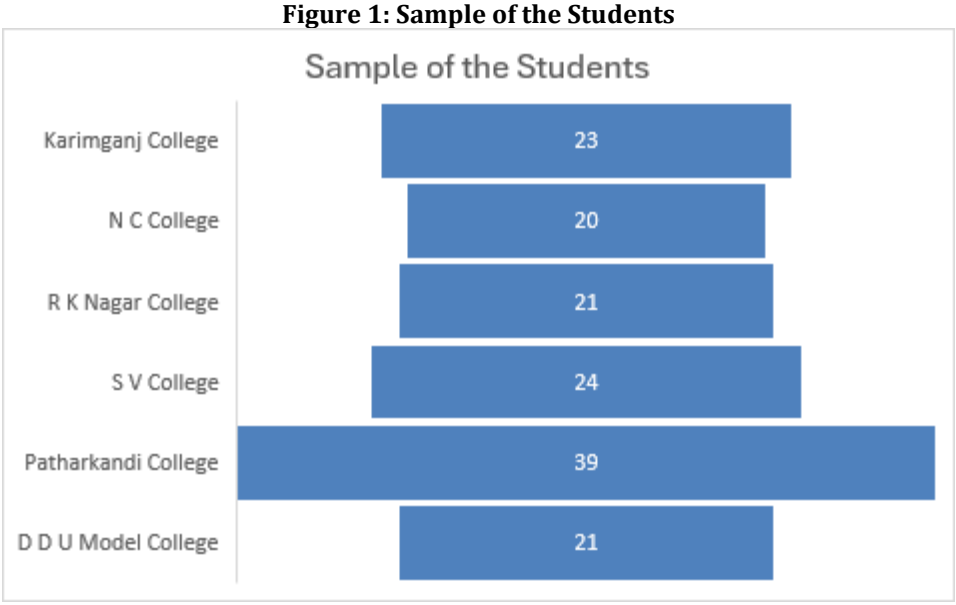
The collected data was coded and analyzed using SPSS software. Descriptive statistics summarized the general internet access and usage patterns. The impact of the independent variables on academic performance was evaluated using Multiple Linear Regression Analysis. Dummy variables were created for categorical responses, especially for the purpose of internet use.

Significance levels (p-values) will be used to test each hypothesis at the 95% confidence level ($\alpha = 0.05$). R^2 and adjusted R^2 will measure model fitness. Multicollinearity and residual analysis will be performed to validate the model.

6. Data Analysis and Result:

One of the most crucial steps in the many phases of empirical research is the analysis of the data the researcher is using. Having a clear and synthetic understanding of the facts is facilitated by this phase. Tables and graphs can be used to assist with this. Another name for this data analysis procedure is data identification. At each level of the research process, the obtained data has a distinct influence. Consequently, using a statistical table is one of the simplest and most effective ways to summarize data, particularly when it is presented clearly and useful. A comparison and analysis of the data is the most crucial way to display the data, even when tabulation alone is insufficient. As a result, this analysis aim to exhibit, analyse, and communicate the information gathered via the use of econometric modelling utilizing SPSS 26 software, tables, charts, and diagrams—the most common methods of presenting data analysis.

