View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by UNL | Libraries

University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Library Philosophy and Practice (e-journal) | Libraries at University of Nebraska-Lincoln

November 2018

Undergraduates' Preference between Web Search engines and Reference Sources for Research Activities in Two Universities in South West Nigeria

Olawale Oyewole
University of Ibadan, oyewolebaba01@yahoo.com

Gabriel 'Bunmi Alegbeleye Prof.
Babcock University, Ilishan-Remo, Ogun State

Follow this and additional works at: http://digitalcommons.unl.edu/libphilprac

 Part of the Library and Information Science Commons

Oyewole, Olawale and Alegbeleye, Gabriel 'Bunmi Prof., "Undergraduates' Preference between Web Search engines and Reference Sources for Research Activities in Two Universities in South West Nigeria" (2018). *Library Philosophy and Practice (e-journal)*. 1937.
http://digitalcommons.unl.edu/libphilprac/1937

Undergraduates' Preference between Web Search engines and Reference Sources for Research Activities in Two Universities in South West Nigeria

By

Olawale Oyewole[1*] and Gabriel 'Bunmi Alegbeleye[2]

[1*]Department of Library, Archival and Information Studies, University of Ibadan, email of corresponding author: oyewolebaba01@yahoo.com

[2]Department of Information Resource Management, Babcock University Ilishan-Remo, Ogun State, Nigeria, email: gb.alegbeleye@yahoo.com

Abstract

The development of web search engines has provided an alternative for undergraduates to access the needed information for their research activities without utilising library resources, especially reference sources. This avenue created by web search engines is viewed by some as detrimental, as undergraduates now display apathy towards the use of reference sources, even though web search engines have their own limitations. Based on this, the main objective of this study was therefore to examine undergraduates' preference between web search engines and reference sources for research activities. Descriptive survey design was adopted for the study and the study population consisted of all 12,173 regular undergraduates in University of Ibadan (UI) and 2,388 in Redeemer's University Ede Osun State, Nigeria (RUN). Multistage random sampling technique was used to select the sample size of 386 and the questionnaire was research instrument. Findings showed that most of the undergraduates in UI 195 (97.0%) and RUN 130 (92.9%) indicated that Google was their most used search engine. While, 179 (89.1%) and 124 (81.4%) of undergraduates in UI and RUN pointed out that dictionaries were the most used reference sources. Results also showed that majority of undergraduates in UI 161 (83.1%) and 111 (79.3%) in RUN indicated their preference for web search engines for research activities as against reference sources. Despite the undergraduates' preference, the reference sources still have the potential of providing answers to any type of users' queries. It was therefore recommended that the reference librarians should provide the needed user education on the various types of information contained in the reference sources during library orientation program. The management of the university libraries should also ensure the availability and accessibility of current and adequate reference sources.

Keywords: Undergraduates, Preference, Web Search Engines, Reference Sources, Universities

Introduction

Universities are critical to the development of societies, as social and economic transformations are engineered within these ivory towers. Universities are the birth place of life changing ideas and innovations which are further concretised to benefit the rest of humanity. They are the chief agents for progress in the society; progressive nations are those with flourishing universities. Universities help in the development of nations by providing the high as

well as middle level manpower needed for social, economic and political advancement. This is done through the programs of teaching, learning, research and community services (Okiy 2010). This places university education at the apex in the ranking of educational system, as it is designed to accommodate knowledge acquisition and production (Anunobi & Nwogwugwu 2013).

Universities will not be able to acquire and produce knowledge without research. Anenene, Alegbeleye and Oyewole (2017, p.1) asserted that "a university that falters in the production of brillant researches that can be applied in moving the society forward socio-economically and technologically has lost its relevance". Fawole et al (2006) noted that research is a form of inquiry that involves a systematic process for recognising a need for information, acquiring and validating that information and deriving conclusions from it. Faculty and students are actively involved in research activities in the universities. These activities lead to useful research outputs that will increase the academic status of the universities in the public domain. Faculty members write empirical and researched articles which are published in scientific journals and they also present papers in seminars and conferences. Students also need to write their projects, dissertations and theses. All these throw up a large volume of research activities within the university set up.

A very critical infrastructure within the university that ensures that the university fulfils its research function is the intellectual pillar of the university, the university library. Oyewole and Adetimirin (2015) noted that the university library is an integral part of a university established to meet the information and research needs of its students, faculty and staff. These needs are diverse in line with the subject areas offered in the universities. That is why the objectives of university libraries can therefore be as diverse as the institutions themselves (Onuoha, Ikonne & Madukoma 2013). Thus, the university library is one created to serve a university. Thus, university library is regarded as a repository of knowledge and information gateway where information materials are stored (Emwanta & Nwalo, 2013). Faculty members and students will find it very difficult to engage in meaningful research without the contributions of the university library.

