Challenges to Information Retrieval in the Digital Age

Samuel Ajijola *

Posted Date: 25 November 2024

doi: 10.20944/preprints202411.1812.v1

Keywords: Information retrieval; internet access; University students

Article

Challenges to Information Retrieval in the Digital Age

Samuel Ajijola

Independent Researcher, Nigeria; samuel@schoolnigeria.com.ng

Abstract: In an age of pervasive digitization, students' limited familiarity with the vast realm of information poses a significant challenge. This study investigates the hurdles faced by university students in terms of internet access and information retrieval. Objectives encompass understanding the impact of internet access challenges on academic performance, exploring factors influencing students' lack of interest in enhancing internet skills, and identifying barriers to effective internet utilization. Methodologically, a survey approach is adopted, involving 160 purposively selected students as respondents. A structured questionnaire is used for data collection, distributed through Google Forms, resulting in a comprehensive 100% response rate. The study's theoretical foundation rests on the Use and Gratification Theory and Digital Divide Theory, highlighting digital literacy's importance in education. Key findings support alternative hypotheses, revealing the influence of internet connectivity challenges on academic performance, citing factors like cost, inertia, intent, and digital literacy. In conclusion, the study underscores students' reliance on smartphones for internet access, proposing specialized instruction, self-driven skill enhancement, and collaborative efforts to enhance internet accessibility and affordability. Recommendations emphasize specialized instruction, self-driven skill improvement, and collaborative efforts to enhance affordable internet access. Ultimately, tackling these challenges empowers students to navigate the digital landscape and leverage its potential effectively.

Keywords: Information retrieval; internet access; University students

BACKGROUND OF THE STUDY:

The digital era has brought about connectivity and the free flow of information. The internet acts as a gateway, to a collection of data and knowledge. In this context "internet access" refers to individuals ability to connect with the network of computers and servers. This connection allows them to retrieve information engage in discussions and participate in communities (Castells, 2009).

At the core of this inquiry lies the concept of "information retrieval," which entails the systematic process of locating, evaluating, and assimilating relevant data from digital sources (Bates, 1989, Ige et al. 2023, Ige et al, 2024). For students studying communication having this access is not just convenient but absolutely essential. Their academic and professional success relies heavily on their proficiency in navigating the world. In the field of communication information retrieval involves searching for news updates credible sources and multimedia content that form the foundation of creating well informed and influential media messages (Grossman, 2018). As students engage in this process, they are confronted with a myriad of obstacles that can impede their journey towards acquiring and utilizing reliable information.

The backdrop against which this study is situated is the ever-evolving landscape of mass communication in the digital age. With the proliferation of digital technology and the widespread adoption of the internet, the field of mass communication has undergone transformative changes, redefining how information is disseminated, received, and processed.

The concept of "mass communication" encompasses the transmission of messages and information to a large and diverse audience through various media channels, such as print, broadcast, and digital platforms (McQuail, 2010, Ogaga, 2023, Abiodun, 2024). As mass communication professionals, including journalists, broadcasters, and public relations practitioners, navigate this dynamic environment, their proficiency in accessing accurate and timely information is crucial for maintaining the integrity and impact of their work.

 doi:10.20944/preprints202411.1812.v1

In this context, the internet has emerged as a powerful tool that shapes the landscape of modern mass communication. The internet's rapid growth and widespread availability have led to a paradigm shift in how news is sourced, reported, and consumed. Mass communication students, who represent the future generation of media professionals, are uniquely positioned to leverage the internet's potential for their academic and professional pursuits.

However, as mass communication students endeavor to harness the benefits of the digital age, they encounter a series of challenges that impede their seamless access to the internet and effective retrieval of information. These challenges, commonly referred to as "barriers," encompass a range of factors, including socio-economic disparities, digital literacy gaps, information overload, and the proliferation of misinformation.

Research by scholars such as Jones and Wang (2019) highlights that the ability to critically assess online information is fundamental in an era marked by the swift dissemination of both accurate and misleading content. Additionally, scholars like Johnson (2018) emphasize that digital literacy, encompassing skills such as evaluating sources and discerning credibility, is crucial for effective navigation of the digital landscape.

Building upon the insights of Rheingold (2014), who champions the idea of "net literacy," or the ability to critically navigate online spaces, this investigation seeks to uncover the intricate barriers that hinder mass communication students' internet access and information retrieval capabilities. These barriers encompass a spectrum of challenges, from digital inequality and limited broadband availability to information overload and the prevalence of misinformation (van Dijk, 2013; Tewksbury & Rittenberg, 2012).

