Science Student Teachers' Perception of Internet Use on Their Performance in Science at Bagabaga Colleges of Education, Tamale

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ABSTRACT

The internet has become a very important platform for many activities. It has gained prominence in many sectors including the educational sector. In this modern era, the rapid advancement of internet has revolutionized the way we access and disseminate information. This quantitative descriptive research was conducted to find out the science student teachers' perception of internet use on their academic performance in science at Bagabaga College of Education in the Northern Region of Ghana. Bagabaga College of Education was purposively selected in the Northern Region for the study. Random sampling technique was used to get participants to participate in the study. In all, 20 science student teachers were selected to form the sample. A survey design was used that sought to get the perceptions of the internet use on the academic performance of the Participants. The instrument used to collect data for the study was the questionnaire which participants responded to. The questionnaire was administered by the researcher himself to seek the opinions of the science student teachers' on the use of internet at the Colleges of Education. The data collected was presented in simple numbers and percentages for analysis. The results showed that the student teachers' perceived internet to be very important to their studies. On the advantages, 55% to 60% of the students saw internet as advantageous to their studies. Also, 35% to 40% felt journals were very important. The results also indicated that the students' use of internet really impacts positively on their performance in science. The study further revealed challenges to the use of internet among students; prominent among which was the lack of skills to search for information. It is therefore, highly recommended that students be given training on how to search for information in the internet

Keywords: Internet, Science, Science Student Teachers, student teachers' performance

Introduction

In the modern era, the rapid advancement of internet has revolutionized the way we access and disseminate information. The internet, in particular, has emerged as a transformative tool, offering an unprecedented wealth of knowledge at the click of a button [4]. In the field of education, the internet's integration into academic settings has opened up vast possibilities for enhancing teaching and learning experiences. For aspiring educators, such as science student teachers, the internet holds immense potential to influence their performance and pedagogical practices positively.

In the rapidly evolving landscape of education, the integration of technology has become increasingly prevalent, revolutionizing the way students learn and teachers instruct. Among the numerous technological advancements, the internet stands out as an indispensable tool that has redefined the boundaries of

knowledge access and collaboration. Internet is the collection of millions of computers around the world that are interconnected and serves as a medium that has no limitation of information on each other [19]. The use of internet in the educational environment has enabled easy access to many resources, and information sharing has therefore increased significantly [20], allowing information seekers to get it in the comfort of their homes or workplaces. As future educators, science student teachers play a pivotal role in shaping the learning experiences of the next generation, and their proficiency in utilizing the internet could significantly impact their performance and teaching practices [10].

Bagabaga College of Education, situated in the Northern Region of Ghana, stands as a crucial bastion for nurturing the next generation of teachers. It is here that aspiring science educators receive comprehensive training to become proficient facilitators of science education in basic schools across the region and beyond. As they embark on this transformative journey, they are inevitably exposed to the manifold possibilities presented by the internet.

The aim of this study is to delve into the perceptions of science student teachers regarding the use of the internet and its potential impact on their academic performance in science. Understanding how these aspiring educators perceive the integration of internet resources into their learning process can shed light on the effectiveness and implications of technology adoption in teacher education.

This research will explore a range of essential facets, including the extent to which science student teachers utilize the internet as a supplementary learning tool, the types of online resources they find most valuable, and the perceived influence of internet use on their overall academic performance in science-related subjects. Moreover, the study will also investigate potential challenges faced in incorporating the internet into their educational journey and how these obstacles can be mitigated to optimize the benefits of technology-assisted learning.

By exploring the perceptions of science student teachers at Bagabaga College of Education, this research aims to contribute valuable insights into the dynamic interplay between technology and education. The findings will not only add to the existing body of knowledge concerning internet use in teacher training but also provide valuable recommendations to educators, administrators, and policymakers to enhance the integration of technology into teacher education programmes effectively. Ultimately, fostering a deeper understanding of the impact of internet use on science student teachers' performance can empower educators to create more enriching and effective learning environments, equipping them to inspire the scientists and innovators of tomorrow.

Purpose of the Study

This research was designed to examine science student teachers' perception of internet use in Bagabaga Colleges of Education in the Northern Region of Ghana. The study solicited the views of science student teachers about the use of internet. It was to ascertain whether student teacher use the internet for their studies. It further examined how science student teachers perceive internet to be. The research also looked at the possible challenges the science student teachers face in using the internet in Bagabaga Colleges of Education in the Northern Region of Ghana.

Research Questions

The following research questions guided the study.

1. How do Science Student Teachers get internet in the Colleges of Education in the Northern Region for their academic purposes?
2. Which internet tools do Science Student Teachers use for information for their studies in the Colleges of Education in the Northern Region?
3. What are the advantages of Science Student Teachers' use of internet has on their performance in science in the Colleges of Education in the northern region?
4. What challenges do Science Student Teachers face in using internet in the Colleges of Education in the Northern Region?