The university library supports the research activities in the universities through the provision of information resources that are made accessible to the patrons. Aina (2004) noted that information resources appear in a variety of formats, print and electronic, which are very

useful to the users of the library. These information carriers can be broadly categorised as print media, manuscripts, cartographic materials, graphic media, audio recordings, audio-visual media, microforms and the digital media (Aina 2004). Under the broad categories of the information carriers are specific information resources like books, pamphlets, serials, maps, atlases, globes, photographs, drawings, charts, postcards, filmstrips, slides, and transparencies. Others include sound disc, video recordings, computer files and electronic resources.

University libraries also acquire and provide access to reference sources. These information carriers are very essential and critical to research activities. Nwalo (2000) stated that reference sources are information resources in any form or location which can provide answers to the information needs of library users expressed as queries. Reference sources do not only exist in print form, they are also on compact discs and in electronic format available on the internet. Aina (2004) affirmed that reference sources can be categorised mainly into three. These are primary sources, secondary sources and tertiary sources. The primary sources include journal articles, technical reports, dissertations and theses. Indexes, abstracts and bibliographies are examples of the secondary sources, while dictionaries, encyclopedias, biographies, yearbooks, handbooks, fact books, almanacs are examples of the tertiary sources.

Reference sources are essentially utilised whenever there are needs for such because of their content and features. Fayose (2000) expressed that reference resources are not meant to be read from cover to cover like study books, users only look up specific items of information in them whenever there is a need. These resources are also revised on a regular basis to keep them current; they are multi-disciplinary in nature, provided with detailed indexes and cross references and are organised for quick and easy usage. These characteristics make them valuable tools for research. The era whereby reference sources in the university library were the only information resources consulted whenever an information need for research arose appears to have gone. Presently, computers and communication technologies form an integral part of the research process in general (Moahi, 2002).

Antherjanam (2008) posited that Information and Communication Technologies (ICT) have revolutionalised the field of information services. ICT has developed to such a stage that it has given access to information at fingertips. Information and Communication Technologies (ICT) is a broad term that conveys wide range of technologies. It is the convergence of computer communication and microelectronic based techniques. Since the emergence of ICT, the

information landscape has changed dramatically due to the benefits that ICT provides. Islam and Islam (2006) expressed that ICT provides; speedy and easy access to information, remote access to users, round the clock access to users, access to unlimited information from different sources and information flexibility to be used by any individual according to his/her requirement. This is facilitated by the Internet and the World Wide Web (WWW).

The Internet is vast and diverse, while the web resources due to their enormous number are extremely difficult to keep track on. Moahi (2002) posited that there are thousands of web pages on the web, made available through the Internet that are not organised or catalogued in some way unlike the information resources in the library. However, there are resources on the web that can be used to retrieve information on the World Wide Web. These resources are search tools otherwise called search engines.

There are various definitions of search engines. Tarakeswar and Kavitha (2011) described search engines as programs that search databases on the web with the use of specified keywords. The keywords are returned and collated into the user information. Search engines are essentially massive databases that cover wide swaths of the Internet. They mostly consist of the parts of at least one program called spider, or crawler or bot, which craws through the Internet gathering information; a database which stores the gathered information and a search tool with which users search through the database by typing a keyword describing the information desired.

Tarakeswar and Kavitha (2011) expressed that search engines are of different types based on their components and capabilities. There are crawler based search engines with Google, live search and Ask as examples. Others are Meta search engines like metacrawler and MSN search that fetch results from other search engines. Users seeking information for research have the opportunity to use these search engines to retrieve the information they seek instantly from different web pages all over the world on the World Wide Web through the Internet. This opportunity afforded by the search engines has no doubt proved to be a threat to the university libraries, as library users now have the choice of selecting which ever medium to use to get the desired information.

University libraries also recognise this threat and in response to that, reference librarians are now mastering the art of using Information and Communication Technologies with all the associated devices to deliver reference service to users within the university community. The fact that most reference resources are also available in electronic format has made this possible.

There are electronic databases for abstracts and indexes available on the web, databases also exist for journals. Examples include Agora, Jstor, Doaj, Hinari, ProQuest and Bionne. University libraries subscribe to all these electronic databases in order to provide scholarly resources for research activities.

ICT has also enhanced reference service in university libraries with the provision of different services that can be rendered online, making it possible for libraries to manage websites. Ganaie (2013) stated that through the virtual reference, queries of users can be sent online and a reference interview can be conducted through the use of a phone or through chat room via the social networking sites. Some libraries websites include the icon ask-a-librarian through which users can send their formatted enquiry to the reference librarian. The librarian provides an answer, links the user with useful electronic reference resources or links the user with a subject expert.

All these symbolise that the reference sources in university libraries are not just the traditional print resources and those on CD-ROM, online reference sources have also found their way in, coupled with online reference services. Users of the university libraries can also access internet based reference services within the university libraries. Undergraduates are among users of the university library and they engage in research activities of which they could utilize the reference sources in the university library or consult the web search engines on the Internet. Studies have been conducted to examine the preference of undergraduates for library resources, reference sources inclusive and the search engines for research activities.