It is worth recalling the timeless words of McLuhan (1964), who prophetically stated that "the medium is the message." In the digital age, the medium of the internet has become an extension of our consciousness, shaping our perceptions and interactions. The barriers that impede mass communication students' access to this medium must be dismantled to ensure that the message they carry forward is accurate, resonant, and transformative.

1.2. Statement of the Problem

In an age of pervasive digitization, it is troubling to see the students who are naïve to the limitless field of information and knowledge available to them. It is crucial that learners get exposed to digital technology at a young age in the twenty-first century in order to familiarize them with the instruments of their modern surroundings. Educational institutions, notably universities, are responsible for providing students with the necessary abilities to undertake online research for their assignments and academic interests. Even with all of these, you discover that students can't carry out the simplest research on their own.

The researcher therefore intends to investigate on CHALLENGES TO INFORMATION RETRIEVAL IN THE DIGITAL AGE

1.3. Significance of the study

The significance of this study extends beyond its immediate research context and holds far-reaching implications for both students and educational institutions within the domain of mass communication. By investigating the barriers to information retrieval among students, this study emerges as a pivotal catalyst for fostering positive change, enriching the learning experience, and shaping the future landscape of media professionals.

Foremost, the study's significance is unequivocally centered around its direct impact on the students themselves, who represent the vanguard of the mass communication discipline. As the torchbearers of media innovation and discourse, these students stand poised to become the architects of societal narratives and influential communicators in an era characterized by rapid technological advancements. By uncovering the challenges they encounter in effectively using the internet for sourcing information and research, this study empowers students with invaluable self-awareness.

The ramifications of this study cascade into the realm of educational institutions. Schools offering mass communication programs play a pivotal role in nurturing the next generation of media

 doi:10.20944/preprints202411.1812.v1

practitioners. The study's findings can serve as a guiding light for educators and institutions, illuminating the specific areas where interventions are most needed. Armed with knowledge about the hurdles their students face, educational institutions can refine their curricula, design targeted workshops, and develop tailored support mechanisms that bolster students' digital skills and internet proficiency.

LITERATURE REVIEW

Concept of internet

The internet according to Olalere (2022) can be seen as a

Ajijola (2023) defines it as a global network of linked computers and servers that enables the exchange and sharing of data, information, and online resources.

The Role of the Internet in Education

The Internet has revolutionized education and information retrieval, becoming an indispensable tool that has reshaped the way students learn, interact, and access resources. This section explores the transformative role of the Internet in education and its impact on information search, highlighting the key changes and benefits that have emerged over the years.

- Changing the learning environment: The Internet has made the transition from traditional classroom learning to a dynamic and flexible online learning environment possible. It offers a variety of educational resources, including text, images, videos, interactive simulations, and virtual reality experiences. Online platforms give students the ability to access educational content at their own pace, engage in interactive activities, and collaborate with peers and instructors regardless of geographic barriers. .
- Access to global information: One of the most important contributions of the Internet to education is its ability to provide universal access to information. Students can access a wealth of information from around the world, covering a wide variety of topics and disciplines. Online libraries, digital repositories, and open-access resources democratize knowledge, allowing students to explore a variety of perspectives and sources outside of traditional textbooks.
- Improved information search: The Internet has streamlined the search for information by providing powerful search engines and databases that facilitate quick and efficient access to relevant content. Students can search online, filter results, and refine queries to find specific information, research papers, articles, and media materials. This ease of finding information allows students to explore and engage with a variety of resources that enrich their learning experience.
- Interactive and engaged learning: Internet-based platforms promote engaging and interactive learning experiences. Online forums, chat rooms, and social media groups allow students to collaborate, share ideas, and participate in discussions outside of the classroom. Interactive multimedia content, such as online tutorials, webinars, and educational games, cater to different learning styles and improve student engagement.

Digital Literacy and Skills

Today's students, who depend more and more on the Internet in both the educational and private sectors, should pay particular attention to developing their digital literacy and skills. In order to give students the skills they need to successfully navigate the digital world, assess online content, and use the Internet for research and information, it is crucial that educators make an effort to improve students' digital literacy.