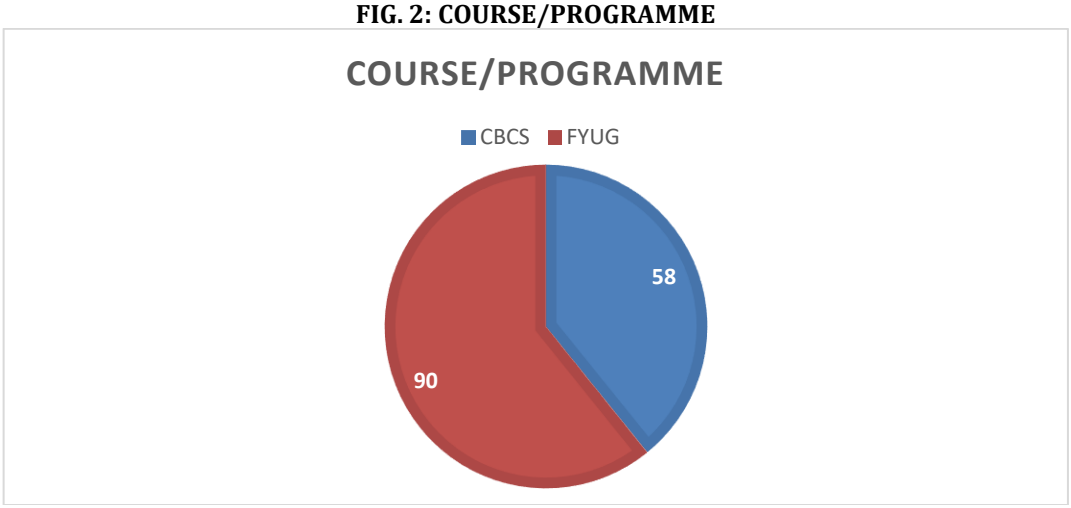
Figure 1: Sample of the Students



Sources: Field Survey

The horizontal bar chart in Fig 1 titled "Sample of the Students" displays the number of students sampled from six different colleges. Patharkandi College has the highest number of sampled students at 39, while N C College has the lowest with 20 students. The other colleges show relatively similar sample sizes, with Karimganj College at 23, R K Nagar College and D D U Model College both at 21, and S V College at 24. Overall, the chart reflects a balanced distribution of student samples across the colleges, with Patharkandi College standing out with a significantly larger sample size.

FIG. 2: COURSE/PROGRAMME



Sources: Field Survey

In Fig.2 titled "Course/Programme" shows the distribution of students enrolled in two types of academic programmes: CBCS and FYUG. The chart reveals that a larger number of students, 90 in total, are enrolled in the FYUG programme, while 58 students are enrolled under the CBCS system. This indicates that the FYUG programme has a higher enrollment compared to CBCS, suggesting a shift or preference towards the new structure among the students surveyed.

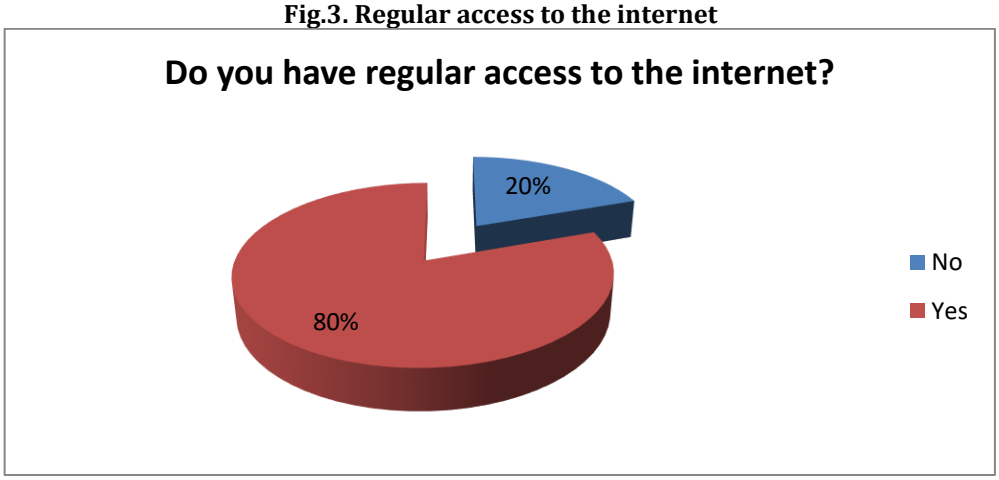
Table. 1: AGE OF THE RESPONDENTS

AGE OF THE RESPONDENTS		
N	Valid	148
	Missing	0
Mean		20.35
Median		20.00
Mode		20
Std. Deviation		1.023
Range		5

Sources: Field Survey

In the above table 1 The age statistics of the respondents show that data from all 148 participants was valid, with no missing entries. The mean age is 20.35 years, the median age is 20 years, and the mode, which is the most frequently occurring age, is also 20 years, indicating that most respondents are around 20 years old. The standard deviation is 1.023, suggesting that there is relatively little variation in the ages, and the range is 5 years, meaning the difference between the youngest and oldest respondent is 5 years.