Limitations of the Study

While studying the science student teachers' perception of internet use on their performance in science at Bagabaga College of Education in the Northern Region can provide valuable insights, it is essential to acknowledge the potential limitations of this research. These limitations include:

Sample Size and Representativeness: The study's sample size was limited due to logistical constraints or the availability of participants. As a result, the findings did not fully represent the entire population of science student teachers at Bagabaga College of Education, potentially limiting the generalizability of the results.

Context-Specific Factors: Bagabaga College of Education in the Northern Region may have unique characteristics, including cultural, social, and infrastructural factors, which influenced science student teachers' perception of internet use differently than in other regions or institutions. Hence, the findings may not be applicable in all educational settings.

Subjective Nature of Perception: Perception is subjective and can be influenced by individual attitudes, beliefs, and experiences. As a result, measuring the impact of internet use on performance solely based on perception may not fully capture the objective changes in academic achievements.

External Factors: Various external factors, such as personal circumstances, external support, or other technological distractions, may have influenced science student teachers' internet usage and, consequently, their performance. These factors could not be fully accounted for in the study.

Literature Review

In a study conducted at Aligarh Muslim University on the Information Searching Behaviour of internet users, [15] tried to determine the extent to which internet users were aware of internet resources and services availability. The study also examined the internet searching behaviour of internet users using questionnaire. The study revealed that the online database as well as e- journals were the preferred resources users sought to use for information. According to [15], E-mail, World Wide Web and search engines were recognised by the respondents as very important internet services that were useful to them.

To determine the Internet access and use among Business students in Darul Ihsan University, a pioneer private University in Bangladesh, [13] used questionnaire as a data collection tool. In that study, the survey findings revealed that a high percentage of users are students and they purposely use internet for educational purposes. He found that students' access point of Internet was the University campus where it is provided for the use of the students. It found Google and Yahoo as search engines that were more widely used by students to access information for their academic work.

In their work on the types of academic internet resources for IT students' individual work management, [6] did a very extensive categorisation of internet resources. According to them, internet resources can be categorised into three. These are formal, non- formal and informal. Under the formal type of internet resource, they identified; educational resources portal, electronic library resources and educational resources video sharing. Under non- formal type of internet, they found social net comprising of blogs and forums, MOOCs comprising courser, Udacity, Khan Academic and Prometheus. Finally, under the informal type of internet resource, [6] identified magazines, books and news. To them using specially made academic resources such as a video lecture, a lesson in electronic academic courses enables increasing effectiveness and students' satisfaction of academic process. Such non-formal instruments for gaining new knowledge and abilities as professionally oriented sites, thematic webinars widen students' opportunities in self and professional development [6].

[20], looked at internet sources from a very different point of view. In their work on the use of internet resources by university students during their course projects elicitation: a case study, they hold the view that even though the internet is a very important and indispensable source for students, the issue of whether the referenced source is trustworthy and/or credible, has been raised. In their opinion, this is because there is no control on any particular piece of information published through the Web, in opposition to the scientific and professional journals published by the scientific institutions, business world and the organizations known to the public. Additionally, they maintain that other journals and books issued by commercial organizations do not have a control unit including editors and referees. They further indicated that Many of the sites on the Internet enable anybody to submit any kind of information without being controlled, and many of the sites known as reliable are restricted to open access for commercial purposes or security requirements (IP restriction, membership). According to them, this limits the accessibility for students and deprives them of these sites.

[2], view electronic resources on the internet as manifesting themselves in numerous flavours and categories. Assessing availability of resources on the internet in their study on the usage of internet resources among users, [2], noted that the number of resources available on the internet today is immense. They identified the resources as: Electronic journals, electronic conferences, online- courseware and tutorials, patents and standards, electronic preprints, Science news and communication, technical reports, and electronic thesis and dissertation. They hold that companies, organisations, educational institutions, communities, and individual people all serve as information providers for the electronic internet community.

There have also been series of research works done to explore the trends and practices of accessing online information on science academics of higher education in developing countries. These studies conclude that Faculty members of sciences are seeking e-modes to meet their e-scholarly information needs. This is evident in a study by [7] on Information sources available to engineers' point of views and categorically stated that information sources could contain relevant information. Sources of engineering information can also be classified in various ways, namely technical or non-technical, oriented to project or to profession, public or private, printed or generated on site, and of continuing or ephemeral value. Information sources can also be distinguished as external and internal sources, human and documentary sources, or formal and informal sources of information.

In researching on the use of the Internet among final year students of the Faculty of Information Management, Universiti Teknologi Mara, Puncak Perdana and the impact of its use on their academic achievement, [21] carried out a quantitative survey on 206 respondents using questionnaire as the main

instrument. The data obtained was analysed using frequencies, percentages and rank orders. They found the use of Facebook, the internet, media usage for online education, online media usage for non- education and students interest in the university as the factors that affect student's academic achievement. The results showed that Facebook had a positive correlation in influencing students to improve their academic achievement. They also found that online media usage for education and non- education play an important role in influencing students' academic achievement.