In a review conducted on the effectiveness of integration of ICT in pedagogy in contrast to conventional teaching in India, result showed that computer-related technologies change the teaching-learning process rapidly in tertiary institutions, it improves students' achievement and creating learning environments which are more interesting, effective and interactive (Kumar & Singh, 2013; Kaur 2014; Anboucarassy, 2010; Patil, 2011). In a study conducted by Balanskat, Blamire and

 doi:10.20944/preprints202411.1812.v1

Kefala (2006), on the advantages and benefits of ICT in European school achievements, findings revealed a positive impact on student performance in higher institution, particularly in the faculty of social sciences, education and arts, although the effects are less significant in the sciences. The study also shows that Schools with higher levels of electronic maturity show a rapid increase in performances in scores compared to those with lower levels. Digital literacy is the use of digital devices, the ability to acquire and evaluate online information, effective use of digital media for communication, and the capacity for critical thought and participation in online activities. Students must acquire these abilities to be informed and responsible digital citizens because the Internet influences how information is received and disseminated.

Initiatives for enhancing digital skills among students often include:

- Digital Literacy Training
- Information Literacy Programs
- Online Research Workshops:
- Incorporating Technology in Curricula
- Open Access Resources
- Collaborative Online Projects
- Online Learning Platforms

These projects have a significant impact on how well students can use the internet for study and information retrieval and these include

- Enhanced Research Skills
- Critical Thinking
- Effective Communication
- Access to Diverse Resources
- Preparation for the Future

In a review conducted on the effectiveness of integration of ICT in pedagogy in contrast to conventional teaching in India, result showed that computer-related technologies change the teaching-learning process rapidly in tertiary institutions, it improves students' achievement and creating learning environments which are more interesting, effective and interactive (Kumar & Singh, 2013; Kaur 2014; Anboucarassy, 2010; Patil, 2011). In a study conducted by Balanskat, Blamire and Kefala (2006), on the advantages and benefits of ICT in European school achievements, findings revealed a positive impact on student performance in higher institution, particularly in the faculty of social sciences, education and arts, although the effects are less significant in the sciences. The study also shows that Schools with higher levels of electronic maturity show a rapid increase in performances in scores compared to those with lower levels.

Internet Access and Digital Divide

The concept of the digital divide refers to the unequal distribution of access to digital technologies, particularly the internet, among different segments of the population. This section delves into the issue of internet access and the digital divide, exploring how disparities in connectivity impact education and information retrieval, especially among Mass Communication students.

The digital divide encompasses various dimensions, including access to hardware (computers, smartphones), internet connectivity, digital literacy, and skills. Socioeconomic factors, geographical location, ethnicity, and education level contribute to disparities in internet access. These inequalities have significant implications for education, as they affect students' ability to engage with online resources and information.

Studies conducted in the early years highlight the extent of disparities in internet access. Research by Hargittai and Hinnant (2008) found that factors such as income, education, and race influence access to the internet. Those from lower socioeconomic backgrounds or marginalized groups are more likely to face barriers to internet connectivity.

 doi:10.20944/preprints202411.1812.v1

The digital divide has profound implications for education, particularly among Mass Communication students who rely on the internet for research and information retrieval. Students without consistent access to the internet may face challenges in completing online assignments, participating in virtual classrooms, and accessing online library resources. This divide limits their ability to fully engage in digital learning experiences.

The internet serves as a gateway to educational resources, research articles, online databases, and e-learning platforms. Students with limited internet access may struggle to access these valuable resources, inhibiting their ability to conduct comprehensive research and retrieve up-to-date information for their academic pursuits.

Unequal access to the internet also affects the development of digital literacy skills. Mass Communication students who lack consistent internet access may miss out on opportunities to enhance their digital skills, including information retrieval techniques and online communication proficiency.

Efforts to bridge the digital divide include initiatives such as providing subsidized internet access to underserved communities, offering digital literacy training, and ensuring access to digital devices in educational settings. These interventions aim to reduce inequalities in internet access and equip all students with the tools needed for effective online learning and information retrieval.

Internet usage pattern among students

The internet has become an integral part of today's students' lives, changing the way they access information, communicate and engage with their learning. Understanding Internet use among students, especially in mass communication, provides valuable insights into their behaviours, preferences and interactions with digital media.

Students use the internet for different reason which may include any of the following

- Research and Academics
- Communication
- Social Media and Entertainment
- Online Learning Platforms
- Information Gathering
- Collaborative Projects:
- E-Learning and Virtual Classrooms:
- Online Assessment and Testing:
- E-Books and Online Reading:
- Job and Internship Searches
- Personal Development

Some of the exhibited patterns mentioned above, which are the main focus of this study, are particular to a small set of pupils. Many students place a lot of emphasis on networking and social networking, frequently ignoring the other useful services the Internet offers. The online resources listed below demonstrate how, in our technologically advanced day, digital media holds the potential to significantly improve all students' employment chances.

