

**STUDENTS' USE OF SEARCH ENGINES FOR ENHANCED ACADEMIC
PERFORMANCE IN ALEX EKWUEME FEDERAL UNIVERSITY LIBRARY NDUFU-
ALIKE IKWO, EBONYI STATE**

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Abstract

Search engines play crucial role in navigating the vast amount of information available on the internet, helping users find relevant content efficiently and effectively. This study investigated student's use of search engines for enhanced academic performance in Alex Ekwueme Federal University Ndufu-Alike. Five objectives were formulated which include to ascertain the level of awareness of search engines, types of academic search engines used by students and extent of use. The study adopted a descriptive survey design. The population of the study comprises of 605 registered undergraduate students library users at Alex Ekwueme Federal University. Random sampling technique was used to select 121 registered users at the interval of five (5). Structured questionnaires were used to collect data. Out of the 121 copies of questionnaire distributed, 86 (71%) were found useful for the study. The collected data was presented in tables and analyzed using frequency, percentage and mean. The study found that students are highly aware of Google search engine. They are unaware of semantic scholar, wolfram Alpha, yandex among others. It therefore, implies that students, researchers and library users should make

concerted effort to attend library trainings and user education programmes to get informed and aware of not only search engines but also other information resources relevant to them.

Introduction

The multitude of Information available on the web has become easy to access because of the availability of information and communication technologies. Students don't need to look for sources in order to find the answers to every question. Internet has become the major source of information for students and lecturers. Their unsolved questions can be easily answered with a single click. Thanks to the introduction of search engines for information seekers on the internet, that is now just one click away. Search engines supports users in providing precise and noteworthy information. WebAlive (2023) in an introduction to search engines defines search engine as a software system that allows users to search for information on the World Wide Web. Internet users can use the search engine to look for contents on the World Wide Web (Global Internet Usage, 2018). When a user submits a search query, the search engine retrieves relevant pages by crawling and indexing content from literally billions of websites. The results, sometimes referred to as search engine results pages (SERP), are arranged in a list based on how relevant or helpful the search engine deems each individual page to be.

The use of search engines is essential for improving students' academic work and activities, which include the pursuit of knowledge as well as its application and dissemination through a variety of activities such as professional practice, teaching, public speaking, conferences, publications, scholarly activity, research, and the provision of mediated access to

information. This has improved the possibility of widespread internet search and simple electronic content retrieval. As stated by (Spunk et al., 2006), search engines enable users to explore the internet using phrases and keywords, or queries. Many search engines are available on the internet; some, like Google, Yahoo search, and MSN Live, are used more frequently than others. Searchers can choose from a range of interfaces, sophisticated features, accessibility options, and output modalities in order to retrieve relevant information that will enhance learning outcome and achievement.

A student's achievement of knowledge and abilities in respect to particular academic course or area is measured, and this is how enhanced academic performance is determined. It involves the assessment of learning outcomes and the evaluation of a student's performance against predetermined criteria. Enhanced academic performance according to Marzano (2003) is the demonstration of high levels of understanding, proficiency, and competence in academic subjects. It involves deep conceptual understanding, effective study strategies, and the ability to transfer knowledge to new contexts. Academic performance is the demonstration of knowledge, skills, and understanding in academic subjects through the completion of assignments, exams, and other assessments. It reflects the level of achievement reached by a student in relation to the expected standards.

Academic performance or achievement can be attained by effective and efficient use of information resources. However, massive growth and explosion of information has kept students and other researchers confused about which information to employ due to an overwhelming

amount of information. In view of this, it appears that students do not make proper use of these search engines in carrying out their academic works which affect their entire educational performance. It also seems that the effect of inadequate utilization of search engines by students has brought so many problems such as incorrect search results, plagiarism, etc. leading to poor performance of students in their academic works. To this effect, adequate use of search engines by students in accessing information is paramount to excellent academic performance. It is in view of this that the study is set to examine the utilization of search engines by students in Alex Ekwueme Federal University, Ndufu-Alike library in Ebonyi State.

