

The impact of internet use on tertiary institution students' academic performance: An exploratory study

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Abstract

This study investigates the impact of internet use on tertiary institution students' academic performance (AP). The objectives of the study are to ascertain the impact of internet usage on the AP of students in tertiary institutions, find out some of the difficulties encountered in the utilization of the internet by students in tertiary institutions, and determine some of the benefits of internet usage to students in tertiary institutions. The sample size for this research consists of 300 students whose data were collected through the administration of questionnaires. The study employed the survey research method and the Chi-square (X^2) method to analyse and test the various hypotheses formulated. Findings from the study show that there is a significant relationship between internet usage and the AP of students in tertiary institutions. Even though internet usage makes work faster and easier, there are various difficulties encountered in the utilization of the internet by students in tertiary institutions, and the study recommends some ways that will assist to mitigating these difficulties, as well as ways to improving internet use by tertiary institution students.

Keywords: Academic performance, Institution, Learning, Student, Teaching

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1. Introduction

The internet can be seen as a network of networks and ever-changing texts for providing information and a platform for cooperation between people and technology that is not geographically limited (Ladrón de Guevara et al., 2022; Castellacci & Tveito, 2018; Adegboji & Toyo, 2016; Ebersole, 2016; Nwankwo & Ukhurebor, 2020). As rightly reported “the internet today is a global phenomenon whose nature cannot be overestimated” (Ladrón de Guevara et al., 2022; Koca & Berk, 2019). The internet is a massive computer network, connecting lots of smaller computers world-wide that belong to thousands of companies, government agencies, research institutes, educational institutions, and other organizations (Ojekun, 2014; Agil & Ahmed, 2016; Kumar & Kaur, 2015; Berte, Mahamid, & Affouneh, 2021; Castellacci & Tveito, 2018). The internet is a global society, and internet users are very busy. Several million people use the internet, and their computers are connected so that they can remotely log in, share and transfer files, and do other tasks (Nwankwo & Ukhurebor, 2020; Berte et al., 2021; Castellacci & Tveito, 2018). The internet also connects a host of other networks, such as email, online services, etc. All elements of our lives, including business, education, communication, entertainment, social activities, and shopping, are now influenced by the internet (Çebi & Güyer, 2020; Chang et al., 2019; Ibegwan, 2016; Ibrahim, 2016). Many colleges around the world boost their information communication technology (ICT) investments, particularly through the internet, and force students to use it aggressively. Online learning is complex from the point of view of the student (Gómez-Fernández & Mediavilla, 2021; Azizi et al., 2019; Alt, 2018; Aznar-Díaz et al., 2020; Fernández-Gutiérrez et al., 2020; García-Martín & Cantón-Mayo, 2019). All possible influences include preliminary student understanding of ICT, experience in its use, ICT-use perceptions, computer skills, and demographics. According to Ibegwan (2016); Gómez-Fernández and Mediavilla (2021); Ladrón de Guevara et al. (2022), the internet is an extensive computer network composed of many individual computers operating under the “Advanced Research Project Agency (ARPA)” contract in 1969.

According to Fescemeger (2014), when the internet first got started, there were not many websites, making it relatively simple to keep track of the resources that were accessible. Later, though, as more institutions of higher learning and businesses connected to the internet, things began to alter. As a result, the internet has the potential to be an infinite space for information production and transmission. One of the biggest technological advances of the late 20th century was internet-published writings are significantly more adaptable than printed materials, which are fixed and limited (Ladrón de Guevara et al., 2022).

Ojekun (2014), asserts that the introduction of tertiary education over the internet served as a medium for researchers to exchange project work and facilitate communication. Education continues to be one of the biggest contributors to the internet right now. Since the commencement of ICT, the internet has served as a resource for information (Gómez-Fernández & Mediavilla, 2021; Lei, Xiong, Chiu et al., 2021). A wide range of international content was available to students every day of the week, around-the-clock. Effective internet use affects kids' academic achievement across a range of subjects and offers regular updates on what's occurring in our society. Students have benefited from this by increasing their level of knowledge in their studies, learning, and research (Gómez-Fernández & Mediavilla, 2021; Lei et al., 2021).