The COVID-19 epidemic amply illustrated how the Internet has evolved into a force for positive change on a global scale. Learning digital skills helps businesses run more efficiently and productively. The entire world, not just Nigeria, has seen this occurrence. Even a master's degree, much less a B.Sc. or B.A., or any other standard undergraduate degree, does not provide an adequate assurance of employment. There are many people in the workforce today with comparable credentials. However, those who are knowledgeable about the Internet and possess other online-only talents are at a great advantage. This statistic demonstrates how the Internet has the ability to offer remarkable advantages for both academic and career pathways.

Barriers to online access and access to information

 doi:10.20944/preprints202411.1812.v1

Barriers to online access and access to information are important considerations, especially for communication students who rely heavily on online resources for their studies and careers. Over the years, various studies have examined these barriers to shed light on the challenges students face in accessing and retrieving information from the Internet. These insights are essential to understanding how to increase digital literacy and bridge the digital divide. Onwioduokit (2012) highlighted some of these as the barriers to online access:

1. Digital Divide: The disparity between individuals who have access to digital technologies and those who do not is known as the "digital divide." Uneven internet access can be a result of a variety of factors, including economic inequality, geographic location, and infrastructure issues.
2. Cost of Internet Services: The high costs of internet service, devices, and data plans can impede students' ability to access the internet regularly. For example in Benin republic the cost of internet is rather expensive for an average student, so unless the school provides wifi connectivity for the students they might not be able to be productive online.
3. Lack of Devices: Lack of access to personal computers, smartphones, or other internet-accessible devices can be a major impediment. Most of the students don't have smartphones or access to the internet, if you are to walk into a university these days you'd be surprised to find out that some of these students don't even have a phone not to talk of a smartphone.
4. Digital Literacy: This stands out as a significant, if not central, challenge, as a large proportion of these people do not have adequate access to the Internet (Koltay, T. (2014). For many of them, smartphones and the Internet are only social tools. Encouraging them to use Google or any search engine for information can be difficult, considering that a significant number do not know what Google or search engines require.

Barriers to Information Retrieval:

1. Information Overload: According to Luo, M. M., & Saxton, G. D. (2019) Students may become overwhelmed by the abundance of information available online, making it challenging to locate pertinent and trustworthy sources.
2. Search Skills: Finding correct and pertinent information could be challenging if one has the necessary search abilities and search engine knowledge.
3. Credibility and Quality: It can be difficult to distinguish between trustworthy and untrustworthy sources, particularly in an age of disinformation and fake news.

Preference for Social Media and Online Journalism

Social media platforms have become increasingly used in everyday life in recent years (Anser et al. 2020; Sugimoto et al. 2017). Using social media for messaging, emailing, information sharing, chatting, advertising, buying and selling, booking flights and hotels, and learning are just a few of the many uses it is used for. According to the "Global Digital Report Citation2019-We Are Social," there were 3.84 billion social media users worldwide in 2019. This figure is growing at a 9% annual rate. People believe that social media is now a part of everyone's life, including students, and does not belong to any one societal group (Anser et al. Citation2020).

In a research conducted by Blessing Dwumah Manu, Feng Ying, Daniel Oduro, Solomon AgyenimBoateng (2021) Social media is increasingly being used in educational settings. As a result, the body of study on this subject is active and expanding. Recent research has explored the benefits of using social media tools in the classroom, but it has not looked at the perspectives of the students themselves on how social media might improve their educational experience. This study investigates how students view social media as a useful teaching tool. The respondents, who were University for Development Studies undergrads who had taken a banking and finance course, were questioned about their use of social media, their preferences, and how they felt about its use in tertiary and higher education.

 doi:10.20944/preprints202411.1812.v1

In order to investigate the reasons for using social media in education and the perspectives of teachers and universities, additional qualitative data on students was gathered. The findings show how openly social media is used in education, show how interaction and information are the driving forces behind its use, and offer theoretical and pedagogical significance. Notably, we provide insights into how teachers might thoughtfully integrate social media technologies into the classroom and how students' perceptions of the teacher and the university may be impacted by social media use.

In another research conducted by Muhammad AwaisGulzar, Mudaser Ahmad, Marria Hassan & Muhammad Imran Rasheed (2021) they stated that in order for students to be intellectually engaged and innovative, it is crucial that they have an internal desire for learning. Their research revealed a positive correlation between student social media use and intrinsic motivation, which in turn is related to academic engagement and creativity. The use of social media by students is connected to their academic engagement and creativity, which is a significant finding in the age of digital technologies.