The following research questions guided the study.

1. What is the level of awareness of search engines by students of Alex Ekwueme Federal University, Ndufu-Alike?
2. What are the types of search engines used by the students of Alex Ekwueme Federal University, Ndufu-Alike?
3. To what extent are these search engines utilized by students of Alex Ekwueme Federal University, Ndufu-Alike for enhanced academic performance?
4. What are the challenges encountered in the use of search engines by the students of Alex Ekwueme Federal University, Ndufu-Alike?
5. What are the strategies for effective utilization of search engines for enhanced academic performance by students of Alex Ekwueme Federal University, Ndufu-Alike?

Literature Review

Level of Awareness of Search Engines by Students

. As stated by Ani in Akpojotor (2016), awareness is the comprehension of a situation or is knowledge about something that exists, derived from experience. The use of search engines requires awareness. When a new technology emerges and no one knows about it, its value will not be recognized. In a similar vein, knowledge of the environment and appropriate methods of doing tasks is crucial for everyone, including students, who wish to engage in any kind of labor or activity. Adams (2010) noted that level of awareness of various search engines by students in higher institution is very low. Adams further explained that students have very confused understanding of various search engines and its concept.

Similarly, Onuh and Ekwueme (2020); Imeniwe (2018); Akparobere & Oghale (2015) affirmed that undergraduate student of the institutions they studied are poorly aware of the existence of search engines that will enhance their academic performance. Moreso, many students have not yet embraced various search engines to source information. According to Barton (2011), it is surprising and disappointing that search engines have generally grown more slowly, than advocates had hoped for. Although search engines will expose the students as well as the faculty to the various benefits embedded in them, Barton (2011) further pointed out, that as one begins to build a service, it is vital to communicate how the service benefits the users. Hence promotional activities are important because they raise awareness of the various potentials of services.

It is expected that information specialists would be crucial in helping students become more aware of and promote different search engines in order to improve their efficient use. Shearer (2012) pointed out that lack of awareness is a major reason why students use search engines to a low extent; at the most basic level, undergraduate students are unaware that search engines exist at all, and many of them are also unfamiliar with the concept. In addition, the lack of knowledge of academic search engines is also common among researchers; in fact, this situation is prevalent in developing countries. However, on the contrary the study of Gabriel (2011) revealed that most of the students studied claimed to have knowledge of search engines and that they became aware of it from their friends, Internet debate and workshops.

Types and Utilization of Search Engines

The key for discovering as much information as you can about a subject is to use search engines. Finding important information on the subject on the web would probably be nearly difficult without the aid of an advanced search engine. Faircloth (2017) states that search engines are systems that are devoted to searching and retrieving information in order to organize results. Although a search engine is actually a group of programs, the phrase is frequently used to refer to certain platforms that let users search for content on the Internet, such as Google, Bing, and Yahoo! Search. The elements and functions of online search engines, Using web spiders, the automated process of "crawling" or "spidering" collects data. They go by several names, including crawlers, robots, software agents, web agents, wanderers, walkers, and know bots. Furthermore, according to Onah et al. (2020), Internet search engines index web pages into their

searchable databases using software known as a robot, spider, or crawler. The search results, also known as hits, are typically shown as a list of results. They also explained that certain search engines exploit data that is accessible in databases, open repositories, or directories.

Search engines can be divided into four categories: hybrid search engines, human-powered directories, crawler-based search engines, and other specialized search engines based on how they operate. One can use the search engine from anywhere round the world to get any type of information. Search engines like Google and Yahoo are very popular amongst people. Google scholar is the most popular research search engine for students and it lists academic resources across a wide range of sources. It allows students and researchers to find credible information, research papers and search journals, and save them in their personal library.