Fig.3. Regular access to the internet

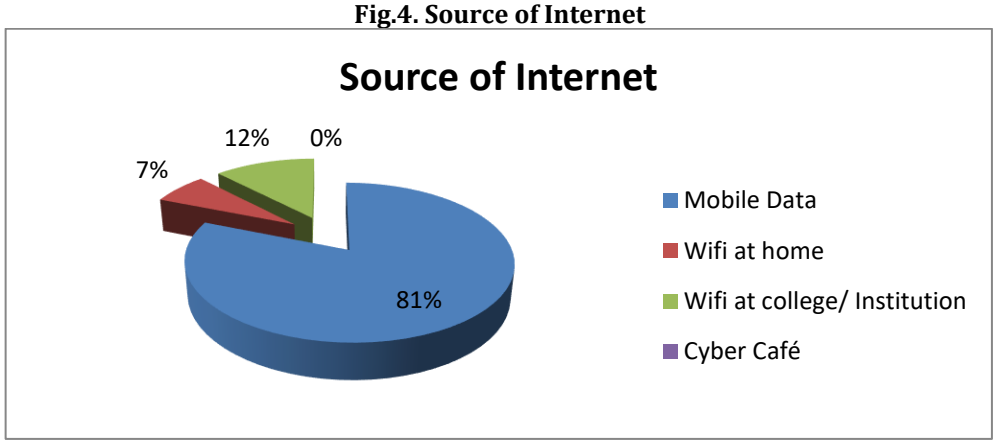


Sources: Field Survey

In Fig.3. a significant majority (80%) answered "Yes", indicating that most respondents possess or affirmatively have whatever is being asked about. Only 20% answered "No", showing that a small proportion of people do not have or do not affirm what is being inquired.

The chart clearly shows that **most respondents answered "Yes" (80%)**, while a minority answered "No" (20%). If the full question were visible, a more context-specific analysis could be done.

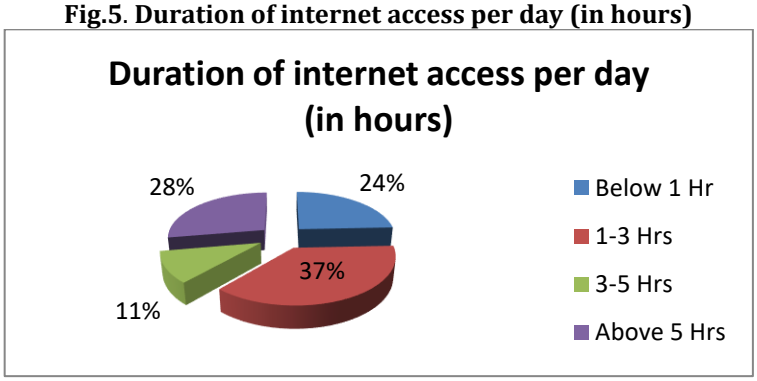
Fig.4. Source of Internet



Sources: Field Survey

In Fig.4. titled **"Source of Internet?"** illustrates the primary means through which respondents access the internet. A dominant **81% rely on mobile data**, indicating widespread use of smartphones or mobile networks for connectivity. **Wi-Fi at college or institution accounts for 12%**, showing limited institutional support or access, while only **7% use Wi-Fi at home**, suggesting fewer home internet setups. Notably, **0% falls into an unspecified category**, possibly indicating either a redundant or unused option. Overall, the data underscores a heavy dependence on mobile data, highlighting potential challenges in stable and high-speed internet access for academic or professional use.