Students search for information while they are working on their theses (Lei et al., 2021; Kirschner, & Karpinski, 2017). Students have only lately had the chance to utilize the internet to look for and purchase academic materials, so they do not yet fully comprehend how effectively the channel is used (Kim et al., 2017; Koca & Berk, 2019). The types of information end users look for and find on the internet have been the subject of numerous studies, and it has repeatedly been found that electronic

sources are better than print sources (Ladrón de Guevara et al., 2022). The estimation shows that the internet was used to access about half of all scientific articles (Çebi & Güyer, 2020; Fernández-Gutiérrez et al., 2020).

The insufficiency of finance for the efficient running of tertiary institutions, particularly their libraries, has greatly affected the proper provision of information resources, adequate literate materials, and journals for the operation of modern libraries in most developing countries, Nigeria included, as a result of the increased focus on the internet and the numerous benefits that accrue to it (Ibegwan, 2016; Ibrahim, 2016). Most students with access to this technology now solely depend on the internet, and as a result, many of them have lost interest in using the library's resources (Ladrón de Guevara et al., 2022; Nneji, et al., 2022). Hence, this study is to determine the impact of internet use on tertiary institution students' academic performance (AP) using the perceptions of the Benin Study Centre of the National Open University of Nigeria (NOUN).

The following research question was asked to gain insight into this research study.

- **Research Question I:** What is the impact of internet usage on the AP of students in tertiary institutions?
- **Research Question II:** What are some of the difficulties encountered in the use of the internet by students in tertiary institutions?
- **Research Question III:** What are some of the benefits of internet usage for tertiary students?

Also, the following hypotheses, stated in their null form, were tested in this research study.

- **Hypothesis I (H₀₁):** There is no significant relationship between internet usage and the AP of students in tertiary institutions.
- **Hypothesis II (H₀₂):** There are no difficulties encountered in the use of the internet by students in tertiary institutions.

1.1. Literature Review

The internet, according to Wells (2015), is a computer-mediated communication device that provides users with access to a vast amount of information and cutting-edge communication technologies. The internet is a worldwide network of interconnected computer networks that provide services to countless of users exploiting the internet protocol suite. It's a network of networks made up of lots of private, public, academic, business, and government networks that range in magnitude from local to worldwide and are connected via a variety of electronic, wireless, and optical networking technologies. The "World Wide Web's (www)" interconnected hypertext texts and the infrastructure that supports electronic mail are among the information resources and services available on the internet (Onwuazo, 2015). According to Onwuazo (2015), the internet's foundation dates back to 1960s research commissioned by the US government in partnership with private commercial interests to build durable, fault-tolerant, and dispersed networks. The "National Science Foundation (NSF)" recognized a new US backbone in the 1980s, and private funding for more commercial backbones resulted in global participation in the development of new network technologies and network convergence. The commercialization of what had evolved into an international network had given rise to the widespread adoption and assimilation into nearly every element of contemporary human life by the 1960s.

According to Igun (2017), around a quarter of the world's population uses the internet's services. Only the "Internet Co-operation for Assigned Names and Numbers (ICANN)", a maintenance

organization, directs the overall definitions of the internet's two fundamental name spaces, the internet protocol address space and the domain name system (ICANN). The "Internet Engineering Task Force (IETF)", a non-profit organization with a loose international affiliation, is in charge of the technical foundation and standardization of the core protocol (IPV4) and related protocols (IPV6). Academic institutes and various students can hardly function without internet connections, especially in this era of information globalization explosion superhighway (Igun, 2017; Kumar & Kaur, 2015). Teaching, learning, resource sharing, research publication, and communication are all enhanced by the internet.