Davis (2003), in a study of the effect of the web on undergraduates citation behaviour, stated that the wiring of the United States college campuses has had a pronounced effect on how students access information because much of the research that was done in libraries can now be carried out in computer laboratories and dormitory rooms through the use of the Internet. Davis went further to state that as a consequence, libraries have been experiencing a downward (and accelerating) trend in the number of questions asked at reference desks. This is in consonance with the annual statistics compiled by the Association of Research Libraries where findings revealed that the median number of reference questions asked in university libraries has dropped by 30% from 1995-2001, while Cornell University experienced a 44% decline.

Muniandy (2010) also examined academic use of the Internet among undergraduates in a Malaysian University. 92 undergraduates took part in the study and the questionnaire was used

to collect data. Results showed that 33.7% of respondents indicated they used the resources in the university library, 35.9% said they sometimes consulted university library publications, while a majority of undergraduates (71.7%) expressed that they made use of search engines like Google and Yahoo very often. This implies that the respondents actually preferred the search engines to the information resources in the university library. While it seems as if search engines are gaining the upper hand over reference sources in the university library, they have not been able to provide the perfect answers to research queries.

Brophy and Bawda (2005) compared Google as an Internet search engine with academic library resources. After the analysis and discussion of their findings, they concluded by stating that while Google was superior for coverage and accessibility, academic library resources were superior for quality of results. Singer, Nurbisrath and Lewandowski (2013) also opined that the ever growing amount of information available on the web increasingly overburdens web users and impacts their internet experience. They further noted that even when search engines are the most prominent tools that help individuals engaging in research to retrieve the needed information on the web, search engines do not support all information needs equally well. According to a research conducted by Microsoft, a larger percentage of the queries issued by search engines (75%) during longer search sessions yield terrible satisfaction and only 25% of those queries were successful.

It is against this backdrop that it is necessary to consider the preference of undergraduates between web search engines and the reference sources in the university for research activities. This is further imperative because university libraries spend scarce resources to acquire, subscribe and maintain reference sources.

Statement of the problem

The advent of the Internet in the early 1990's has brought about increased access to information through the multimedia part of the Internet which is the World Wide Web (WWW). Information can be accessed anywhere, at anytime and by anyone who has the required skills once there is an internet enabled device and an internet connection. Prior to the development of the Internet, the university libraries were considered to be the first port of call whenever there is a need for research by students and faculty in the university and reference resources were heavily used. But presently, it is as if the trend is changing as university libraries now compete with the search engines for user patronage. This has been further fueled by the prevalence of the

Internet and smart devices like laptops, i-pad, tablets and android phones which provide one-touch access to the internet.

During the course of their academic program in the universities, undergraduates engage in research activities. Their search for information could lead them to use the web search engines on the internet or to utilise the information materials, especially the reference sources in the university library. However, observations show that without the use of the proper keywords, access to the needed information through web search engines may be difficult and frustrating. On the other hand, the general perception is that undergraduates prefer to use these web search engines and as such display apathy towards information resources which include reference resources in the university library.

Based on this, is the general perception empirically true especially with undergraduates in Nigeria? What informs undergraduates' preference either for web search engines or reference sources in the university library for research activities? Studies have been conducted on the use of web search engines and the use of reference resources by students, but few have really researched into the preference of undergraduates between web search engines and reference sources for research activities and factors associated with this in Nigeria. The study therefore aims to examine undergraduates' preference between web search engines and reference sources for research activities in two universities in South-west Nigeria.

Research questions

This study will answer the following research questions;

1. What are the web search engines and reference sources utilised for research activities by undergraduates?
2. What are the research activities that necessitate the use of web search engines and reference sources by undergraduates?
3. What is the frequency of use of web search engines and reference sources for research activities by undergraduates?
4. What is the preference of undergraduates between web search engines and reference sources for research activities?
5. What are the constraints to the use of web search engines and reference sources for research activities by undergraduates?

Literature review

The review of relevant literature will be conducted in line with the following subheadings; use of reference sources for research activities by undergraduates, use of web search engines for research activities by undergraduates, undergraduates' preference between web search engines and reference sources for research activities, and factors militating against undergraduates' use of web search engines and reference sources for research activities.

Use of reference sources for research activities by undergraduates

Igwe (2004) observed that a search for literature in research work will not be complete without examining some relevant reference materials necessary for exploring the topic. Iroaganachi and Ilogho (2011) also concluded that a scholarly work without the consultation of good reference books is considered shallow. The university library supports the research efforts in the university, and as such acquires these reference sources after careful evaluation. Some of the criteria for evaluation include authority of the compiler/publisher, scope, cost and format (Aina 2004). Once these reference sources are acquired in the library, undergraduates also utilize them for research activities. Studies have been conducted to examine the use of reference sources for research activities by undergraduates.