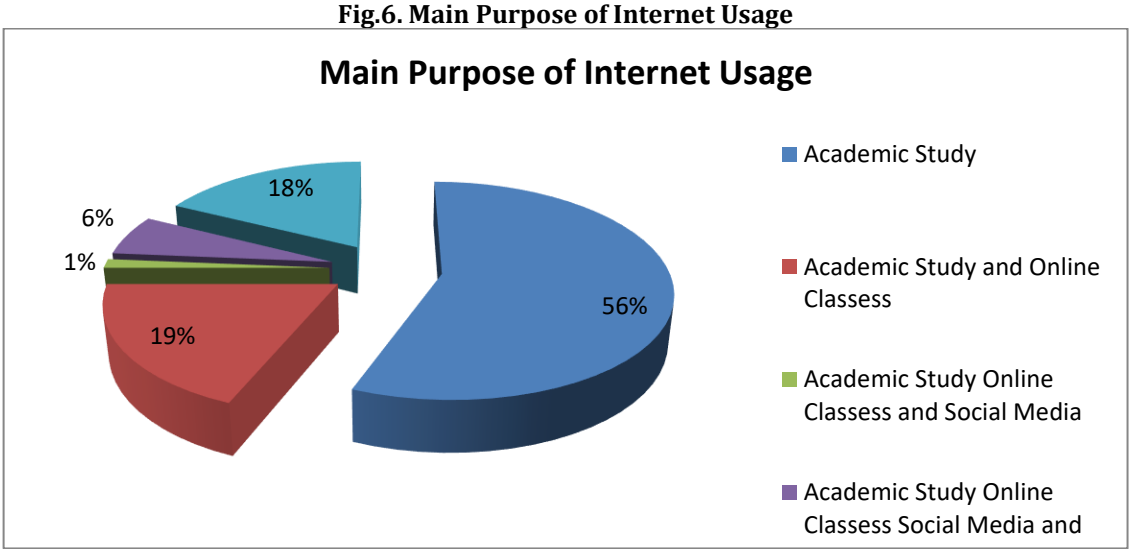
Fig.5. Duration of internet access per day (in hours)



Sources: Field Survey

In Fig.5. **"Duration of internet access per day (in hours)"** shows that the largest group of respondents, **37%, use the internet for 1–3 hours daily**, indicating moderate usage. This is followed by **28% who use it for more than 5 hours**, suggesting a significant portion are heavy users, possibly for study, work, or entertainment. **24% access the internet for less than 1 hour**, reflecting minimal usage, while **only 11% fall in the 3–5 hours range**, which is surprisingly lower than both the lighter and heavier usage categories.Overall, the data reflects a broad range of daily internet engagement, with a tilt toward moderate to high usage.