Apart from the most used search engines like Google and Yahoo, there are other search engines for students which include: Google scholar, Education Resources Information Centre ERIC, Wolfram Alpha, iSEEK Education, BASE (Bielefeld Academic Search Engine), CORE, Science.gov, Semantic Scholar, RefSeek, DataElixir, Virtual Learning Centre, Doaj, PubMed, Microsoft Academic. Students and researchers utilize search engines that indexes quality academic publications for their academic work. These search engines allow students to target specific information and access relevant academic databases, journal articles, citations, and educational resources as reported by (Maayodiya, 2023). According to Nwokedi and Nwokedi (2017), some professors exhibit a lack of familiarity with various search engines, making it more difficult for them to access and retrieve information from the internet.

The Extent of Utilization of Search Engines by Students for Enhanced Academic performance

Search engines are the most efficient method of searching for information resources that can enhance student's academic performance. It has been observed that students and academics are accustomed to using the search engine heavily and exclusively for academic assignments and research purposes. Imoniwe (2018) research revealed that out of the major listed search engines, that Google is the frequently used search engines followed by Google scholar. The research showed that other search engines listed were never used as indicated by the respondents. Also, Gomathi and Sivasubramanian (2019) in their research on Awareness and usage of search engines amongst the students Srirnakrishna College of Arts and Science indicated that Google is the most utilized search engines for their information retrieval. Nwokedi and Nwokedi (2017) findings also revealed that Google search engine is widely used by lecturers in University of Jos.

Challenges in the Use of Search Engines by Students

There are several issues with using search engines. As stated by Willy (2011), the issues of plagiarism have become common as a result of ease in the use of "copy and paste" feature to grab information straight from sources and include it into assignments. Additionally, many students' study habits have changed to include browsing and surfing instead of reading and writing assignments. Reading and writing abilities of most students in this contemporary time has reduced drastically owing to addiction on the use of digital devices. Dane (2008) affirmed that students put off doing their tasks (studying) because of how convenient it is for them to

source information from the internet. Search efficacy is another issue, due to the abundance of information on web; students are frequently misinformed about important topics. As the Internet is characterized by large volume of information, searching for a particular web page without the use of proper tools can be tedious and even useless.

The main issue with search engines is that they provide a large number of results, erring more toward recall than precision. Eliopoulos and Getlieb (2013) express concern over students' inability to utilize internet resources due to their limited knowledge of search engine operations. According to Chapman (2002), students equally lack the ability to evaluate the reliability and applicability of the information they find using search engines. Griffiths (2003) opined that students do not have the skill to evaluate the quality of scientific articles found online since they don't really understand what constitutes a high-quality scholarly publication. Amoritpal (2000) asserted that students also have to deal with issues like slow Internet connectivity, sudden site down time and issues like server not found while using the Internet.

The difficulty in finding services and resources that require the use of language is a significant barrier to the use of search engines. According to Dewey (2000), several terms are used as headers to designate the same task; multiple names are used to indicate the same source of service, even with the same website. Another issue that makes it difficult to use search engines is power outages. Use of computers and search engines is a key issue in developing nations like Nigeria. According to Rosenberg (2005), search engine development and applications are

hampered by inadequate electricity in Africa. Rosenberg claims that even if a student manages to use the computer and connect to the internet, the goal will be defeated if there is no electricity.

Furthermore, a lack of awareness of the search engines that are available will hinder access to sufficient materials because there are relatively few search engines that users are aware of. Morgan (2005) stated that inadequate knowledge of search engines will also constitute a barrier to search engine use. Search engines also deliver the same answer to all users. For example, when different users give same query, same result will be returned by a typical search engine. It becomes difficult for the user to get the relevant content especially when dealing with class assignment. Despite the benefits of search engines, some studies in Africa by Tlakula and Fombad (2017) in South Africa; Chaura (2014) in Malawi, Makondoet *al.* (2018) in Zambia and Ikoja-Odongo and Mostert (2006) in Nigeria, revealed that undergraduate students experience some barriers when searching for information on the search engines due to poor computer and information searching skills, lack of awareness of the existence of the information, and poor internet connection, among other setbacks.