On gender and internet use pattern on pre- service teachers in a Nigerian College of Education [1] did an extensive work on it. In their work, they administered questionnaire to 194 final year students of federal college of education, Abeokuta to collect data on internet use pattern of students. The results indicate that getting information for school work, communication, chatting and social networking are the major use to which the students put the internet. Their findings showed that there is a significant difference in the general internet and specific use of the internet by male and female participants, while there is also a significant difference in the general feelings of the male and female participants to internet use. This indicates that gender affects both use and feeling of pre-service teachers about the internet. It therefore implies that gender is a major factor to be considered in use of as well as feeling about the internet.

[11], also undertook a research on the assessment of internet services availability, accessibility and utilisation for professional development of secondary school teachers in Lagos State, Nigeria. They randomly selected and administered questionnaire to 188 teachers Education District 1 in Lagos comprising of Alimosho, Agege and Ifako/Ijaiye secondary school teachers. The study revealed that the available internet services in secondary schools were not adequate. The accessibility and usage was a matter of concern.

Several factors and impediments hinder the successful usage of internet by students [11] that militate against access to information. Internet according to them, cost, infrastructural inadequacies, lack of skills, lack of relevant software and limited access to the internet are some of the challenges to the use of internet. They further opined that internet service companies provide poor services to their clients who are unsuspectingly exploited and defrauded. They were of the view finally that much of the challenges could be laid on the fact that power supply to especially rural areas are inadequate and hence schools located in those areas are not able to get access to internet thereby being cut- off from the information superhighway.

[8] observes that the introduction of internet in education has not revolutionised education and that a great deal of internet equipment which are worth millions and purchased by educational institutions remains unused or under- utilised, making such equipment become obsolete even as internet services provide a modern way of teaching and learning, electromagnetic radiation, straightening of eyes and distraction of organs are the harmful effects users have to contend with [24]. In looking at challenges facing users of internet, [15] identified slow speed of internet, lack of training, and information overload as the very important factors affecting the usage of internet.

[1] posits that some problems students face in their use of the internet include slowness of the server and payment for the access time. Students sometimes have to buy data on their own to get access to the internet putting so much pressure on their pockets. The internet itself can be frustrating to the students by its slow nature making students unable to quickly access information for their academic purposes. The Internet can be beneficial for students as it allows them to obtain relevant academic information and can also offer other possibilities that may be harmful to their academic experiences [22]. In their work on the Information technology internet usage among the undergraduate students in eastern province, Sri Lanka, [14], found that students have problems using the internet because of slow internet, power failure and high cost

involved in getting the internet connectivity. To [18], the greatest challenges to the full utilisation of the internet are inadequate access, inherent risk and problems of pornography, scams among others. Such challenges sometimes deter students from using the internet which could have been a very big opportunity for students to learn leaving students with teachers and lesson notes as alternatives. In a work to study the internet access and usage by University of Botswana students, [17] found that computers with internet facilities were still inadequate which made students to lose the opportunity to get access to the internet.

To [3], the challenges users have to face in using the internet resources are; Lack of skills, ineffective user education, time constraints, efficiency of server, Poor electricity supply. According to [3], these are the main hindrance barring the effective use of online electronic information resources.

Research design

The research design the researcher used for this study was survey. Survey can take many forms. Survey that seeks to take a snapshot of what is happening in a group at a particular time is known as cross-sectional survey. A survey can also be carried out over time in a group to measure their behaviour or attitude. This type of survey is known as longitudinal survey. A survey may also seek to explore causal relationship between two or more variables [12]. This is known as correlational survey.

The type of research survey design I used was the cross- sectional design. Since I needed to carry out at just one point in time of what was happening in the selected colleges at a particular time. According to [12], cross-sectional survey usually take a descriptive or exploratory form that simply sets out to describe behaviour or attitude. Since the study intended to find out the perception of the science student teachers of the use of internet at the College of Education at that particular time this type of survey was the most appropriate.

Quantitative method of research was used to be able to analyse the numbers of data collected and to represent the results pictorially. According to [5], quantitative method is used to provide opportunities to the researcher to produce quantifiable and reliable data that can be generalised to the larger population. This therefore made it possible for the results to be presented in different forms for different category of readers to consume. This quantitative research was also used to allow the researcher to test the research questions with the help of statistical tools [5]. To [5], quantitative research design has good qualities that makes it capable to explore the phenomena under discussion since the research can be elaborate in statistical modes including forms, tables and graphs.

Population

This research targeted all level 100 science student teachers in all the 46 Colleges of Education in Ghana. The target population involves all the possible participant who stand the chance of being selected. They involve those that qualify to take part in the research. The target population were all the science student teachers who were admitted to all the Colleges of Education all over the country. The population that can be accessed by the researcher is known as the accessible population. The accessible population was the 69 science student teachers who were admitted into Bagabaga College of Education in the Northern Region of Ghana. There were those that were available to me to take part in the research. The sample size involved 20 participants from Bagabaga College of Education in the Northern Region of Ghana out of 69.