Mohammadi, Moghaddam and Yeganeh (2008) examined students' perception of the impact of user education on the use of reference resources in Qom Islam Azad University (QIAU) Iran. The study adopted the descriptive survey method and the Krejlie and Morgan formula was used to select 350 respondents (including undergraduates) out of a population of 6,800. Findings revealed that most of the respondents (58%) indicated that they were not aware of indexes and as such did not utilise them for research activities, while only 22.5 % agreed that they were familiar with indexes and 19.5% did not even provide answers.

The study conducted by Kumar (2013) also showed results similar to the findings of Mohammadi, Moghaddam and Yeganeh (2008). Use of library resources by students of Indian Institute of Management (IIM), Rohtak, was investigated with the use of a questionnaire based on survey method. 110 respondents were selected with the use of the stratified random sampling technique. Findings showed that only a small significant number of respondents actually visit the library for the purpose of utilizing reference materials, as 20 (20.83%) indicated that they visited the library for the sole purpose of utilizing the reference sources for research activities.

Gunasekera (2010) carried out a study in Sri Lanka that presented different results from the two studied earlier cited. The study investigated students' usage of the main library of the University of Peradeniya. The population consisted of 800 undergraduates in the Faculty of Arts and the research was conducted among the students who used the library. The opinion of the respondents were sought on the importance of different information resources for their learning and research activities using a five point likert scale that rated 1 as not at all important, 2- less important, 3-somewhat important, 4-important and 5-very important. A list of ten information resources was provided including open ended option. Findings indicated that reference materials were ranked as the most important resource for research activities with a mean of 4.45, followed by internet, textbooks and supplementary reading materials. Results also showed that 95% of the respondents utilized reference collection in the library.

Saikia and Gohain (2013) carried out a study in Indian that presented results different from the two studies earlier cited. They studied use and user's satisfaction in library resources and services in Tezpur University Indian. The population of study included 77 undergraduates (48.43%) of the population, master degree students 54 (33.96%) and 28 research scholars that form 17.61% of the population. Results showed that more than half of the respondents 84 (58.20%) used reference sources in the university library for various academic activities. It is also interesting to note that a high percentage (70.44%) also affirmed that they were satisfied with the reference sources.

The study by Jamil, Tariq and Jamil (2013) provided insight into the various research activities that necessitated the use of reference sources. The utilisation of library resources by teachers and students in the Punjab Province of India was considered. Most of the undergraduates that were part of the sample selected from the population of the study indicated that they used reference sources in accessing information that would assist in preparation of notes, assignments, presentations and preparation for examinations. The results of the study showed that reference sources were well utilised.

Some studies have also been conducted on the use of reference sources by undergraduates in Nigeria. Iroaganachi and Ilogho (2011) studied the utilisation of reference books by students of the Covenant University Ota, Ogun State Nigeria. The population included 400 and 500 level undergraduates. Survey method was adopted and the simple random sampling technique was used to select the sample size. 300 copies of questionnaire were administered to

the respondents, a focused group discussion was conducted with 30 participants and 18 undergraduates' were also interviewed. Findings showed that 275 (91.6%) indicated that they were aware of the reference sources in the reference section and 69% agreed that these resources are indispensable for research activities. The results also revealed that 152 (52.9%) of the respondents used the reference materials frequently, while 135 (44.9%) said they did not. It can also be deduced from the results that user education contributed to the utilisation of these resources by the undergraduates. This is because 281 (93.6%) indicated that they were taught what reference resources are and how to use them, while 15 (4.9%) disagreed and 4 (1.3%) did not respond.

Okeke, Oghenetga and Nwabu (2013) examined students' attitude towards the use of Reference Information Services (RIS) in academic libraries in Nigeria. Survey method was adopted for the study and copies of questionnaire were administered to undergraduates' in Nnamdi Azikwe University, Akwa, Anambra State University, Uli and Madonna University, Okija Anambra State. Results showed that most of the respondents 110 (52.41%) felt negative about the use of reference sources in the library and as such did not use the reference sources for research activities.

Use of web search engines for research activities by undergraduates

Kim, Yoo-Lee and Sin (2012) expressed that with the advances in technology, more information has become available to the users through a wide range of channels. Users can access information not only through the traditional print sources, but also through various electronic formats via the internet. Web search engines make it possible for information to be accessed on the internet with a touch of a button on any internet enabled device. Emphasizing the prevalence of use of search engines, Fallow (2008) opined that on a typical day 49% of internet users are searching the Internet using a search engine. Chen, Jeon and Kim (2013) carried out an experimental study to determine how a day will look like without a search engine. Findings of study revealed that individuals search for information on a daily basis for various purposes. Prominent among the reasons why individuals use the search engines was for educational purpose, specifically research function.

Waller (2011) concluded after a study of search engine use that people often use the search engines even when they know the location of information, suggesting that perhaps users treat search engines as "leisure sites" and not always as gateways to information. This conclusion

reveals that search engines have really become part of the lives of individuals who make use of them for various purposes. To the undergraduates however, the utilisation of search engines goes farther than leisure, it is more of a need in lieu of the research activities that are necessary in their academic pursuits.