Strategies for Enhancing Effective Utilization of Search Engines

Some strategies to enhance university students' effective use of internet search engines for efficient information recovery on the web include providing high internet connectivity, lowering the cost of purchasing a personal computer or smartphone for students, encouraging students to adopt techno-stressed management techniques, providing high data transmission, providing adequate telecommunication infrastructure around campus, ensuring a steady supply

of electricity, lowering the cost of internet access through data subscriptions, and teaching students how to conduct adequate searches, among other things.

Ogbole (2017) suggested that librarians teach undergraduate students about a variety of online search engines, not simply Google and Yahoo, through user education. In order to raise awareness of and use of the other search engines, Webmasters should also promote them online. Ozonuwe, Nwaogu, *et al.* (2018) recommended that university authority should work at increasing bandwidth as this will help to boost the speed of the internet browsers and enhance the use of search engines.

Therefore, there is need for user's education on the strategies with which to use search engines by students and other internet users. Students should develop skills for searching relevant information and high Internet connection should be made available for them. Also, Audu (2006) recommended that more Internet facilities be made available to students, and the students be taught the use of search strategies such as the use of Boolean Operators, phrase searching, proximity search, fuzzy Search, stemming, truncation searches and wildcard searches. Given this information, teaching Internet search techniques to students in order to foster computer system use skills may help them become more familiar with the system and, as a result, enhance their capacity to perform effective Internet searches.

Methodology

Descriptive survey was adopted for the study. Area of study is Alex Ekwueme Federal University Ndufu-Alike Ikwo, Ebonyi State. Population of the study consists of all the 605 registered students in Alex Ekwueme Federal University Ndufu-Alike. The sampling technique adopted for this study was the simple random sampling techniques. The researcher selected 121 registered users randomly at the interval of five (5), out of the six hundred and five (605). Questionnaires were used for data collection. Out of the 121 copies of questionnaire distributed, 86 (71%) were found useful for the study. The collected data were presented in tables and analyzed using frequency, percentage and mean. The weighted mean was used to determine the weight of the responses. Any response with mean weight of 2.5 and above were regarded as positive and accepted. While less than 2.5 were regarded as negative and rejected.

Results

Research Question 1

Table 1: Level of awareness of search engines by students of AE-FUNAI

S/N	ITEMS	VHA	HA	A	NA	Mean	Decision
1	Google	86	0	0	0	4.00	Accepted
2	Yahoo	78	5	3	0	3.87	Accepted
3	Bing	28	32	14	12	2.88	Accepted
4	Google scholar	67	14	3	2	3.69	Accepted
5	Baidu	22	31	17	16	2.69	Accepted
6	DuckDuckGo	7	20	24	35	1.98	Rejected
7	Yandex	8	18	21	39	1.94	Rejected
8	Microsoft Academic	37	27	16	6	3.10	Accepted
9	RefSeek	7	10	21	48	1.72	Rejected
10	Webopedia	8	12	35	31	1.96	Rejected

11	AOL	7	7	19	53	1.62	Rejected
12	ResearchGate	59	12	2	13	3.36	Accepted
13	Ask	68	6	7	5	3.59	Accepted
14	Wolfram Alpha	2	9	22	53	1.53	Rejected
15	Semantic Scholar	5	12	46	23	1.98	Rejected

Table 1 above shows that AE-FUNAI students are very highly aware of Google with 4.00 mean score followed by Yahoo, Google scholar, Ask.com, ResearchGate and Microsoft Academic with the mean score of 3.87, 3.69, 3.59, 3.36 and 3.10 respectively. But aware of Bing and Baidu with 2.88 and 2.69 mean average respectively. While they also have low level and staggering awareness of Semantic Scholar, DuckDuckGo, Webopedia, Yandex, Refseek, AOL, and Wolfram Alpha with 1.98, 1.98, 1.96, 1.94, 1.72, 1.62, and 1.59 mean score respectively.