Sample and sampling procedure

The number of sample representing the populations is paramount and can determine the way the results will turn out. According to [16], for a population under 1000, a researcher needs a sample ratio of about 30%. The total population of the science student teachers in the College was 69. However, the nature of this research did not allow me to use all of them. There was therefore the need for me to get a representative population that I could use for the study. I then applied the 30% rule on the population of 69. This gave me 20.7 participants. The researcher then rounded the figure to 20 participants. The researcher applied simple random sampling to get the participants.

Research instruments

The instrument used to collect data for this research was the questionnaire. The questionnaire was used because the research was carried out to seek the opinions of participants. Therefore, this research work used questionnaire as the main instrument for the data collection. The questionnaire was used to obtain primary data for the researcher to get to understand student teachers familiarity and usage of internet. Since the primary aim of the research was to find out the perception of science student teachers about the use of internet, questionnaire was the appropriate instrument that could be used for that purpose.

Results and discussions

Table 1a: The length of time science student teachers have been using internet

BACE	4 Months	5- 8 Months	Above 9 Months
	1 (5%)	0 (0%)	19 (95%)

Concerning the length of time science student teachers have been using internet, the data shows that they have been using it for long. As indicated in Table 1a, science students have been using internet even before gaining admission into the College. 19 out of the 20 participating students in this research representing 95% indicated that they have been using internet above 9 months. However no student indicated that they have used it between 5 and 8 months.

Table 1b: Science student teachers first experience in using internet

BACE	Exciting	Not Exciting	Boring
	15 (75%)	5 (25%)	0 (0%)

Science student teachers first experience with the internet was exciting. 15 (75%) of the science student teachers found internet exciting during the first experience. The data also showed that 5 (25%) did not find internet exciting. No student from the College however found internet boring.

Table 1c: Science student teachers reasons for using internet

BACE	Academic	Social Media	Others
	4 (20%))	16 (80%)	0 (0%)

From Table 1c, it can be seen that student teachers reason for using internet points strongly to social media. 80% of the science student teachers showed that they mainly used internet for social media and only 20% used it for academic purposes. Aside the two, no other indication was shown for the use of internet by the participants in all the College. This clearly shows that science student teachers only used internet for purposes of chatting in social media and academic work.

Table 1d: Science student teachers of feeling of usefulness of internet services

BACE	Useful	Same as Before	Not Useful
	18 (90%)	0 (0%)	2 (10%)

Internet services was found to be useful as shown in Table 1d. High number of 18 of science student teachers found internet services useful. The data indicates that science student teachers know of the usefulness of internet services as such rely on it to source information for their academic work as well as their social interaction. However, 2 science student teachers found internet not useful. To this group of student teachers, the traditional libraries can best serve them than the internet. This can be seen that science student teachers after their first experience found the internet useful but a few of them too would still not see it as useful as the others had seen. Again, none of the students indicated they had the same experience when using internet for their studies as their first time. The students either believe internet was useful to them or not useful.

Table 1e: Science student teachers place of access to internet services

BACE	Dormitory	School	Library
	2 (10%)	20 (100%)	4 (20%)

Science student teachers in the College under consideration access internet services mainly from the college campus. From Table 1e, the research found that all the participants were of the view that they can get access to internet when they are on the college campus. A few others also believe they access the internet in the dormitory with the rest holding the view that they can access internet in the library. The research found that the internet is strong especially around the classes' areas, library and weak at the dormitories. That accounts for science student teachers only getting full access to the internet only at the classes' area and in some cases at the library.

Table 1f: Search Engines Student Teachers Use

BACE	Online Library Websites	Web Portals	Web Search Engines	Social Media
	0 (0%)	2 (10%)	20 (100%)	2 (10%)

The appropriate choice of the search engine goes a long way to determine how effectively internet is used. Data obtained on science student teachers' choice of search engines turned out to be interesting. Hundred percent (100%) of the students in the College indicated that they use web engines as shown in Table 1f above. Again, 2 students representing 10% chose social media as a useful search engine. On web portals, only 2 students representing 10% used it to search for information. No student from the College used online library websites for information.

Type of internet tools science student teachers use

This sought to answer which types of internet tools science student teachers used. This was the data obtained in Bagabaga College of Education. The internet tools that were identified were journals, online library catalogues, electronic books, workshops/seminars, reports, social network sites, research repository, magazines, mailing groups and social media platforms. In all, the respondents had options of personal subscription, institutional subscription, free access and not available to choose from. Table 2 is as presented.