Findings from various scholars show that there are both positive and negative relationships between internet usage and AP (Ladrón de Guevara et al., 2022; Sengupta et al., 2018; Lei et al., 2021; Kates et al., 2018; Ibegwan, 2016; Ibrahim, 2016; Feng & Wong, 2019; Hou et al., 2021). In other words, the internet can have a two-fold impact on the AP of students (Ladrón de Guevara et al., 2022; Lei et al., 2021; Ibegwan, 2016; Ibrahim, 2016; Lau, 2017; Nneji, et al., 2022). This research is anchored in information processing theory. From the various empirical and literary reviews, it was discovered that there are limited studies on internet usage and AP in a computer-based learning institution such as the NOUN. This study therefore seeks to find out the impact of internet usage on the AP of students from NOUN, Benin Study Centre, Nigeria, using an exploratory study approach.

Evidently, this study will be beneficial to both students and tertiary institutions. Students should be able to understand the benefits of using the internet in their education based on the valuable feedback they receive from respondents. To improve their students' AP and deliver better results, institutes may spend more money on internet facilities. It's worth noting that the effectiveness, sufficiency, and accessibility of internet resources are determined by students and users. The research will also take a close look at a variety of online resources and how students can use them to improve their AP. This study is noteworthy because it will serve as a starting point for future researchers who are interested in this subject.

2. Methodology

2.1. Research Design

The survey research method was adopted in this study. According to Castellacci et al. (2018), survey research has to do with variables such as attitudes, opinions, values, and beliefs that contribute to the gathering of information about a group of people. The survey approach was chosen because it allowed data to be collected from a large target group using questionnaires and personal interviews. It's also used to figure out what a phenomenon's characteristic is. The study was able to measure respondents' thoughts, feelings, and attitudes in response to questions posed in the questionnaire using the survey method.

2.2. Population, Sample and Sampling Technique

A population is a group of people or individuals who share the same qualities or characteristics; it is a group of people, objects, or items from which samples are taken for statistical purposes (Castellacci & Tveito, 2018). Information from NOUN management reveals that there are about 900 students currently at the 400-level in the Benin Study Centre. 900 people therefore constitute the population for this research study.

A sample size of 300 was used as determined by the Taro Yamane's formula as expressed in Eqn. (1). while the convenience sampling technique was used to select the 300 respondents.

$$n = \frac{N}{1+N(e)^2} \quad (1)$$

n = the sample size, N = population Size = 900, e = Coefficient of confidence or error terms (= 0.05), 1 = constant.

$$n = \frac{900}{1+900(0.05)^2} = 300$$

2.3. Research Instrumentation

For the purpose of this study, the questionnaire was used as the instrument for data collection. The questionnaire was designed with the format of the 5-point Likert scale of: strongly agree (SA), agree (A), undecided (U), disagree (D), and strongly disagree (SD). The questionnaire consists of two parts: Section A and Section B. Section A deals with demographic information like age, gender, occupation, marital status, etc. Section B elicits responses on the impact of internet usage on the AP of students in tertiary institutions: a case study of NOUN, Benin Study Centre.

2.4. Validity and Reliability of the Instrument

According to Ladrón de Guevara et al. (2022), refers to the degree to which an instrument measures, what it is supposed to measure. The content validity of a measuring instrument can be determined by a panel of people who will judge how well it meets the standards. For this study, content validity was tested by discussing the instruments with a research specialist. The experts analysed the instruments' suitability in line with the research questions. The experts' comments assist in improving the validity of the questionnaires.

Reliability can be thought of as consistency. It shows if the instrument consistently measures what it is intended to measure. The research instrument's dependability will be confirmed by administering the questionnaire on different days to see if the responses vary. The test-retest method was used to test the reliability of the instruments. This pilot test also helped to improve the researcher's questionnaires. The reliability of the questionnaire will also be affirmed by varying the options in the research questionnaire to know if the respondent will choose different options. The reliability index calculated from the test-retest is 0.90.

2.5. Administration of the Instrument

This study was undertaken in two phases:

Phase I: Involved the researcher visiting and participating in order to be introduced, familiarized, and seek respondents' permission to be involved in the study.

Phase II: The researcher administered the questionnaires to the respondents. The researcher assured the respondents of the confidentiality of the information given.