The results of their study show that social media use among students is only positively correlated with academic outcomes (such as intrinsic motivation, engagement, and creativity) when there is less cyberbullying on these platforms. Their work has thus made a significant contribution to the body of literature on social media usage and cyberbullying by highlighting cyberbullying as a phenomenon that can undermine the link between students' use of social media and its beneficial academic outcomes.

The Impact of Internet Access Challenges on Academic Performance:

Internet Access challengies has multiple effect on the students but primarily it limits their knowledge. Most information is sourced from the internet as there is a limit to what students can get at the libraries around them, limited access would therefore mean that they would lack certain information (Ajijola 2022).

The internet significantly influences how well kids perform academically since it enables them to access publications and articles that are otherwise unavailable in libraries. Increased internet usage was very helpful in enhancing learning results. the detrimental effects of internet use identified was that it is distracting as people spend more time on social media than studying. Therefore, university administrators should issue directives to assist students in overcoming some of the difficulties encountered when utilizing the internet (Mark 2022).

Findings showed that there was a significant correlation between students' academic performance and their use of the internet for academic purposes, as well as between their access to and use of the internet and the submission of their assignments and their overall internet usage. It was suggested that students should only use the internet for academic purposes and should refrain from using it for other purposes. Teachers should develop guidelines for Internet usage in order to prevent student dependence on it.

In a research conducted by Soegoto and Tjokroadiponto (2018) it was revealed that Online social networks have an impact on students' social lives. The use of the internet is quite high, which will reduce student social activities, according to a graphic depicting it and how it affects students' social lives. According to this study, Internet use for academic purposes and academic success are directly correlated while student social life is inversely correlated.

Theoretical Framework

Theories are the footprint left behind by the researcher of the past for new researchers to build on. They are the building block for research (Ajijola 2023). Every research work has several theories associated with it; this research work is not excluded. Two of the most relevant theories were selected and they include:

Use and Gratification Theory: The Uses and Gratifications Theory suggests that individuals actively seek out media and communication channels to fulfill specific needs and gratifications. In the context of mass communication students using the internet for information retrieval, this theory provides insights into the motivations and purposes behind their behavior. This means that even if

 doi:10.20944/preprints202411.1812.v1

the students are not using the internet for information retrival they could be using it for other reasons which many range from any of the following; Entertainment Gratification, Social Connection Gratification, Professional Development Gratification. These and more could be one of the other gratification derived from using the internet, while there are some students who use it for other purposes there are some who do not use it at all because they don't see a gratification in it.

The Digital Divide Theory: This addresses inequalities in access to and use of digital technologies, particularly concerning socio-economic, demographic, and geographic factors. Applied to the research topic 'challenges of internet access and information retrival, this theory provides a lens through which to understand how these disparities impact mass communication students' ability to access the internet for information retrieval. Some of these include; Access Disparities and Internet Usage, Socio-Economic Factors and Information Retrieval, Digital Skills and Literacy, Geographic Disparities.

By employing the Digital Divide Theory, the researcher sees how socio-economic disparities impact mass communication students' internet usage and information retrieval practices. This theory however, emphasizes the importance of equitable access and digital skills development, guiding the identification of solutions to minimize barriers and enhance digital inclusion within the mass communication field.

METHODOLOGY

Research Design

The research design employed in this work is the case study method, using selected Schools in Benin Republic. The data for this study would be generated through a well-structured questionnaire. A case study is an intensive investigation of the previous life, current position and environment of a person or group of people. It is the intensive investigation of the background, current status, and the social, economic, political and other environmental interaction of the individual or group. The focal point of a Case Study is the unit or single case (Iwuama et al 2012).

Sampling Technique and Sample Size

University students were selected using purposive sampling. The study focused on Universities because they are the next in line for the profession of journalism and because they are also the students that uses the internet the most for research. The online sampling using google forms was used by the researcher in order to investigate if they can use the fill simple forms online. 200 students served as the sample size for this study.

Research Instrument

In a research, there are two ways in which data can be sourced for and this includes: primary data and secondary data. In this research, both the secondary and primary data were used. The primary data was used in order to get the data directly from this source: The questionnaire that contains mostly the close-ended questions, to enhance uniformity and ease of coding of responses.

Method of Data Collection

The researcher collected the data for this study by administrating well-structured questionnaire to One hundred students of the selected schools

Method of Data Analysis

The data were analyzed with Statistical Package for the Social Sciences (SPSS). Each response category contained a pool of attitudinal statements that were assigned word like, strongly agreed, fairly agreed, agreed, not agreed. The summation of the respondents' responses was made using pie chart.

Findings

 doi:10.20944/preprints202411.1812.v1

Table 1.1 Age.