Table 2: Science student teachers internet access mode

	Personal Subscription	Institutional Subscription	Free Access	Not Available
Journals	0 (0%)	9 (45%)	7 (35%)	4 (20%)
Online Library catalogues	0 (0%)	9 (45%)	6 (30%)	5 (25%)
Electronic Books	0 (0%)	12 (60%)	7 (35%)	1 (5%)
Workshops/Seminars	0 (0%)	12 (60%)	5 (25%)	3 (15%)
Reports	0 (0%)	13 (65%)	3 (15%)	4 (20%)
Social network sites, i.e.; blogs,	0 (0%)	10 (50%)	6 (30%)	4 (20%)
Research repository	0 (0%)	12 (60%)	3 (15%)	5 (25%)
Magazines	0 (0%)	13 (65%)	1 (5%)	6 (30%)
Mailing groups	0 (0%)	12 (60%)	3 (15%)	5(25%)
Social media platforms, i.e.; Facebook, WhatsApp	20 (100%)	0 (0%)	0 (0%)	0 (0%)

Data obtained showed strong indication that science student teachers relied heavily on the institutional subscription for access to online services for their academic work. In all the categories, there was no indication that science student teachers obtained information through their personal subscription. This can be seen in Table 2. However, all the participants indicated that they used social media platforms through their own subscription. Again, 45% to 65% of the participants in Bagabaga College of Education indicated that institutional subscription granted them access to internet services unlike social media platforms. This is clearly shown in the Table 1a above. Participants also got access to internet via the free access points. As can be seen on the table above, as high as 35% of the participants' access journals and electronic books through the free access mode. It is instructive to note that some participants are not able to access as some of them actually indicated that those internet services are not available to them. Except social media platforms, from 5% to 30% of the science student teachers showed that the internet services are not available to them. This explains why some science student teachers do not use internet to access information for their academic work.

From the results in Table 2, it can be seen clearly that the science student teachers' main source of getting access to the internet is either the institutional subscription or the free access portals. Students do not find it worthwhile to use their money to subscribe to get access to the internet for their studies. However, they can use their smartphones to download the social media apps to chat as is shown in the table above. This confirms what some researchers have found in their work that most college students once sat in front of computer to use chat tools [23]. This goes to prove that college students using internet rather use it to chat instead of academic purposes.

Another point that is interesting and worth mentioning is the fact that students will not make any effects at all to use the internet but only relying on the fact that internet is not available to them. This group of students do not care to search for information from the internet, and hence, feel that what they are looking

for cannot be found in either the free access points or the institutional subscription portals. This group of students will rather use the traditional libraries than use the internet.

Importance of internet resources to students

Table 3 presents data on the type of internet resources science student teachers use for information. The internet tools that were identified were journals, online library catalogues, electronic books, workshops/seminars, reports, social network sites, research repository, magazines, mailing groups and social media platforms. The student teachers were to respond by choosing very important, important, some important, not important or don't know. Data related to the types of internet resources that can improve student teachers academic improvement is presented in Table 3.

Table 3: Importance of internet resources students

		Very important	Important	Some Important	Not important	Don't Know
	Journals	8 (40%)	7 (35%)	3 (15%)	0 (0%)	2 (10%)
	Online Library catalogues	9 (45%)	3 (15%)	4 (20%)	0 (0%)	4 (20%)
	Electronic Books	11(55%)	5 (25%)	2 (10%)	0 (0%)	2 (10%)
	Workshops/Seminars	12 (60%)	5 (25%)	1 (5%)	0 (0%)	2 (10%)
	Reports	11 (55%)	3 (15%)	2 (10%)	1 (5%)	3 (15%)
	Social network sites, i.e.; blogs, wikis etc.	12 (60%)	4 (20%)	1 (5%)	1 (5%)	2 (10%)
	Research repository	11 (55%)	6 (30%)	1 (5%)	0 (0%)	2 (10%)
	Magazines	8 (40%)	6 (30%)	4 (20%)	0(0%)	2 (10%)
	Mailing groups	8 (40%)	4 (20%)	4 (20%)	1 (5%)	3 (15%)
	Social media platforms, i.e.; Facebook, WhatsApp etc.	14(70%)	2 (10%)	3 (15%)	0 (0%)	1 (5%)

On the type of internet services available to Bagabaga College of Education, science student teachers, data indicates that student teachers were aware of the resources available to them and their importance. 8 science student teachers representing 40% and 7 student teachers representing 35% felt journals were very important and important respectively. They actually believe that the resources were of importance to them because 0% indicated not important with 2 student teachers represent 10% not too certain about its importance as indicated in Table 3.

On the issue of Online Library catalogues 9, 3 and 4 science student teachers representing 45%, 15% and 20% showed that it was very important, important and somehow important respectively to them. No student thought it was not important but 20% of the students were not sure of its importance. This is presented in Table 3.

In Table 3, electronic books, workshops/ seminars, reports, social network sites, magazines and mailing groups equally were generally acclaimed to be important to science student teachers in the College. Only a few of them really believed they were not important to them. A few others were also undecided on their importance to them. As many as 14 science student teachers from the College representing 70% knew social media was very important to them. Ten percent and 15% still believe social media is important, and somehow important respectively to them academically with just 5% uncertain about that.