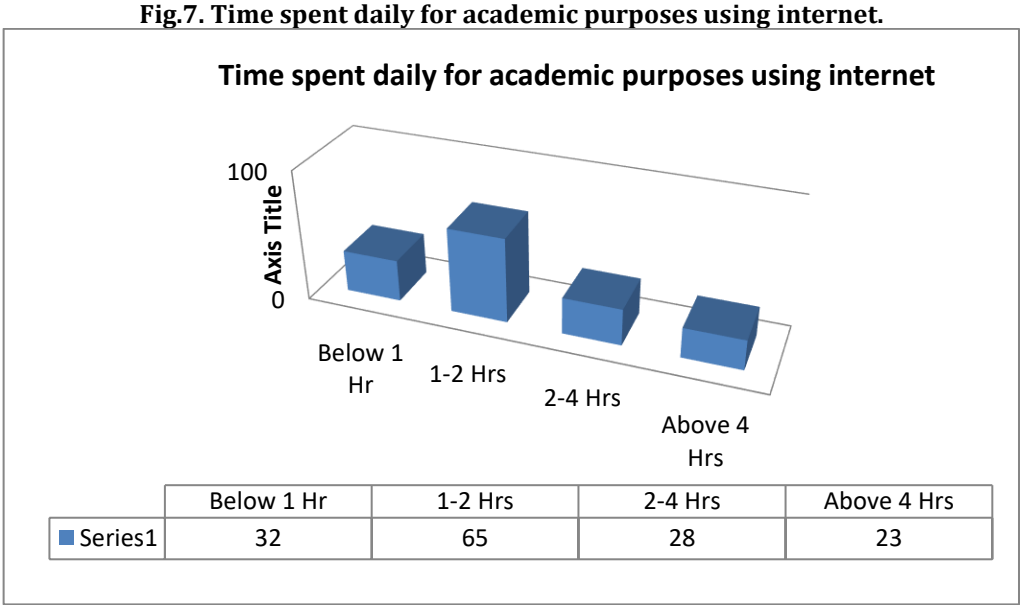
Fig.6. Main Purpose of Internet Usage



Sources: Field Survey

In Fig.6. *"Main Purpose of Internet Usage"* reveals that most users (56%) primarily utilize the internet for academic study alone. This is followed by 19% who use it for both academic study and online classes, indicating a significant role in digital learning platforms. Meanwhile, 18% incorporate online classes along with academic study and 6% further expand their use to include social media and news, reflecting a more diversified internet usage. Only 1% of users combine academic study, online classes, and social media, suggesting that while academic purposes dominate internet use, a small segment integrates broader online engagement into their routine.

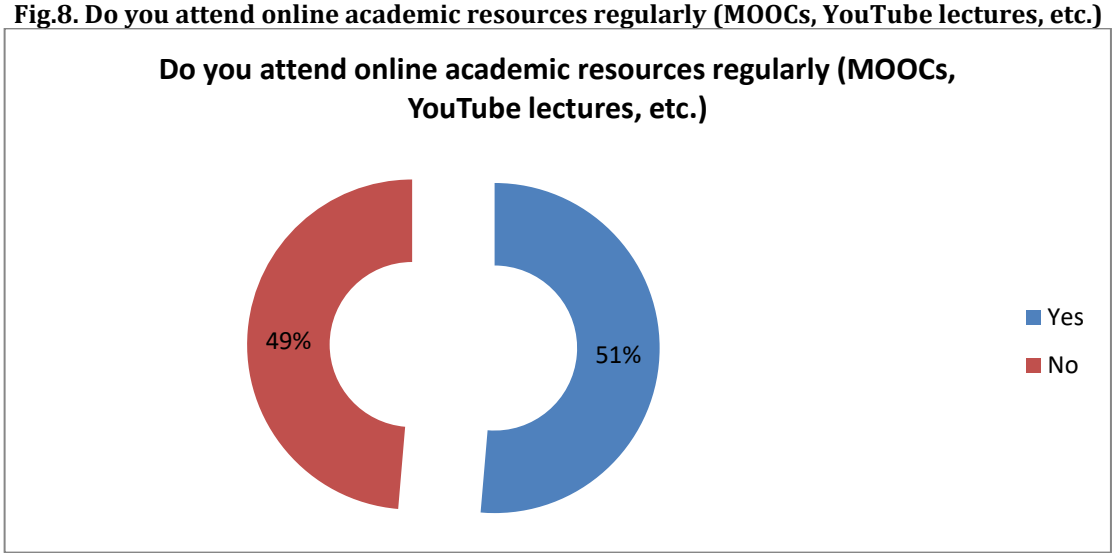
Fig.7. Time spent daily for academic purposes using internet.



Sources: Field Survey

In Fig.7. *"Time spent daily for academic purposes using internet"* illustrates the distribution of users based on their daily internet usage duration for academic tasks. Many respondents (65) spend between 1 to 2 hours daily online for academic purposes, indicating a moderate engagement level. This is followed by 32 users who spend less than 1 hour, suggesting a lighter usage pattern. Meanwhile, 28 users dedicate 2 to 4 hours daily, and 23 users exceed 4 hours, showing a smaller but significant group with high internet dependence for academic activities. Overall, most users fall within the 1–2 hour range, highlighting it as the most common usage pattern.