Research Question 2: What are the types of search engines used by the students of AE-FUNAI

Table 2: Types of search engines used by AE-FUNAI students

S/N	ITEMS	HU	U	LU	NU	Mean	Decision
1	Google	86	0	0	0	4.00	Accepted
2	Yahoo	56	26	4	0	3.60	Accepted
3	Bing	22	35	18	11	2.79	Accepted
4	Google scholar	45	26	15	0	3.34	Accepted
5	Baidu	10	13	17	46	1.84	Rejected
6	DuckDuckGo	2	9	13	62	1.43	Rejected
7	Yandex	1	7	18	60	1.40	Rejected
8	Microsoft Academic	11	21	16	38	2.05	Rejected
9	RefSeek	5	6	12	63	1.45	Rejected
10	Webopedia	2	10	12	63	1.44	Rejected

11	AOL	0	6	9	71	1.24	Rejected
12	ResearchGate	49	14	12	11	3.17	Accepted
13	Ask	16	22	7	41	2.15	Rejected
14	Wolfram alpha	1	10	10	65	1.38	Rejected
15	Semantic scholar	9	17	24	36	1.99	Rejected

Table 2 shows that Google is the most used search engine for enhanced academic performance with 4.00 mean score. Followed by Yahoo, Google scholar, ResearchGate and Bing with 3.60, 3.34, 3.27 and 2.79 mean scores respectively. While Ask, Microsoft Academic, Semantic Scholar, Baidu, Refseek, webopedia, DuckDuckGo, Yandex, Wolfram alpha and AOL with 2.15, 2.05, 1.99, 1.84; 1.45, 1.44, 1.43, 1.40, 1.38 and 1.24 mean score respectfully are lowly used and not used by the students.

Research Question 3: To what extent are search engines utilized by students of AE-FUNAI for enhanced academic work?

Table 3: Extent of utilization of search engines

S/N	Items	VHE	HE	LE	VLE	Mean	Decision
1	I use search engines to search for materials for writing projects	48	34	3	1	3.50	Accepted
2	I use search engines to search for materials for writing assignments	73	13	0	0	3.84	Accepted

3	1 use search engines to supplement lectures given in class	53	26	7	0	3.53	Accepted
4	I use search engines to search for information on upcoming courses	41	18	22	5	3.10	Accepted
5	I use search engines to search for materials for writing term papers.	72	11	3	0	3.80	Accepted

From table 3 above, it is seen that the use of search engines to search for materials for writing assignments had 3.84 mean of respondents; use of search engines to search for materials for writing term papers attracted 3.80 mean of respondents; use of search engines to access information to supplement lectures given in class attracted 3.53 mean of respondents; use of search engines to search for materials for writing project attracted 3.50 mean respondents and use of search engines to search for information on upcoming courses had 3.10 mean score respectfully.

Research Question 4: What are the challenges encountered in the use of search engines by the students of AE-FUNAI?

Table 4: challenges in the use of search engines

S/N	Items	SA	A	D	SD	Mean	Decision
1	Lack of training in basic searching skills (strategies) and computer	37	36	13	0	3.27	Accepted
2	Lack of adequate power supply	65	18	3	0	3.73	Accepted
3	Slow Internet connections	68	17	1	0	3.77	Accepted
4	Difficulty in finding relevant information due to information overload	56	29	1	0	3.63	Accepted
5	Ignorance of relevant search engines	63	19	4	0	3.68	Accepted
6	High cost of procuring computer by students	63	20	3	0	3.69	Accepted
7	Abuse of Internet, such as fraud, plagiarism	56	20	5	5	3.47	Accepted

Table 4 shows that the major challenges affecting the utilization of search engine among Alex Ekwueme Federal University Ndufu-Alike students for enhanced academic are slow internet connections, with 3.77 mean score; lack of adequate power supply, with 3.73 mean score; high cost of procuring computer by students, with 3.69 mean score; ignorance of relevant search engines, with 3.68 mean score; difficulty in finding relevant information due to information overload, with 3.63 mean score; Abuse of internet such as fraud, plagiarism etc, with 3.47 mean score and lack of training on basic searching strategies and computer skills, with 3.27 mean score. Based on the response from the respondents, all the challenges listed by the researcher were accepted as challenges encountered with Utilization of search engines by AE-FUNAI students.