Advantages of internet to science student teachers

Table 4 presents data on the advantages of internet use to science student teachers. The advantages that students teachers were to choose from were; multiple choice format, fast access, multiple user access, easily accessible at any place, access to wide range of information, quick retrieve ability, updated resources, mostly resources are freely accessible, full text searching, links to other resources, multimodality and readable on mobile/ portable devise. The science student teachers were in; strongly agree, agree, neither agree nor disagree, disagree and strongly disagree. The data is as presented in Table 4.

Table 4: Advantages of internet to science student teachers

		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
	Multiple choice formats	12 (60%)	4 (20%)	3 (15%)	1 (5%)	0 (0%)
	Fast access	12 (60%)	4 (20%)	4 (20%)	0 (0%)	0 (0%)
	Multi user access	12 (60%)	5 (25%)	3 (15%)	0 (0%)	0 (0%)
	Easily accessible at any place	12 (60%)	5 (25%)	3 (15%)	0 (0%)	0 (0%)
	Access to wide range of information	12 (60%)	5 (25%)	3 (15%)	0 (0%)	0 (0%)
	Quick retrieve ability	12 (60%)	4 (20%)	4 (20%)	0 (0%)	0 (0%)
	Updated resources	11 (55%)	4 (20%)	4 (20%)	1 (5%)	0 (0%)
	Mostly resources are freely accessible	10 (50%)	4 (20%)	4 (20%)	2 (10%)	0 (0%)
	Full text searching	12 (60%)	3 (15%)	5 (25%)	0 (0%)	0 (0%)
	Links to other resources	13 (65%)	3 (15%)	4 (20%)	0 (0%)	0 (0%)
	Multimodality (text, audio, visual etc.)	12 (60%)	3 (25%)	4 (20%)	1 (5%)	0 (0%)

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Readable on Mobil/portable devises	12 (60%)	5 (25%)	3 (15%)	0 (0%)	0 (0%)

The advantages of internet services on the academic performance of science student teachers cannot overemphasized. As can be seen from Table 4, there was a general agreement on the part of science student teachers in the College about the advantages of internet to them. On the multiple choice formats of internet resources, 60% of the students in the College strongly agreed, 20% of them also agreed with 15% of them undecided on that issue. However, 5% disagreed to it being advantageous. On the issue of the internet giving fast information, 60% of them agreed strongly, 20% agreed and 20% of them were undecided. In similar fashion, there is strong agreement in other categories as can be seen from the high numbers on the table 4. Only a few of them were undecided with very small numbers disagreeing.

On the issue of internet allowing full text search, 60% and 15% of the students strongly agreed and agreed respectively. It is seen that the students believe in the internet as it can allow them the chance to search for a full text instead of getting it bit. The students feel is good that way because only 25% of them neither agreed nor disagreed with no one disagreeing.

Challenges science student teachers face in using internet resources

On the challenges science student teachers faced in using the internet, a number challenges were identified. The challenges were; lack of computer facilities in the Colleges, power failure, slow internet connectivity, non- connectivity, inability to use computer, inability to find relevant information, lack of information about how to use internet resources, lack of time acquire the skill to use internet resources, lack of support from the IT department, less resources available to your subject area and health constraints. The science student teachers were to show their agreement or otherwise. The options were; strongly agree, agree, neither agree nor disagree, disagree and strongly disagree. Table 5 presents results for College

Table 5: Challenges to the use of internet by Science Student Teachers

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Lack of computer facilities in the COE	11 (55%)	3 (15%)	1 (5%)	7 (35%)	0 (0%)
Power failure	7 (35%)	6 (30%)	5 (25%)	1 (5%)	1 (5%)
Slow internet connectivity	12 (60%)	3 (15%)	3 (15%)	1 (5%)	1 (5%)
Non- connectivity	8 (40%)	5 (25%)	5 (25%)	2 (10%)	0 (0%)
Inability to use computer	2 (10%)	3 (15%)	0 (0%)	5 (25%)	10 (50%)
Inability to find relevant information	5 (25%)	3 (15%)	3 (15%)	2 (10%)	7 (35%)
Lack of information about	7 (35%)	7 (35%)	2 (10%)	2 (10%)	2 (10%)

how to use internet resources					
Lack of time to acquire skills to use internet resources	4 (20%)	3 (15%)	3 (15%)	4 (20%)	6 (30%)
Lack of support from the IT department	12 (60%)	5 (25%)	0 (0%)	3 (15%)	0 (0%)
Less resources available to your subject area	3 (15%)	3 (15%)	3 (15%)	4 (20%)	8 (40%)
Health constraints	8 (40%)	6 (30%)	2 (10%)	3 (15%)	1 (5%)