Throughout the process of administering the questionnaire, the researcher was present to ensure that the questionnaires were completely filled and returned. This increases the accuracy and authenticity of the data gathered. Because of the careful method of questionnaire administration, all the questionnaires were completely filled out and retrieved. The researcher also used two research assistants, who were classmates, to help with the process.

2.6. Method of Data Analysis

This study employed the Chi-square (X^2) method to analyse and test the various hypotheses formulated in chapter one earlier. The choice of this test statistic is because it is one of the most non-parametric tests in applied statistics. Again, the fundamental assumption in the use of the Chi-square

(X^2) is that each observation on the same individual is treated as though it were independent of other observations.

The Chi – square (X^2) formula is given as;

$$X^2 = \sum_{i=1}^n \left(\frac{f_o - f_e}{f_e} \right)^2 \quad (2)$$

Where n = number of observations, f_o = observed frequency, f_e = expected frequency.

The sum or value of the Chi-square (X^2) obtained is compared with the critical value from the chi-square distribution table. The outcome gives room for the hypotheses formulated either to accept or reject alternative or null hypotheses.

3. Data Presentation, Analysis, and Discussion of Results

This section deals with the presentation of data and results from questionnaires administered. The results of this study are presented in tables and percentages, which will inevitably enhance clarity in understanding the research question and hypotheses.

3.1. Analysis of the Demographic Information/Data

The demographic information/data of respondents are presented in Table 1.

Table 1. Demographic information/data of respondents.

S/N	Demographic variables	Frequency	Percentage (%)
1	Gender		
	Male	135	45
	Female	165	55
	Total	300	100%
2	Marital Status		
	Married	50	16.67
	Single	160	55.33
	Divorced	50	16.67
	Separated	40	13.33
	Total	300	100%
3	Age		
	18 – 25	40	13.33
	26 – 33	60	20.00
	34– 41	80	26.67
	42 – 49	60	20.00
	50– 57	15	5.00
	58 and above	45	15.00
	Total	300	100%
4	Educational Qualification		
	Primary education	30	10.00
	Secondary education	70	23.33
	Diploma	90	30.00
	Degree and above	110	36.67
	Total	300	100%

Information or data from Table 1 shows that 135 respondents, representing 45% of the research, were males, while 165 respondents, representing 55%, were females. The data also reveals that 50 respondents are presented as married, which represents 16.67% of the research. 160

respondents are single, which represents 55.33%, and 50 respondents, representing 16.67%, are divorced, while 40 respondents, representing 13.33%, are separated. It therefore implies that the majority of the respondents were singles. Data on the age bracket of respondents shows that those aged eighteen to twenty-five constitute 13.33% of the research. 26 to 33 constitute 20.00% of the research. 34 to 41 made up 26.67% of the research. 42 to 49 constitute 20.00% of the research. 51- to 57-year-olds constitute 15.00% of the research, while persons within the age range of fifty-eight and above constitute 15% of the research. Data on academic qualification indicates that 30 respondents, representing 10.00% of all respondents, had a primary education. 70 respondents, representing 23.33% of the research, had secondary (SSCE) education. 90 respondents, representing 30.00% of the research, fall into the category of having a national diploma. The remaining 110 respondents belong to the degree and above category, representing 36.67% of the research. It implies that most of the respondents in this research study are educated.

3.2. Analysis of the Research Questions

Research Questions I: What is the impact of internet usage on the AP of students in tertiary institutions?

To answer this question, the respondents' scores were analysed and the summary is presented in Table 2.

Table 2. Impact of internet usage on the AP of students in tertiary institutions.