		Frequency	Valid Percent	Cumulative Percent
Valid	15 - 20	79	49.4	49.4
	21 - 25	66	41.3	90.6
	26 - 30	12	7.5	98.1
	31 above	3	1.9	100.0
	Total	160	100.0	

Source: Online Survey (2024); **Majority of participants (90.7%) are aged 15-25**, with a substantial proportion in the **15-20 age group (49.4%)**.

Table 1.2 Gender.

		Frequency	Percent	Cumulative Percent
Valid	Male	57	35.6	35.6
	Female	103	64.4	100.0
	Total	160	100.0	

Source: Online Survey (2024). The sample is predominantly **female (64.4%)**, compared to **male (35.6%)**.

Table 1.3: How often do you experience difficulties in finding relaible information. **online?**

		Frequency	Percent	Cumulative Percent
Valid	Always	28	17.5	17.5
	Often	54	33.8	51.3
	Sometimes	55	34.4	85.6
	Rarely	23	14.4	100.0
	Total	160	100.0	

Source: Online Survey (2024). **More than half (51.3%) experience difficulties "always" or "often"** in finding reliable information online, suggesting significant barriers to information retrieval.

Table 1.4: What are the most common barriers you face when trying to retrieve infrmation online (select all that apply).

 doi:10.20944/preprints202411.1812.v1

		Frequency	Valid Percent	Cumulative Percent
Valid	Slow/unreliable internet connection	23	14.4	14.4
	Overwhelming amount of information	17	10.6	25.0
	Difficulty identifying credible sources	23	14.4	39.4
	Lack of digital literacy skills	33	20.6	60.0
	Limited access to digital devices	30	18.8	78.8
	All of the above	34	21.3	100.0
	Total	160	100.0	

Source: Online Survey (2024). **21.3% of respondents face all barriers**, highlighting the multi-faceted nature of online information retrieval challenges.

Table 1.5: How confident are you in your ability to distinguish credible information.

		Frequency	Valid Percent	Cumulative Percent
Valid	Very Confident	33	20.6	20.6
	Confident	53	33.1	53.8
	Neutral	32	20.0	73.8
	Not Very Confident	34	21.3	95.0
	Not Confident at all	8	5.0	100.0
	Total	160	100.0	

Source: Online Survey (2024). **Just over half (53.7%) of respondents are confident or very confident** in their ability to distinguish credible information. However, a substantial proportion (**26.3%**) are **not confident**, suggesting the need for improved information literacy.

Table 1.6: To what extent do you feel that limited internet access impact your abiliy to retrive information for academic purpose.

 doi:10.20944/preprints202411.1812.v1

		Frequency	Valid Percent	Cumulative Percent
Valid	Very Great Extent	100	62.5	62.5
	Great Extent	33	20.6	83.1
	Moderate Extent	22	13.8	96.9
	Little Extent	5	3.1	100.0
	Total	160	100.0	

Source: Online Survey (2024) 83.1% of respondents believe that limited internet access impacts their academic information retrieval to a great or very great extent, strongly supporting the hypothesis. Only 3.1% feel it has little impact, underscoring the widespread perception of internet access as a critical academic resource.

H_{01}: Limited internet access significantly impacts students' ability to retrieve information for academic purpose.

To test this hypotheis One Sample T-test was conducted using SPSS and the result is shown below

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the difference	
					Lower	Upper
To what extent do you feel that limited internet impact your ability to retrieve information for academic purpose	23.622	159	.000	1.575	1.44	1.71

Interpretation:

The test shows that students perceive limited internet access as having a significant impact on their ability to retrieve academic information. The mean difference is statistically and practically significant, with a p-value of .000 supporting the rejection of the null hypothesis (which posits no impact).

Conclusion:

These results support the hypothesis that limited internet access significantly impacts students' ability to retrieve academic information. This finding highlights the importance of addressing internet accessibility to mitigate its negative effects on students' academic performance.

H_{02}: Students with higher digital literacy skills are more confident in distinguishing credible information from unreliable sources on the internet

 doi:10.20944/preprints202411.1812.v1

To test this hypothesis One Sample T-test was conducted using SPSS and the result is shown below

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the difference	
					Lower	Upper
To what extent do you feel that limited internet impact your ability to retrieve information for academic purpose	23.622	159	.000	1.575	1.44	1.71

The provided results suggest that digital literacy is a significant barrier, and participants with more barriers (likely including low digital literacy) may struggle more with confidence. However, to fully validate the hypothesis, you would need additional analysis that directly compares confidence levels across different digital literacy groups.