There is no doubt that the use of internet presents certain challenges to its users. Data obtained from respondents indicated that science student teachers are very much aware of the challenges associated with use of internet. Student teachers were asked to indicate their agreement or otherwise of certain challenges common with use of internet. Data obtained indicated that science student teachers knew of the challenges and actually agreed to the hindrance to the use of internet. From Table 5, 60% of the respondents strongly agreed that slow internet connectivity and lack of support from the IT department were major challenges confronting internet users. For student teachers inability to use computers, 50% and 25% of the respondents strongly disagreed and disagreed respectively. This indicates that inability to use computer is not a challenge at all to the students. On lack of information about how to use internet resources, 35% strongly agreed and 35% also agreed to it, showing that there is some high level of positive response to that. Equally, the respondents agreed generally that health constraints to the use of internet is a challenge to them. 40% and 30% strongly agreed and agreed respectively to that. The results obtain is not far from [11] that the cost, infrastructure inadequacies, lack of skills, lack of relevant software and limited access to internet are some notable challenges against the use of internet.

Summary of the Findings

On the issue of internet resources availability and accessibility, the data revealed that majority of the science student teachers were aware of the availability. The student teachers main mode of accessing the internet resources were journals, online library catalogues, electronic books, workshops, reports, social network sites, research repository, magazines, and mailing groups were mainly accessed through institutional subscriptions. The data in table1 shows that majority of the participants mainly access the internet resources through institutional subscriptions. However, social media platforms did not follow the same trend. It can be seen that all the science student teachers indicated that they access social media platforms from their personal subscriptions. It can therefore be concluded that science student teachers would not mind buying data to access social media platforms but would only wait to connect to the internet through institutional subscriptions for their studies.

There was a strong agreement by the participants that the internet resources were important to them. Except a few of them who were not very familiar with internet resources and so indicated they did not know, majority thought it was very important to them. Journals, online library catalogues, electronic books, workshops/ seminars, reports, social network sites, magazines and mailing groups equally were

generally acclaimed to be important to Science Student Teachers. Science Student Teachers therefore saw those internet resources as important and would hence use them to search information for their academic work.

Science Student Teachers performance in science is influence directly by their use of internet. Analysing the means of the examinations results of students' first and second semester, it is revealed that students' performance increased significantly after they consciously became aware of internet resources. The mean of the College in the first semester is smaller than the mean of the Colleges in the second semester. This shows that the science student teachers performance went up indicating the impact the internet has had on the performance of the students. The findings agrees with [9] who found the effects of internet on the academic performance on tertiary institutions students to be beneficial tools in the era of information and communication technology used in academic exercise.

The study also found that the student teachers were using the internet for the first time whiles others had used it above nine months. Those who were using it above nine months used it productively than those who using it the first time. As such the first time users did not benefit from internet as those using above nine months. Furthermore, the study found that the science student teachers found internet exciting during their first time of usage. A few of them found it not exciting. Those who found it exciting used it more productively than those who found it no exciting. On science student teachers reason for using internet, majority of them used it for social media whiles the rest used it for academic purposes. Those who used it for social media also claimed they benefit academically from the use of internet.

The data also revealed that the science student teachers found the internet useful. The data indicates that science student teachers know of the usefulness of internet services as such rely on it to source information for their academic work as well as their social interaction. Science student teachers in all the Colleges under consideration access internet services mainly from the college campus. The study found that all the participants were of the view that they can get access to internet when they are on the colleges' campuses. A few others also believed they access the internet in the dormitory with the rest holding the view that they can access internet in the library. The research found that the internet is strong especially around the classes' areas, library and weak at the dormitories. The science student teachers indicated strong agreement to the multiple choice formats, fast access, multiple user access, easy accessibility, wide range of information availability, quick retrieve ability, updated resources, free access, full text search, links to other sources, multimodality and readable on portable devices as the advantages that go with the use of internet. To these, science student eithers either agreed or strongly agreed to the advantages the internet present.

The study identified three key challenges science student teachers face in using internet resources. The main challenges were lack of computer facilities in the college, slow internet connectivity and lack of support from the IT department. Power failure was also identified as a challenge.

Conclusions

Internet is an interconnection of computers through which users search, receive and transmit information to others through suitable media. This present study has shown that science student teachers in the College use internet for their academic needs. Colleges of Education have come to know the importance of internet to student teachers learning. As such efforts are being made to provide internet resources and services to student teachers. IT departments in the Colleges being major stakeholders in the provision of internet resources and services are at the forefront in ensuring that student teachers benefit from these services.

Tutors at the Colleges of Education are the main agents in implementing the decision to make internet accessibility a reality. Despite the benefits and the efforts by the major stakeholders, access to internet at the Colleges is still limited. Student teachers who make frantic efforts to access and use internet perform better in science than those who don't use it. Science student teachers put the internet to different uses. Those who use it for academic purposes see the influence it has on their academic performance in science than those who use it for social media. How familiar students are to the internet also has direct effect on their performance of science. Student teachers that are familiar to the internet use it productively than the first time users and as such perform better in science than the first time users. More so, science student teachers who find the internet exciting during the first time usage see it as a useful tool and benefit from its usage.