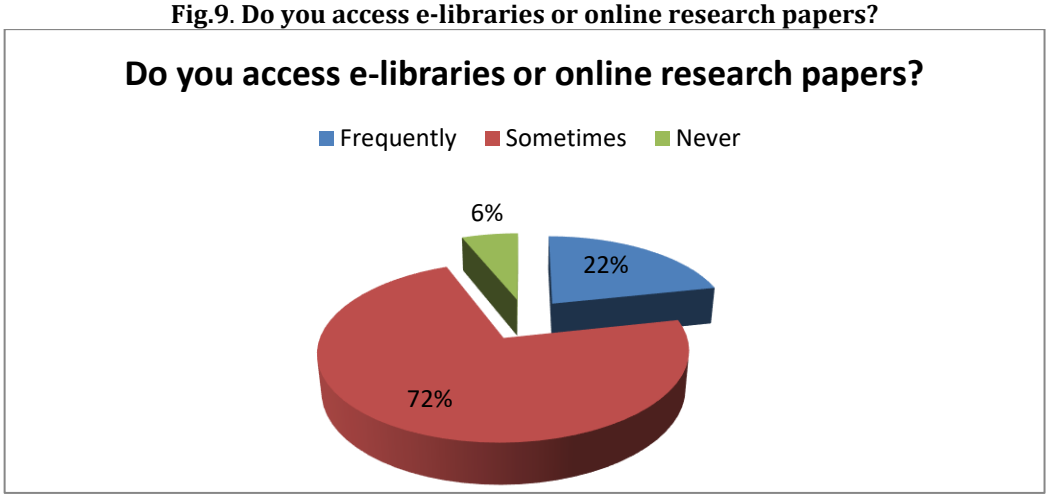
Fig.8. Do you attend online academic resources regularly (MOOCs, YouTube lectures, etc.)



Sources: Field Survey

In Fig.8. *"Do you attend online academic resources regularly (MOOCs, YouTube lectures, etc.)"* shows a nearly even split among respondents regarding their use of online academic content. A slight majority of 51% reported attending such resources regularly, indicating a positive inclination toward utilizing digital learning platforms. Meanwhile, 49% do not engage regularly with these resources, suggesting that while online academic tools are gaining traction, there is still a substantial portion of students who may prefer traditional methods or face barriers to regular online participation.

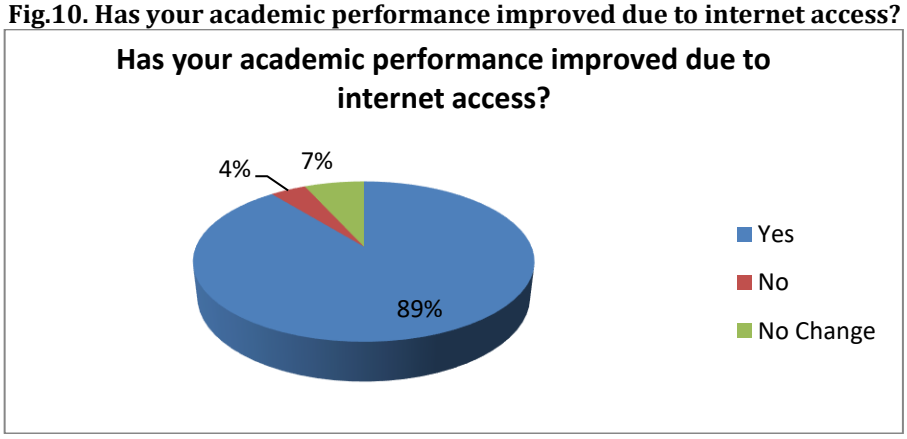
Fig.9. Do you access e-libraries or online research papers?



Sources: Field Survey

In Fig.9. *"Do you access e-libraries or online research papers?"* indicates that a large majority of respondents (72%) access these resources only sometimes, suggesting occasional or need-based usage. Meanwhile, 22% of respondents frequently use e-libraries or online research papers, showing a more consistent engagement with academic digital resources. A small minority of 6% have never accessed such resources, highlighting limited exposure or possible lack of awareness or access. Overall, while the majority are at least somewhat familiar with e-libraries, regular and extensive usage remains limited.

Fig.10. Has your academic performance improved due to internet access?