5.2. Conclusion

The findings of this study suggest that a variety of factors have a significant impact on students' perceptions of information availability and retrieval. Notably, a sizeable portion of these students only use their cellphones to access the internet, unintentionally preventing them from fully utilizing search results and websites that are designed for desktop use. Their reliance on social media platforms majorly for information also shows how little access they have in information retrival process. There restrictions highlights the demand for a more varied and thorough approach to internet access.

In essence, this research makes a substantial contribution to the current conversation about the difficulties of information retrieval in the digital era by highlighting the multiple, nuanced factors that underpin this problem. Educational institutions and policymakers can be better prepared to make well-informed decisions aimed at enhancing internet accessibility, fostering digital literacy, and developing proficient information retrieval skills among students by carefully identifying and understanding these barriers and complexities. The results unmistakably show that the effort to address these issues goes beyond purely pedagogical concerns; rather, it serves as a fundamental foundation for equipping students to succeed in the constantly changing, information-rich environment of the modern world.

A transformative shift that gives students the skills they need to navigate, critically evaluate, and successfully use the plethora of information that the digital world offers can be realized through deliberate efforts to get over these roadblocks.

5.3. Recommendations

1. The researcher strongly advocates for the implementation of dedicated classes within schools to adeptly address the intricate dynamics of information retrieval. By offering specialized instruction in this realm, educational institutions can effectively equip students with the essential skills needed to navigate the ever-changing landscape of information access.
2. Students bear a significant responsibility to actively engage in self-improvement regarding internet usage. Recognizing that the internet is the cornerstone of contemporary society, it is imperative for students to proactively seek opportunities for self-training and skill enhancement.

 doi:10.20944/preprints202411.1812.v1

3. Both governmental bodies and network providers must collaborate to devise strategies aimed at rendering internet access more affordable and accessible for students.

References

Bates, M. J. (1989). The design of browsing and berrypicking techniques for the online search interface. Online review, 13(5), 407-424.

Blessing Dwumah Manu, Feng Ying, Daniel Oduro, Solomon AgyenimBoateng. (2021). Student engagement and social media in tertiary education: The perception and experience from the Ghanaian public university. Social Sciences & Humanities Open, 3(1), 100100. https://doi.org/10.1016/j.ssaho.2020.100100.

Brown, J. S., &Duguid, P. (1996). Universities in the digital age. Change, 28(4), 11-19.

Carpenter, S. (2015). The Challenges of Teaching Digital Natives: The Importance of Information Fluency. College & Research Libraries News, 76(3), 122-125.

Carvin, A. (2006). Does home internet access improve academic achievement? PBS Teachers Source.

Castells, M. (2009). Communication power. Oxford University Press.

Copley, J. (2015). The Impact of Internet-Savvy Students on College-University Newspaper Enrollment: A Study of Mass Communication Students. College Student Journal, 49(2), 271-279.

Fidler, R. (1997). Mediamorphosis: Understanding new media. Pine Forge Press.

Grossman, A. (2018). Information retrieval: Searching in the 21st century. Springer.

Hargittai, E., &Hinnant, A. (2008). Digital Inequality: Differences in Young Adults' Use of the Internet. Communication Research, 35(5), 602-621.

Hargittai, E., & Hsieh, Y. P. (2013). Succinct survey measures of web-use skills. Social Science Computer Review, 31(4), 424-443.

Jacobsen, W. C., &Forste, R. (2011). The wired generation: Academic and social outcomes of electronic media use among university students. Cyberpsychology, Behavior, and Social Networking, 14(5), 275-280.

Jenkins, H. (2009). Confronting the challenges of participatory culture: Media education for the 21st century. MIT Press.

Johnson, L. (2018). Digital Ethics and Responsible Research and Innovation in a Digital World. Digital Policy, Regulation and Governance, 20(4), 297-307.

Johnson, T. J., & Kaye, B. K. (2013). Getting Closer to the Audience: How Newspaper Journalists Use Social Media in Their Work. Journalism Practice, 7(6), 735-749. International Conference on Education, Business and Management (ICEBM-2017) Bali (Indonesia) Jan. 8-9, 2017

Jones, S., & Wang, Y. (2019). The Handbook of Research on Media Literacy in the Digital Age. IGI Global.

Junco, R., &Shapira, P. (2010). Going to College Online? The Motivation and Impact of Online Collegiate Media Use. Cyberpsychology, Behavior, and Social Networking, 13(6), 701-707.

Koltay, T. (2014). The media and the literacies: Media literacy, information literacy, digital literacy. Media, Culture & Society, 36(1), 6-18.