S/N	Statement	SA	A	U	D	SD	Total
5	The internet has a negative impact on my AP	100 (36.67%)	30 (10.0%)	10 (3.33%)	80 (26.67%)	70 (23.33%)	300 (100%)
6	The internet is time consuming and makes me not to study when I should	130 (43.33%)	30 (10.0%)	40 (13.33%)	60 (20.0%)	40 (13.33%)	300 (100%)
7	The internet is very resourceful when it comes to doing my assignment	100 (33.33%)	30 (10.0%)	100 (33.33%)	45 (15.0%)	25 (8.33%)	300 (100%)
8	The internet has broadened my knowledge of key academic subject matters. I believe it has a positive impact on my AP	70 (23.33%)	20 (6.67%)	30 (10.0%)	105 (35.0%)	75 (25.0%)	300 (100%)

According to the data (Table 2), 100 respondents (36.67%) strongly believe that the internet has a detrimental impact on their AP. 30 respondents agreed with 30.00%, 10 respondents were undecided with 3.33%, 80 respondents disagreed with 26.67%, and 70 respondents strongly disagreed with 23.33%. As a result, the internet has a detrimental impact on the AP of the majority of the respondents.

Table 2 also revealed that 130 respondents, or 43.33% of the total sample, strongly believe that the internet wastes their time and prevents them from studying when they should. 30 respondents agreed (representing 10%), 40 respondents were undecided (representing 13.33%), 60 respondents disagreed (representing 20%), and 40 respondents strongly disagreed (representing 13.33%). Data from Table 2 shows that 100 respondents, representing 33.33% of the research, strongly agree that the internet is very resourceful when it comes to doing their assignment. 30 respondents representing 10% agreed, 100 respondents representing 33.33% were undecided, 45 respondents representing 15% disagreed, and 25 respondents representing 8.33% strongly disagreed. It therefore implies that despite the fact

that the internet can be time-consuming and hinder studying, it is nevertheless resourceful when it comes to doing assignments.

Data from the above table shows that 70 respondents, representing 23.33% of the research, strongly agree that the internet has broadened their knowledge of key academic subject matters. They believe it has a positive impact on their AP; 20 respondents representing 6.67% agreed, 30 respondents representing 10.00% were undecided, 105 respondents representing 35.00% disagreed, and 75 respondents representing 25.00% strongly disagreed.

Research Question II: What are some of the difficulties encountered in the use of the internet by students in tertiary institutions?

To answer this question, the respondents' scores were analysed, and the summary is presented in Table 3.

Table 3. Difficulties encountered in the use of the internet by students in tertiary institutions.

S/N	Statement	SA	A	U	D	SD	Total
9	Erratic power supply is a major impediment to the use of internet	90 (30.0%)	85 (28.33%)	25 (8.33%)	60 (20.0%)	40 (13.33%)	300 (100%)
10	Finance is a major problem that hinders the use of internet. This is true because money is needed to subscribe.	100 (33.33%)	10 (3.33%)	15 (5.0%)	40 (13.33%)	135 (45.0%)	300 (100%)
11	Poor knowledge of computer among tertiary students is another hindrance to the use of internet	75 (25.0%)	60 (20.0%)	40 (13.33%)	50 (16.67%)	75 (25.0%)	300 (100%)
12	Internet can make one addicted to certain platforms like Facebook, and twitter etc.	120 (40.0%)	140 (46.67%)	3 (1.0%)	10 (3.33%)	27 (9.0%)	300 (100%)
13	Plagiarism is yet another problem that can arise from the use of internet.	170 (56.67%)	70 (23.33%)	10 (3.33%)	30 (10.0%)	20 (6.67%)	300 (100%)

Based on the data (Table 3), 90 respondents, representing 30% of the research, strongly agree that an erratic power supply is a major impediment to the use of the internet. 85 respondents, representing 28.33%, agreed, 25 respondents, representing 8.33%, were undecided, 60 respondents, representing 20.00%, disagreed, and 40 respondents, representing 13.33%, strongly disagreed. It therefore implies that an erratic power supply is a major impediment to the use of the internet among students in tertiary institutions. Data from the above table also revealed that 100 respondents, representing 33.33% of the research sample, strongly agree that finance is a major problem that hinders the use of the internet. This is true because money is needed to subscribe. 10 respondents, representing 3.33%, agreed, another 15 respondents, representing 5.00%, were undecided, 40 respondents, representing 13.33%, disagreed, and 135 respondents, representing 45.00%, strongly disagreed. It therefore implies that finance is a major problem that hinders the use of the internet among students of tertiary institutions. Data from the above table shows that 75 respondents, representing 25.00% of