Web search engines guarantee access to electronic information resources, and undergraduates are taking advantage of this in getting the needed information for their various research activities. Sahin, Balta and Ercan (2010) examined the use of internet resources by university students in the Department of Tourism and Hotel Management in Yasar University, Turkey. The sample size was 102, and the research instrument adopted for the study was the questionnaire. Results showed that a high percentage of the respondents 82 (98%) of the utilized search engines for their term projects. These students engaged in the research activities with the use of the search engines and they were able to complete their term project.

The study conducted by Sakina, Khalid and Farzana (2008) on internet use provided insight into the various search engines used by undergraduates. The respondents were asked to mention which search engines that they used to retrieve the needed information. Results showed that 269 (90%) mentioned that Google was the search engine that they utilised most for searching when conducting research, less than half of the respondents 133 (44%) used Yahoo, 67 (22%) made use of MSN and 29 (10%) indicated that they Alva Vista. Other respondents 10 (7%) agreed that they utilized Info-Seek and a little above half 54 (18%) specified that they consulted other search engines.

Reeves et al (2009) investigated students' use of research content in teaching and learning in University of Central Lancashire (UCLAN) United Kingdom and three other universities with concealed identities. The names of the universities were kept confidential in order to protect the identity of those sampled, because focus group discussions were conducted with them. The sample included 428 respondents. Findings of the study revealed that the most used internet search engine was Google; this was an indication from 60.5% of the respondents. Google scholar followed with 41.1% who expressed that they utilise the search engine for research activities of various sorts.

The study by Aguirre, Freberg and Allard (2011) gave a result that was quite different from that of Reeves et al (2009) where most respondents indicated that they preferred Google to Google scholar. The study examined the perception and uses of Google scholar among

undergraduates with the use of an email that provided access to the main research instrument. Most of the respondents expressed that in the context of academic research they preferred Google Scholar to Google. Google Scholar was preferred due to the richness and diversity of subject content, combined with its recognizable name brand and reputation among undergraduates in research activities.

However, the study carried out by Malik and Mahmood (2009) reemphasized the position of earlier studies (Sakina, Khalid & Farzana 2008 and Reeves et al 2009) that Google was indeed the search engine of choice among undergraduates. They examined the web search behaviour of University of Punjab students that included undergraduates. A sample of 200 was selected from a population of 3100 from students from the Faculty of Economics and Management Sciences, and the questionnaire was used to collect the data that was analysed. Results of the study showed that 197 (97%) of the respondents attested to the fact that Google was their favourite search engines, closely followed by Yahoo 143 (72%) and 37 respondents indicated that they made use of other search engines. The findings of the study also showed that 62 respondents (31.0%) pointed out that they used the search engines at least once a day, while 42 (23.0%) said they used the search engines more often. From the study, 197 respondents (72.5%) agreed that the purpose for their utilization of the search engines was for the purpose of research activities.

Rieger (2009) also studied search engine use behaviour of students and faculty with a view to examine their perception, and provide a basis for further research. Qualitative research method was employed and an interview was conducted with 32 respondents. Interestingly all the respondents all agreed that Google was the search engine of choice. Some of the comments of the interviewee were; “Google delivers”, “I always start my research at Google” and “Google is my personal search engine”. The respondents also consistently described Google as reliable, efficient and fast. In fact the adjectives used during the interviews in describing included “thorough”, “comprehensive”, “easy”, “clean” and “accurate”.

Elsewhere in Malaysia, Muniandy (2010) conducted a study on the use of the internet among 92 undergraduates with the use of the questionnaire. Results from the study indicated most of the students made use of Google and Yahoo as (71.7%) attested to this. While Google enjoyed massive usage, another search engine, Dogpile did not. This is so because 86 (93.5%) affirmatively asserted that they never used it in their research activities. Mostafa (2010) also carried out a study on the same continent as Muniandy (2010), but this time in Baangladesh.

Nearly one thousand undergraduates of Darul Ihran University, Main Campus, Dhanmindi, Dhaka who were undergoing a course in business formed the population of the study. A structured questionnaire was used to collect data and 137 respondents returned copies of the questionnaire that were used for analysis. Results upheld the findings of previous studies as Google and Yahoo were the popular search engines, Google was the major search engine used by 85.4%. This was distantly followed by Yahoo (10.9%), Lycos (1.5%) and Alta Vista (1.5%). This search engines were used for educational purposes of which research was prominent.

Thanuskodi (2011) also surveyed internet usage among faculty members and the students in the professional colleges at Tirunelveli Region, India. The questionnaire used as the data collection instrument had 20 questions spread over the following areas; general profile, experience of internet use, frequency of use, methods of internet learning skills, use of internet services, problems of internet use and favourite search engines. On the question pertaining to the favourite search engines, 51.11% of the respondents indicated that the most frequently used internet services are search engines, with 114 respondents (31.67%) affirming that they used Google and 86 (23.5%) chose Yahoo as the most favourite.