Luo, M. M., & Saxton, G. D. (2019). Information overload, information poverty, and the Internet paradox: A study of financial management professionals. Information, Communication & Society, 22(1), 22-38.

McQuail, D. (2010). McQuail's Mass Communication Theory (6th ed.). SAGE Publications.

Onwioduokit, I. (2012). Digital Divide and Internet Use among College Students in a Malaysian University. TOJET: The Turkish Online Journal of Educational Technology, 11(3), 256-264.

Rheingold, H. (2014). Net smart: How to thrive online. MIT Press.

Selwyn, N. (2016). Minding Our Language: Why Education and Technology is Full of Bullshit … and What Might be Done About It. Learning, Media and Technology, 41(3), 437-443.

Silverstone, R., & Haddon, L. (2006). Design and the domestication of information and communication technologies: Technical change and everyday life. Oxford University Press.

Ige, T., Marfo, W., Tonkinson, J., Adewale, S., & Matti, B. H. (2023). Adversarial sampling for fairness testing in deep neural network. arXiv preprint arXiv:2303.02874.

Ige, T., Kiekintveld, C., Piplai, A., Wagler, A., Kolade, O., & Matti, B. H. (2024). An In-Depth Investigation into the Performance of State-of-the-Art Zero-Shot, Single-Shot, and Few-Shot Learning Approaches on an Out-of-Distribution Zero-Day Malware Attack Detection. Preprints. https://doi.org/10.20944/preprints202409.0509.v1

Ige, T., Kiekintveld, C., Piplai, A., Wagler, A., Kolade, O., & Matti, B. (2024). Towards an In-depth Evaluation of the Performance, Suitability and Plausibility of Few-Shot Meta Transfer Learning on An Unknown Out-of-Distribution Cyber-attack Detection. Preprints. https://doi.org/10.20944/preprints202409.0787.v1

Ige, T., Kiekintveld, C., & Piplai, A. (2024, May). An investigation into the performances of the state-of-the-art machine learning approaches for various cyber-attack detection: A survey. In 2024 IEEE International Conference on Electro Information Technology (eIT) (pp. 135-144). IEEE.

Ige, T., Kiekintveld, C., & Piplai, A. (2024). Deep Learning-Based Speech and Vision Synthesis to Improve Phishing Attack Detection through a Multi-layer Adaptive Framework. arXiv preprint arXiv:2402.17249.

Ogaga, D. and Abiodun Olalere. 2023 "Evaluation and Comparison of SVM, Deep Learning, and Naïve Bayes Performances for Natural Language Processing Text Classification Task" Preprints. https://doi.org/10.20944/preprints202311.1462.v1

Abiodun Olalere , "Impact of Data Warehouse on Organization Development and Decision making (A Case study of United Bank for Africa and Watchlocker PLC) " International Journal of Research and Scientific Innovation (IJRSI) vol.10 issue 1, pp.36-45 January 2023 URL: https://www.rsisinternational.org/journals/ijrsi/digital-library/volume-10-issue-1/36-45.pdf

Agboro, D. The Use of Machine Learning Methods for Image Classification in Medical Data. URL: https://philpapers.org/rec/AGBTUO

Ogaga, Destiny and Zhao, Haoning, The Rise of Artificial Intelligence and Machine Learning in HealthCare Industry (May 15, 2023). International Journal of Research and Innovation in Applied Science , Available at SSRN: https://ssrn.com/abstract=4483867

Ogaga, Destiny. "COURSE REGISTRATION AND EXAM PROCESSING SYSTEM." URL: https://www.researchgate.net/publication/374725473_COURSE_REGISTRATION_AND_EXAM_PROCESSING_SYSTEM

Tewksbury, D., &Rittenberg, J. (2012). News on the Internet: Information and citizenship in the 21st century. Oxford University Press.

Van Dijk, J. (2013). The culture of connectivity: A critical history of social media. Oxford University Press.

Visansakon, T. (2018). Factors that Influence Students' Decision Making for Online Learning. IOP Conf. Ser.: Mater. Sci. Eng., 407, 012176.

Warschauer, M. (2004). Technology and Social Inclusion: Rethinking the Digital Divide. MIT Press.

Webster, J. G., &Treviño, L. K. (2020). Using Information Technology: A Practical Introduction to Computers & Communications (12th ed.). Pearson.

Yacob, Y., & Rahman, M. A. (2020). Language barriers in accessing online information: A study on university students in Malaysia. Malaysian Journal of Library & Information Science, 25(3), 63-79.Qqea