the research sample, strongly agree that poor knowledge of computers among tertiary students is another hindrance to the use of the internet. 60 respondents, representing 20%, agreed, another 40 respondents, representing 13.33%, were undecided, 50 respondents, representing 16.67%, disagreed, and 75 respondents, representing 25%, strongly disagreed. Data from the above table shows that 120 respondents, representing 40% of the research sample, strongly agree that the internet can make one addicted to certain platforms like Facebook and Twitter, etc. 140 respondents, representing 46.67%, agreed, another 3 respondents, representing 1.00%, were undecided, 10 respondents, representing 3.33%, disagreed, and 27 respondents, representing 9.00%, strongly disagreed. It therefore implies that the internet can lead to certain addictions like Facebook, Twitter, pornography sites, and other irrelevant sites. 170 respondents, representing 56.67% of the research sample, strongly agree that plagiarism is yet another problem that can arise from the use of the internet. 70 respondents representing 23.33% agreed, another 10 respondents representing 3.33% were undecided, 30 respondents representing 10.00% disagreed, and 20 respondents representing 6.67% strongly disagreed. It therefore implies that plagiarism is another problem that can arise from the use of the internet.

Research Question III: What are some of the benefits of internet usage for tertiary students?

To answer this question, the respondents' scores were analysed, and the summary is presented in Table 4.

Table 4. Benefits of internet usage to tertiary students

S/N	Statement	SA	A	U	D	SD	Total
14	Internet usage makes work faster and easier	100 (33.0%)	70 (23.33%)	30 (10.0%)	70 (23.33%)	30 (10.0%)	300 (100%)
15	Access to the internet exposes you to various views as it relates to a particular subject matter of interest.	180 (60.0%)	60 (20.0%)	10 (3.33%)	35 (11.67%)	15 (5.0%)	300 (100%)
16	It connects you with people around the world.	120 (40.0%)	110 (36.67%)	10 (3.33%)	40 (13.33%)	20 (6.67%)	300 (100%)
17	It is a major source of material for academic research.	200 (66.67%)	19 (6.33%)	20 (6.67%)	11 (3.67%)	50 (16.67%)	300 (100%)
18	The internet has made learning easier. This is possible through online classes conducted in the National Open University of Nigeria	150 (50.0%)	20 (6.67%)	50 (16.67%)	30 (10.0%)	100 (33.33%)	300 (100%)
19	Internet usage has help to reduce ignorance among tertiary students	12 (4.0%)	20 (6.67%)	23 (7.67%)	125 (41.67%)	120 (40.0%)	300 (100%)
20	Internet usage has made knowledge vast. Hence it is a major contributor to the massive improvement in ICT around the world	120 (40.0%)	70 (23.33%)	30 (10.0%)	70 (23.33%)	50 (16.67%)	300 (100%)