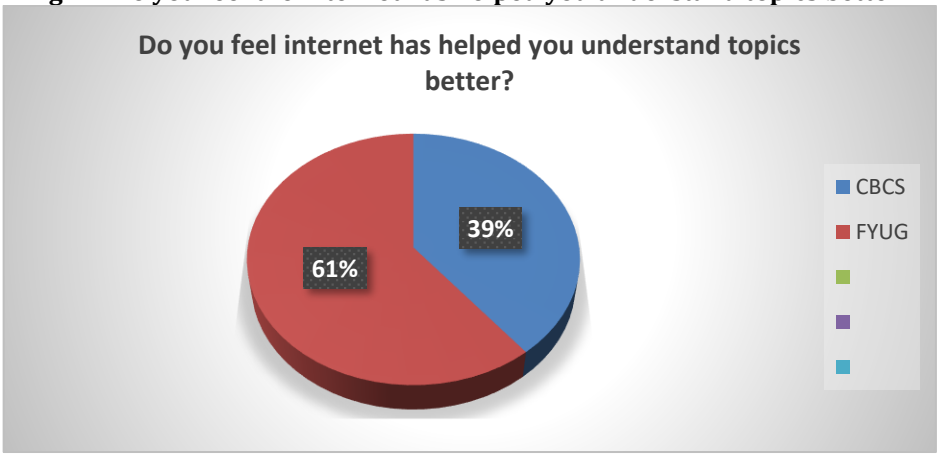


Sources: Field Survey

In Fig.10 "Has your academic performance improved due to internet access?" illustrates the perceived impact of internet accessibility on academic outcomes. A striking majority of 89% of respondents answered "Yes," indicating a clear consensus that internet access has positively influenced their academic performance. This overwhelming figure suggests that the internet plays a crucial role in facilitating learning, offering resources such as online lectures, tutorials, research materials, and collaborative tools that enhance academic achievement. Meanwhile, only 7% of the participants reported "No" improvement, which may be attributed to issues like distractions, lack of guidance, or ineffective use of online resources.

Additionally, a mere 4% experienced "No Change," implying that for a small group, internet access neither hindered nor enhanced their academic performance. Overall, the data strongly supports the notion that internet connectivity has become a powerful enabler of academic success for many students.

Fig.11. Do you feel the internet has helped you understand topics better?



Sources: Field Survey

In Fig.12 "Do you feel internet has helped you understand topics better?" shows the responses of students from two academic programmes: CBCS and FYUG. It indicates that 61% of FYUG students feel that the internet has helped them understand topics better, while only 39% of CBCS students share the same view. This suggests that a greater proportion of FYUG students perceive the internet as a beneficial tool for enhancing their academic understanding compared to their CBCS counterparts.

7. Hypothesis Testing and Regression Analysis:

Impact of Internet Use on Academic Performance

Hypothesis I:

H_0: There is no significant relationship between internet access and academic performance among degree students.

H_1: There is a significant relationship between internet access and academic performance among degree students.

Hypothesis II:

H_0: The frequency of internet usage has no significant effect on academic performance.

H_1: The frequency of internet usage has a significant effect on academic performance.

Hypothesis III:

H_0: The frequency of internet usage has no significant effect on academic performance.

H_1: The frequency of internet usage has a significant effect on academic performance.

Hypothesis III:

H_0: The purpose of internet usage has not significantly impact academic performance.

H_1: The purpose of internet use significantly impacts academic performance.

The analysis investigates the impact of internet access, frequency of use, and purpose of usage on academic performance among degree students. Using a quantitative approach, the study employs Multiple Linear Regression Analysis to assess how these independent variables influence student GPA or percentage scores.

The collected data was coded and analyzed using SPSS software. Descriptive statistics summarized the general internet access and usage patterns. The impact of the independent variables on academic performance was evaluated using Multiple Linear Regression Analysis. Dummy variables were created for categorical responses, especially for the purpose of internet use.

Significance levels (p-values) will be used to test each hypothesis at the 95% confidence level ($\alpha = 0.05$). R^2 and adjusted R^2 will measure model fitness. Multicollinearity and residual analysis will be performed to validate the model.