Mashin (2013) conducted a study that did not bring a result different from the others. First year and final year undergraduate students' academic use of the internet was examined in a university in Zimbabwe. 100 respondents were randomly selected with an even distribution of the questionnaire which was the research instrument to 50 males and 50 females. Findings of the study showed that as compared with the first year students, majority of the final year undergraduates (78%) used Google and Yahoo more often. This could be as a result of the research activities that they were expected to carry out especially their projects. The results also revealed that a significant number of the respondents had not used meta search engines such as Dogpile and info.com.

Zhang (2013) also carried out an exploratory study of users' preferences and use of sources for seeking health information. Twenty undergraduate students from a major university in Texas, United States of America were interviewed about their use of information sources for seeking health and wellness related information. The interviews were one-on-one and they took place in a private lab or office between January to April 2012. Results showed that the participants ranked the traditional internet source, namely web search engines first as an

important source for health information. The most widely referred to web search engine was Google, only one participant mentioned Yahoo and one mentioned Bing.

The recent study of Shaikh (2014) on the use of internet tools by B.Ed. students in Pune University, India gave results that reinforced the position of studies done earlier. Descriptive research design and the incidental sampling technique were adopted for the study, and the questionnaire was the data collection tool employed to seek information from 91 respondents. Major findings revealed that 78.9% used Google as the search engine to locate information, followed by 45.9% that used Yahoo and 19.8% used Google Scholar. The results rated internet sources above all other information sources including library resources.

The study on digital information resource preferences of undergraduates done by Wijetunge (2014) showed that preference for web search engines varies among faculties. The study focused on students of the University of Peradeniya, Sri Lanka who were in the Faculties of Agriculture, Arts, Engineering and Science. Overall findings indicated that search engines were most used by 82% of the respondents. However, there were faculty variations, Faculty of Agriculture recorded highest use of search engines with 96% of the respondents, while Faculty of Science recorded a similar use of search engines with 87%.

From the articles reviewed, Google has managed over the years to remain on top as the most used and most popular search engine that is used for research by undergraduates. To some respondents, Google is even more rated than a search engine. The study carried out by Lopatovska, Fento and Campot (2012) on the preferences for search engines and their effects on behavior among participants that included undergraduates revealed how some students viewed Google. The study adopted both qualitative and quantitative research methods, so respondents had the opportunity to state their views. One of the participants summarized his attitude to search engines in a phrase that "Google is God".

Undergraduates' preference between web search engines and reference sources for research activities

Aguirre, Freberg and Allard (2011) opined that searching for information has become easier with the increasing use of technology and access to numerous sources online. They further expressed that currents trends among college students suggest that instead of using traditional sources to access information (libraries and information resources, including reference sources there in), they are turning to free online search engines, like Google scholar in order to access

various publications for their course work and research assignments. Through the use of the web search engines, they have access to information contained in journal articles, news reports, among others. The authors arrived at this conclusion based on the results of their study. The findings of this study were not different from those of earlier studies, especially those carried out the year before.

Kim and Sin (2007) examined the perception and selection of information sources by undergraduates with special interest on the effects of avoidant style, confidence, and personal control in problem solving. A total number of 225 undergraduates in a public university participated in the study, and they were asked to rate how frequently they use each of nine different information sources for their academic activities. The scale used for measuring the frequency of usage ranged from 0 to 6, with 0 indicating "not used" and 6 "used daily". Results showed that among the nine sources, web search engines was the most frequently used source with a mean of 4.75, while reference sources (dictionaries and encyclopaedias) ranked 8th with a mean of 2.39. The participants indicated that their choice was based on accuracy/ trustworthiness, accessibility and ease of use.

Head and Eisenberg (2010) conducted a study on how college students evaluate and use information in the digital age, sponsored by the Mac Arthur Foundation as part of its literacy project. The study had a sample size of 8,353 respondents that were drawn from 25 college campuses across the United State of America. The respondents were asked the information sources that they used for everyday research, and the results revealed a clear cut preference for web search engine. This was because 95% affirmed that they used search engines including Google for their research activities, while between 35% and 55% indicated that they used reference sources like encyclopaedias (print and online) for their daily research activities.

Korah and Cassidy (2010) also carried out a survey in Sam Houston University, Huntsville, Texas on the use and satisfaction of undergraduates (that included freshmen, sophomore, junior and senior) when it comes to federated searching. The population of the students that were surveyed was 475 and their responses were analyzed. Results showed that the majority of the undergraduates indicated their preference for web search engines as opposed to the federated search database E-Z that provided a form of reference service. In the overall, 46% of the respondents found web search engines most satisfying as compared to 41% who derived satisfaction from other library resources (reference sources inclusive).