According to the data (Table 4), 100 respondents (or 33.33% of the total sample) strongly agree that using the internet makes work go faster and easier. 70 respondents, or 23.33%, agreed, another 30 respondents, or 10%, were undecided, 70 respondents, or 23.33%, disagreed, and 30 respondents, or 10%, severely disagreed. As a result, using the internet makes work go faster and easier. Also, 180 respondents (or 60% of the total sample) strongly agree that having access to the internet exposes them to a variety of viewpoints on a topic of interest. 60 people agreed (20%), 10 people were undecided (3.33%), 35 people disagreed (11.67%), and 15 people severely disagreed (5%). As a result, access to the internet exposes pupils to a variety of viewpoints on a given area of interest. 120 people, or 40.00% of the total sample, strongly agree that the internet connects them with people all over the world. A total of 110 people agreed (36.67%), 10 people were undecided (3.33%), 40 people disagreed (13.33%), and 20 people strongly disagreed (6.67%). As a result, it implies that the internet connects people all over the world. 200 respondents (66.67%) strongly agree that the internet is a key source of material for academic study. 6.33% agreed, 20 respondents (6.67%) were undecided, 11 respondents (3.67%) disagreed, and 50 respondents (16.67%) strongly disagreed. As a result, the internet is a significant source of information for academic research. 150 respondents (or 50.00% of the total) strongly agree that the internet has made learning simpler. This is feasible due to the NOUN's online classes. 20 respondents agreed (6.67%), 50 respondents were undecided (16.67%), 30 respondents disagreed (10.00%), and 100 respondents severely disagreed (33.33%). As a result, it implies that the internet has made studying more convenient. This is feasible due to the NOUN's online classes. 12 respondents (4.00%) strongly believe that internet use has aided in the reduction of ignorance among university students. 20 respondents (6.67 percent) agreed, 23 respondents (7.67%) were undecided, 125 respondents (41.67%) disapproved, and 120 respondents (40 percent) severely disagreed. 120 people (or 40.00% of the total sample) strongly believe that the internet has expanded knowledge. As a result, it has made a significant contribution to the huge improvement in ICT around the world. 70 respondents, or 23.33 percent, agreed; 30 respondents, or 10%, were undecided; 70 respondents, or 23.33%, disagreed; and 50 respondents, or 16.67%, severely disagreed. Hence, internet use has resulted in a significant increase in knowledge. As a result, it has made a significant contribution to the huge improvement in ICT around the world.

3.3. Analysis of the Hypotheses

As stated earlier two hypotheses stated in their null form were be tested in this research work.

Hypothesis I (H₀₁): There is no significant relationship between internet usage and the AP of students in tertiary institutions.

In testing H₀₁, Question 5 (the internet has a negative impact on my AP) on the questionnaire was used.

To get expected frequency, $f = \frac{\text{Cumulative observed frequency}}{\text{Number of attributes}} = \frac{300}{5} = 60$

Table 5. Chi-square calculation for H₀₁

	O	E	O-E	(O-E) ²	(O-E) ² /E
SA	100	60	40	1600	26.67
A	30	60	-30	900	15.00
U	10	60	-50	2500	41.67
D	80	60	20	400	6.67
SD	70	60	10	100	1.67
Total	300				91.68

df= 5-1 = 4, df = 9.488 from the chi-square table

Decision Rule: If the likelihood of attaining a given or more extreme size when H_0 is true is equal to or less than some tiny amount, the researcher should reject the null hypothesis (H_0). In other words, reject H_0 if the statistics' estimated (empirical value) is more than the table (critical value) at the level of significance, but accept H_0 otherwise. From the analysis calculated, the empirical value is greater than the critical value (Table 5). We therefore reject H_0 and accept alternative hypothesis (H_1). Which says there is a significant relationship between internet usage and the AP of students in tertiary institution.

Hypothesis II (H_{02}): There are no difficulties encountered in the use of the internet by students in tertiary institutions.

In testing H_{02} , Question 9 (the internet has broadened my knowledge of key academic subject matters. I believe it has a positive impact on my AP) on the questionnaire was used.

$$\text{To get expected frequency, } f = \frac{\text{Cumulative observed frequency}}{\text{Number of attributes}} = \frac{300}{5} = 60$$

Table 6. Chi-square calculation for Hypothesis I (H_{01})

	O	E	O-E	(O-E) ²	(O-E) ² /E
AS	90	60	30	900	15.00
A	85	60	25	625	10.42
U	25	60	-45	2025	33.67
D	60	60	0	0	0
SD	40	60	-20	400	6.67
Total	300				65.76

df= 5-1 = 4, df = 9.488 from the chi-square table

Decision Rule: If the likelihood of attaining a given or more extreme size when H_0 is true is equal to or less than some tiny amount, the researcher should reject the null hypothesis (H_0). In other words, reject H_0 if the statistics' estimated (empirical value) is more than the table's critical value at the level of significance, but accept H_0 otherwise. The determined empirical value is higher than the critical value, according to the analysis (Table 6). As a result, we reject H_0 in favour of the H_1 . According to the report, students in tertiary institutions have obstacles when using the internet.