Table. 2: MODEL SUMMARY

Model Summary[b]						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig.	Durbin-Watson
1	.536[a]	.288	.273	8.35212	.000	1.686
a. Predictors: (Constant), POIU, DIE, REI						
b. Dependent Variable: CGPA						

Sources: Calculated from Field Survey

In the above table 2, represents the correlation between the observed CGPA and the predicted CGPA based on the predictors (POIU, DIE, REI). An R value of 0.536 suggests a moderate positive correlation, and R Square (.288). This indicates that 28.8% of the variance in CGPA is explained by the independent variables (POIU, DIE, REI). It means the model has a moderate explanatory power but also suggests that 71.2% of the variation in CGPA is due to other factors not included in the model. The adjusted R^2 accounts for the number of predictors in the model and adjusts the R^2 downward to avoid overestimation. A value of 0.273 shows that after adjusting for the number of predictors, the model still explains about 27.3% of the variance, confirming a reasonably stable model. Standard Error of the Estimate (8.35212) is measured the average distance that the observed CGPA values fall from the regression line. A standard error of around 8.35 suggests there is some variability in the predictions, but without knowing the CGPA scale, it's hard to interpret whether this is large or small. The value of R Square Change (.288) and F Change (19.390). These statistics indicate that the inclusion of the predictors (POIU, DIE, REI) significantly improves the model. The F Change significance (Sig. F Change = .000) shows that the model improvement is statistically significant ($p < 0.001$). The value of Durbin-Watson Statistic (1.686). It means tests for autocorrelation in the residuals. A value close to 2 (ideal is around 2) suggests no serious autocorrelation problem. Since 1.686 is close to 2, it indicates only mild positive autocorrelation.

Table. 3: ANOVA

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4057.887	3	1352.629	19.390	.000[b]
	Residual	10045.138	144	69.758		
	Total	14103.026	147			
a. Dependent Variable: CGPA						
b. Predictors: (Constant), POIU, DIE, REI						

Sources: Calculated from Field Survey

The ANOVA table 3 shows that the regression model explaining CGPA with predictors POIU, DIE, and REI is statistically significant, as evidenced by a p-value of 0.000, which is less than the typical significance level of 0.05. The F-statistics of 19.390 indicate that the model significantly explains the variation in CGPA, with a substantial portion of the variation accounted for by the predictors, as reflected in the regression sum of squares (4057.887).

8. Conclusion and Policy Implications:

The study reveals that while internet usage significantly influences academic performance, it accounts for only 28.8% of the variance, highlighting the need to address other contributing factors such as motivation, pedagogy, and home environment. Based on these insights, targeted policy recommendations include expanding affordable internet access, promoting digital platforms, enhancing digital literacy, and supporting home-based learning infrastructure. Institutions must also adopt strategies to minimize distractions and integrate online academic activities to ensure equitable, effective, and sustainable digital education for all learners.

1. Expand Affordable and Reliable Internet Access

- As mobile data is the primary source of internet connectivity, policies must aim at improving network coverage and affordability, especially in semi-urban and rural areas.
- Encourage educational institutions to provide free or subsidized Wi-Fi access on campuses.

2. Promote Digital Learning Platforms

- Universities should integrate MOOCs, e-libraries, and digital lectures into their regular curriculum.
- Create awareness programs on how to effectively use online academic resources to encourage broader and more regular usage.

3. Digital Literacy and Training

- Launch digital literacy initiatives focusing not just on basic internet use, but also on academic research skills, information evaluation, and digital etiquette.
- Workshops could help students manage distractions and maximize academic use of the internet.

4. Encourage Online Academic Activities

- Institutions should implement online submission of assignments and assessments gradually, ensuring technical and pedagogical support.
- Developing a blended learning approach (offline + online) can help bridge the gap.

5. Monitor and Minimize Distractions
- Provide students with tools and training to manage time spent on non-academic internet activities.
- Encourage the use of academic apps and browser extensions that limit distractions during study periods.

6. Support Infrastructure for Home Learning
- Since many students access the internet mainly through mobile data, policy initiatives like low-cost home broadband packages for students can greatly improve learning conditions.

7. Further Research and Monitoring
- Since internet usage explains only about 28.8% of the variance in academic performance, institutions should further explore other factors like teaching methods, student motivation, home environment, and psychological well-being.

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