The findings of the study done by Muniandy (2010) at a university in Malaysia were not different from those already presented. Results from the study showed that a significant number of the undergraduates preferred the use of search engines in searching for information to the use of the university library resources that included reference sources. They ranked the utilisation of library resources very low. The findings of the studies considered showed that undergraduates showed preference for web search engines as opposed to the reference sources, both print and electronic.

The study by Georgas (2013) however presented a different result with a twist that shows that some students still preferred a form of electronic reference source like the federated search tool to web search engines. The study examined Google vs. the library: students' preferences and perceptions when doing research using Google and a federated search tool portal. Thirty two undergraduate students at a university in Brooklyn, United States were interviewed. When asked which search tool they would consult for research assignments, 19 students (59.4%) choose the federated search tool, while 11 (34.4%) went for Google but one students that did not indicate a preference responded that it depends on the nature of the research assignment. The students said if the assignment had to do with a term paper, federated search tools will be used, but if the assignment had to do with writing one page summary, Google will be used. This though is just one case out of the overwhelming majority that showed a preference for web search engines. Authors have provided some insight into why web search engines are preferred to the reference sources for research activities.

Davis (2003) provided an insight as regards what might inform the preference for web search engines by undergraduates. The author averred that convenience may play a large role in the selected of web sources, retrieved through the aid of search engines, over traditional print sources as found in university libraries. Davis went to express that in the mixed environment of electronic and print literature, electronic literature has a pronounced advantage because it is easy to access. This implies that undergraduates found the web search engines to be easily accessible, rather than utilizing the reference sources for research activities.

Sadeh (2007) in an article titled Time for a change: new approaches for a generation of library users provided a summary of the features of web search engines that made them to be the most preferred source to end users. The first feature was the fact that web search engines provide a simple searching mechanism. This is because web search engines do not require a significant

degree of searching literacy on the part of the user and provide results that are usually good enough without precision searching. Also some web search engines also make provision for spelling corrections and suggested alternatives to search queries. Ease of access was the second feature highlighted by Sadeh. The author argued that unlike the strict traditional library framework, web search engines provide ease of access through the tool bar on internet enabled devices, coupled with the fact that with search engines no opening and closing hours.

The third feature why web search engines are preferred according to Sadeh (2007) was that web search engines guarantee online available of materials. The author noted that most users prefer material that is available online and they can access from afar and use in ways their suited to their research style and tempo. Sadeh acknowledged that although libraries already provide large quantities of materials in electronic form, many users still perceive libraries as a place for physical items and often turn to the broader web to find electronic materials. This proves that unlike the some libraries that place restrictions on the use of reference sources, with the web access to provided to a variety of information resources that can be downloaded in multiple formats (Portable document format PDF, word document and power point PPT) without restrictions as to usage.

The study by Malik and Mahmood (2009) also provided some reasons why undergraduates prefer web search engines to the reference sources for research activities. The question asked on the appealing features of web search engines that made them to be preferred threw up interesting results. A very high percentage of the respondents 140 (92.30%) indicated that they preferred web search engine because of ease of use, 120 (60%) chose web search engines because of relevance, 113 (56.5%) preferred web search engines due to their reliability and 107 (53.5%) went for webs search engines based on their speed.

Lopatovska, Fento and Campot (2012) also expressed that inability to find alternatives, convenience associated with the use of search engines, habits of using search engines, discomfort associated with burdening others with information requests, sense of the reassurance provided by search engine results and perceived anonymity of search engine use are important factors that bring about the preference in the use of web search engines.

The search performance of web search engines also has a role to play in determining the preference between these sources and reference materials for research activities. The study by Zhou (2013) that focused on the systematic understanding of successful web searches in

information based tasks identified the factor that could determine search performance of the search engines. The study recruited undergraduates of a Chinese university via advertisement, those who volunteered to be part of the study had a mean age of 20.3. Two search tasks were assigned to the participants. The searching topic was; how do bees choose where to build their new homes? And what do you think are the implications for human life? Results documented students' varying abilities to search. The key factor that determined search performance was the effective use of search queries. Participants with successful searches made use of advanced search options such as extracting relevant and effective key terms and removing unimportant words or utilisation of synonyms. The opportunity provided by web search engines through manipulation of search queries in getting the needed information for research is also a preference indicator.

Constraints militating against undergraduates' use of web search engines and reference sources for research activities

Undergraduates face quite a number of constraints in the use of web search engines and reference sources for activities as documented in literature. The constraints faced in the use of web search engines will be considered, to be followed with those on reference sources. Hochstotter and Martina (2008) examined the standard parameters for searching behaviour in search engines and their empirical evaluation. They reported that search engines are the most important tool by which any data or pages on the internet can be retrieved. But despite the convenience of these tools, individuals (undergraduates inclusive) still get lost in hyperspace or cannot be able to use search engines appropriately.

Reeves et al (2009) study on students' use of research content in teaching and learning which was carried out at the University of Lancashire and that made use of 428 respondents, revealed some constraints toward the use of the web search engines as indicated by majority of the respondents. Most of the undergraduates' who utilised Google expressed that they were bewildered by the amount of responses and that made them not to properly explore the search results as they rarely looked beyond the first couple of pages of the search term.