Research Question 5: What are the strategies for effective utilization of search engines for enhanced academic activities by students.

Table 5: Strategies for effective utilization of search engines

S/N	ITEMS	SA	A	D	SD	Mean	Decision
1	Adequate training on basic searching strategies and computer skills	44	36	6	0	3.44	Accepted
2	Provision of constant electric power supply	63	22	1	0	3.72	Accepted
3	Provision of adequate internet connections around campus	64	21	1	0	3.73	Accepted
4	Provision of information literacy programmes that will enhance students' ability to discover relevant information	56	28	2	0	3.56	Accepted
5	Creating awareness and promotion of educational search engines	68	17	1	0	3.77	Accepted
6	Subsidizing the cost of acquiring personal computer or smartphone for students	63	23	0	0	3.73	Accepted
7	Regulations, legislations and laws affecting information sources and dissemination should be established.	56	26	3	1	3.59	Accepted

Table 5 shows that the major strategies to enhance effective utilization of search engines among students of Alex Ekwueme Federal University for enhanced academic are creation of awareness and promotion of educational search engines with 3.77 mean score, provision of adequate internet connections around campus with 3.73 mean score, subsidizing the cost of acquiring personal computer or smartphone for students with 3.73 mean score, provision of electric power supply with 3.72 mean score, regulations, legislations and laws affecting information sources and dissemination should be established with 3.59 mean score; provision of information literacy programmes that will enhance students' ability to discover relevant information with 3.56 mean score and adequate training on basic searching strategies and computer skills with 3.44 mean score respectfully. This shows that all the strategies suggested by the researcher as a way of

enhancing effective utilization of search engines for enhanced academic performance by Alex Ekwueme Federal University Ndufu-Alike students were accepted by the respondents.

Discussion of Findings

The level of awareness of search engines by students of Alex Ekwueme Federal University Ndufu-Alike, Ikwo.

The findings revealed that, Alex Ekwueme Federal University Ndufu-Alike students have very high level of awareness of Google, high level of awareness of Yahoo, Google scholar and Ask, low level of awareness of Microsoft academic, Bing and baidu, While they also have no awareness of Yandex, DuckDuckGo, AOL, Refseek, webopedia, ERIC, Wolfram alpha and semantic scholar. The finding is in total accordance with the findings of Imonigwe (2018); Nyemezue et al (2021). Their studies revealed that majority of students are highly aware of Google, while few are aware of Google Scholar, Bing and Ask. However, the findings disagreed with Omuh and Ekwueme (2020) whose findings showed that student level of awareness of search engines for information retrieval in NOUN is very low. This implies that there is need for more awareness creation and sensitization of relevant educational search engines.

Types of search engines used by students of Alex Ekwueme Federal University Ndufu-Alike, Ikwo

The findings revealed that, the students' use of Google for enhanced academic performance is very high followed by the use of Yahoo, Google scholar, ResearchGate, and Bing. Whereas the findings revealed low utilization of Baidu, Yandex, DuckDuckGo, Microsoft academic, Refseek, webopedia, AOL ERIC, Ask com, Wolfram alpha and semantic scholar among students for enhanced academic performance. This might be due to low awareness of these search engines among the students. The finding is in line with that of Shearer (2012) who noted that the use of the various search engines is very low, except for Google. Also with that of Ogbole (2017) whose findings revealed that the most famous search engines were Google and yahoo.