3.4. Discussion of Results

According to the findings of Hypothesis I (H_{01}) and Research Question I, there is a considerable link between internet usage and students' academic achievement in tertiary institutions. This finding is in line with Ladrón de Guevara et al. (2022); Ibegwan (2016); Ibrahim (2016); Azizi et al. (2019); Feng et al. (2019), findings, which found a strong positive association between internet usage and academic achievement in their study. The Chi square test was used to arrive at these conclusions, and Question 5 was used as a case study. The empirical value (91.68) was higher than the 9.488 in the tabular critical value. The Chi square decision rule was used. The H_1 , which states that there is no significant association between internet usage and the academic achievement of students in higher institutions, was rejected.

Findings from Hypothesis II (H_{02}) and Research Question II show that there are difficulties encountered in the use of the internet by students in tertiary institutions. These findings were based on a Chi-square test with Question 9 as a study. The empirical value (65.76) was greater than the table value, which is 9.488. Based on the chi-square decision rule, H_0 , which says there are no difficulties encountered in the

use of the internet by students in tertiary institutions, was rejected and the H₁ was accepted. This is consistent with the findings of Mashra et al. (2015); Ibegwan (2016); Ibrahim (2016), who discovered that major difficulties to internet usage are erratic electricity supply and lack of finance, amongst others.

Findings from Research Question III indicated that internet usage makes work faster and easier; it also revealed that internet usage connects people around the world. Also, it indicated that internet usage is a major source of material for academic research. Additionally, it also indicated that internet usage has helped to reduce ignorance among tertiary students. These findings are not consistent with the findings of Ladrón de Guevara et al. (2022); Ibegwan (2016); Ibrahim (2016); Azizi et al. (2019), who in their studies found out that internet usage, although it has what it takes to facilitate work, does not necessarily guarantee the speed of any task. According to them, the ability of the computer to make work faster and easier depends to a large extent on the know-how of the person operating the internet. Findings from Question 3 are nevertheless consistent with the findings of Ladrón de Guevara et al. (2022); Ibegwan (2016); Ibrahim (2016); Azizi et al. (2019); Sha et al. (2019); Pagani et al. (2016), who acknowledges in their studies the ability of the internet to make work faster and easier.

From the analysis and interpretation of data carried out, the following findings were made, as summarized below:

- There is a significant relationship between internet usage and the AP of students in tertiary institutions.
- There are various difficulties encountered in the use of the internet by students in tertiary institutions.
- Internet usage makes work faster and easier.

4. Conclusion and Recommendations

Undoubtedly, the internet has opened the door to a new mode of learning. The amount of information available far outnumbers the contents of any physical library. In terms of academic purposes, the internet holds the most enviable position among the different uses available to students. They do, however, confront numerous hurdles while using the internet for academic purposes. Such as the never-ending power outage and the heinous network malfunction. There is a need for tertiary institutions to obtain high-capacity generators that can be used as a backup in the event of a power outage. In order to enable students to meet their information needs, tertiary institutions should ensure that suitable internet connections are available in their individual libraries.

Based on the study carried out so far and the findings made, the following recommendation is made:

- As a matter of policy, the government and other relevant stakeholders should see to it that all tertiary institutions have a well-equipped electronic library. This will eliminate the financial barrier encountered in the use of the internet by students in tertiary institutions.
- Findings from this study indicated that a major hindrance to the use of internet facilities in tertiary institutions is the erratic power supply. Hence, tertiary institutions should make provision for backup electricity supply (generators). This is imperative to enable students to make use of the internet when there is power failure.
- Students with no knowledge of basic computers should enrol in computer training so they can take advantage of the vast benefits the internet has to offer.

- Students should use the internet for profitable reasons like academic assignments and research projects instead of getting addicted to social media platforms like Facebook and Twitter.
- Students should be lectured on the consequences of plagiarism. This will help them not to get involved in plagiarism and other copyright offenses.

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