It can therefore be concluded that internet plays a key role in influencing the academic performance in science at the Colleges of Education. However, there are still certain challenges that the students face in using the internet at the Colleges of Education. Internet connectivity should be made a priority in the Colleges of Education so as to ensure a significant improvement in student teachers performance in science. Student teachers need to be properly engaged on the use of internet as a significant determinant of academic performance in science.

REFERENCES

1. Adediran, T. M. E. & Kehinde, O. A. (2013). Gender and internet use pattern of pre-school teachers in Nigerian College of Education. *International Letters of Social and Humanistic Sciences, 19*(15), 66- 75.

2. Ahmed, M. U., Begum, S., & Fasquel, J. B. (2017). Internet of Things: Technologies for Healthcare. *Internation Conference, Healthy Inyternet of Things* (pp. 24- 25). Angers: Springer.

3. Baro, E. E., Benake- ebide, C. E., & Ubogu, J. O. (2011). Information literacy among medical students in the College of Health Sciences in Niger Delta University, Nigeria. *Electronic Library and Information System, 45*(1), 107- 120.

4. Christensson, P. (2015). *Internet definition*. Retrieved June 12, 2021 from https://techterm.com.

5. Crossman, A. (2014). An overview of qualitative research method. *Journal of Library Administration, 41*(1-2).

6. Glazunova, O., & Voloshyna, T. (2014). Types of academic internet- resources for IT students' individual work management. *Information Technology in Education, 2014*(21), 78- 86.

7. Ingwersen, P., & Jarvelin, K. (2005). *The turn: Integration of information- seeking and retrieval in context.* Dordrecht: International Federation of Consulting Engineers.

8. Jagboro, O. I. (2003). Information needs and information seking habits of science lecturers at Olabisi Onabanjo University, Ago- Iwoye. *Lagos Journal of Library and Information Science, 2*(1), 50-55.

9. Jibrin, M. A., Musa, M. N. & Shittu, T. (2017). Effects of internet on the academic performance of tertiary institutions ' students in Nigeria. *International Journal of Education, Learning and Training, 2*(2), 57- 69.

10. Karim, N. S. A., Zamzuri, N. H. & Nor, Y. M. (2009). Exploring the relationship between internet ethics in University students and the big five model of personality computer and education. *53*(1), 86- 93.

11. Makinde, O. S., Abdullahi, A. I., & Bolaji, O. H. (2018). Assessment of internet services availability, accessibility and utilisation for professional development of secondary school teachers in Lagos State, Nigeria. *Al- Hikmah Journal of Education, 5*(2), 28- 35.

12. Mathers, N. Fox, N. & Hunn, A. (2009). Surveys and questionnaires. The NIHR RDS for the East Midlands, Yorkshire & the Humber.

13. Mostofa, S. K. (2011). Internet access and use among business students of a private university of Bangladesh: A survey. *Annals of Library and Information Studies, 58*, 79- 86.

14. Nafrees, A. C., Roshan, A. M., Baanu, A. S., Nihma, M. N., & Shibly, F. H. (2020). Awareness of online learning of undergraduates during COVID 19 with special refernce to South Easthern University of Sri Lanka. *Journal of Physics Conference series* (pp. 1- 12). Sri Lanka: IOP Publising.

15. Nazim, M. (2008). Information- searching behaviour in the internet age: A user study of Aligarh Muslim University. *The International Information and Library Review, 40*(1), 73- 81.

16. Neuman, W. L. (2007). *Basics of Social Research Method: Quantitative and qualitative Approaches*. Edinberg: Pearson Education Limited.

17. Ojedokun, A. A. (2001). Internet access and usage by students of University of Botswana. *African Journal of Library, Archives and Information Science, 1*(2), 97- 107.

18. Olatokun, W. M. (2008). Internet access and usage by secondary school students in a Nigerian Municipality. *South African International Library anf Information Science*, *74*(2). 138-148.

19. Puspita, H. R., & Rohedi, D. (2018). The impact of internet use on students: IOP Conference Series on material science and engineering.306.

20. Sahin, Y., Balta, S., & Ercan, T. (2010). The use of internet resources by university students during their course elicitation: a case study. *Turkish Online Journal of Education, 9*(2), 234-244.

21. Shahibi, S. M., & Rusli, K. K. (2017). Influence of internet usage on students' academic performance. *International Journal of Academic Research in Business and Social Sciences, 7*(8), 2222- 6990.

22. Syed, N. A. (2017). A study of research attitude and stream differences among post graduate students with respect to non- use of internet. *International Journal of Development Research, 7*(7), 15- 21.

23. Yu, R. (2012). The research of internet influence to the College Students ideological and political education. *2012 2nd International Conference on Mechanical, Industrial, and Manufacturing Engineering* (pp. 243- 247). Changchun, Jilin, China: Information Engineering Research Institute.

24. Yusuf, M. O. (2006). Information communication technologies and education: Analysing the Nigerian national policy for information technology. *Internetional Education Journal, 6*(3), 316- 321.