Extent of utilization of search engine by students of Alex Ekwueme Federal University Ndufu-Alike for enhanced academic performance

The findings revealed that search engines provides students of Alex Ekwueme Federal University Ndufu-Alike indicated that search engines provides them with materials for writing term paper, projects reports and assignments. They also used search engines to search for information on upcoming courses and had access to information in order to supplement lectures given in class to enhance their academic performance. This conforms to Mutula (2003) statement that students use search engines mostly for educational purposes. Usman (2006) noted that the Internet has opened up numerous possibilities for resource sharing at local and international

levels and that information on latest journals, books and discussion were exchanged directly through the Internet.

Challenges encountered in the use of search engines by students of Alex Ekwueme Federal University Ndufu-Alike, Ikwo

The findings indicated that, the major challenges encountered in utilization of search engines by students of Alex Ekwueme Federal University Ndufu-Alike are slow internet connections, lack of adequate power supply, high cost of procuring computer by students, ignorance of relevant search engines, difficulty in finding relevant information due to information overload, lack of training on basic searching strategies, computer skills. The finding is in consonant with that of Palmer and Daniel (2015) who found out that information overload was the greatest challenge the undergraduate students encountered, followed by erratic electric power supply, high cost of internet access through data subscription, lack of search skills, slow internet connectivity, lack of fund to acquire personal computer or smartphone, techno-stressed, poor data transmission, and inadequate telecommunication infrastructure around campus.

Strategies for effective utilization of search engines for enhanced academic performance by students of Alex Ekwueme Federal University Ndufu-Alike, Ikwo

The findings revealed that, the major strategies to enhance effective utilization of search engines for enhanced academic performance are creation of awareness and promotion of educational search engines, provision of adequate internet connections around campus,

subsidizing the cost of acquiring personal computer or smartphone for students, provision of electric power supply, regulations, legislations and laws affecting information sources and dissemination should be established, provision of information literacy programmes that will enhance students' ability to discover relevant information, and adequate training on basic search strategies and computer skills. The findings corroborated the Study of Ogbole (2017) who recommended that Librarians should provide knowledge about different online search engines to undergraduate students and not just Google and Yahoo through user education.

Implications of the findings

For the students, researchers and library users the findings implies that students should make concerted effort to attend library trainings, orientation and user education programmes organized by the library in order to get information and be aware of not only search engines but also other information resources relevant to them. The implication of the findings to library users is that the findings revealed various types of existing search engines which will create more awareness of robust search engines for students for enhanced academic performance. The implication of the findings to Librarians is that it revealed the extent students utilize information resources using search engines which imply that the library should carry out regular training to students in order to ameliorate the existing challenges associated with the use of search engines as well as provide guidelines on the use of library resources.

Conclusion

The study examined the utilization of search engines by students for enhanced academic performance in Alex Ekwueme Federal University Ndufu-Alike library Ikwo, Ebonyi State. Based on the findings, the study concluded that, the most utilized search engine is Google followed by Yahoo, Google Scholar, and Bing. The students have low level of utilization of other search engines listed in the study. It was concluded that students use search engines to search for materials for writing assignments, term papers, project and also to search for information to supplement lectures given in class and information on upcoming courses for enhanced academic performance.

It was also concluded that, the major challenges affecting the utilization of search engine among the students of Alex Ekwueme Federal University Ndufu-Alike Library for enhanced academic performance are lack of training on basic search skills and computer skills; lack of adequate power supply, slow internet connections; difficulty in finding relevant information due to information overload; ignorance of relevant search engines; high cost of procuring computer by students and abuse of internet such as fraud, plagiarism etc. Finally, the study concluded that, the major strategies to enhance effective utilization of search engines among students in Alex Ekwueme Federal University Ndufu-Alike Library for enhanced academic performance are adequate training on basic search strategies and computer skills, provision of constant electric power supply, provision of adequate internet connections around campus, provision of information literacy programmes that will enhance students' ability to discover relevant information, creation of awareness and promotion of educational search engines, subsidizing the

cost of acquiring personal computer or smartphone for students and regulations legislations and laws affecting information sources and dissemination should be established.

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