The findings of study on web search behaviour of university students carried out by Malik and Mahmood (2009) at the University of Punjab showed that the limiting factors that affected the undergraduates' use of search engines included the difficulty in finding relevant information with a mean of 2.81 and a standard deviation of 1.999. Overload of information was

another constraint as it recorded a mean of 2.74 and a standard deviation of 1.171. Another limitation indicated by the respondents was slow speed as it recorded an average of 2.69 and a standard deviation of 1.426.

Rieger (2009) examined the perception of students and faculty on their search engine behaviour with interviews that were conducted with thirty two respondents. The responses of the participants in the interview revealed some other forms of constraints that undergraduates face in the use of web search engines. Most of those interviewed raised heavy concerns about the information management challenges associated with having access to large and diverse corpuses of digital information. Another challenge brought up during the interviews was the difficulty of differentiating searches that rely on the same keywords. A common example as cited in the study would be differentiating the task of looking for a specific full text and article written by a certain author versus that of identifying articles that cite papers by a specific author.

Rieger provided an illustration as expressed by a participant who said that if a name like Joy Asam May is entered, the information that would be retrieved from the search engine will include full text articles muddled up with papers that cited her without any differentiation. The participant further said it is difficult to conduct a search that does one or the other but not both. Another constraint faced by undergraduates as indicated in the study was that at times it is quite difficult to engage in a private research via the search engines even though they may be in the privacy of their hostels. This expression was based on the fact that search engines used the search patterns of users to generate revenue, so the search after all is not always private.

Mostafa (2011) who also sampled 162 business students who were undergraduates at a private university in Bangladesh reported that the constraints militating against the use of web search engines as indicated by majority of the respondents included slow access speed via the internet, 75.2% agreed to this, the length of time required to download pages was another limiting factor, cost associated with the accessing the internet and the last constraint was in line with the result Reiger (2009) also reported, privacy problems.

The study of Georgas (2013) that was focused on undergraduates' preference and perception between Google and the library as it relates to research also provided an understanding into some of the constraints of the utilization of web search engines for research activities. A significant number of the participants acknowledged that Google returned too many and/or irrelevant results, and also that there were a lot of advertisements that diverted them to

commercial sites where they were asked to purchase one thing or another. This they express was not good for finding scholarly sources. They further noted that it so many cases, Google failed to provide the full citation to a source making it difficult for them to provide accurate reference and they also experienced challenges in downloading books and not articles on the web search engine.

Undergraduates' have also experienced some impeding factors that limited their use of reference sources for research activities. Kumar (2013) who studied the use of library resources by the students of Indian Institute of Management (IIM) reported that the constraints faced by these students in their use of reference materials. One of the constraints was lack of current reference materials, 35 (36.45%) out of the 120 respondents who participated in the study indicated this, 18 (18.75%) of the students also expressed that lack of support from the library staff was indeed a constraint and 18 (18.75%) of the respondents also said restricted library hours really restricted their use of the reference sources for research activities.

The study of Okeke, Oghenetga and Nwabu (2013) on the attitude of students towards the use of reference and information services (RIS) in academic libraries in Nigeria also threw up some results similar to those of Kumar in Indian. Findings of the study showed that the respondents indicated that they faced the constraint of outdated reference materials on the shelves. They also noted that reference books were not properly shelved which made it difficult for access to be made possible. The other constraints included; inadequate reference materials in various disciplines and fields studied in the institution, lack of literature search skills among students and unavailability of reference librarian or assistant staff to help students retrieve the needed information from the reference materials for research.

Methodology

The study adopted the descriptive survey research design. The population of this study are the undergraduates of the University of Ibadan (UI) and Redeemers University (RUN). According to the data collected from the Academic and Planning Unit of the University of Ibadan, the number of undergraduates in all the thirteen faculties of the university is 12,173. Also the data collected from the Directorate of Academic Planning and Quality Assurance of Redeemers University put the number of undergraduates in the three colleges of the university at 2,388. This gives a total number of 14,561 as the population of the study (Table 1).

Table 1 Population of the study

University of Ibadan		Redeemers University	
Faculties	**Number of undergraduates**	**Colleges**	**Number of undergraduates**
Agriculture and Forestry	1296	Humanities	464
Arts	1486	Management Sciences	1408
Basic Medical Sciences	315	Natural Sciences	516
Clinical Sciences	773		
Dentistry	157		
Education	1586		
Law	685		
Pharmacy	388		
Public Health	127		
Science	2131		
Technology	1333		
Social Sciences	1479		
Veterinary Medicine	417		
Total	**12173**		**2388**
Grand Total		**14561**	

Source: Academic and Planning Unit, University of Ibadan and Directorate of Academic Planning and Quality Assurance, Redeemers University.

The multistage sampling technique was used for this study. In the first stage two out of the colleges in RUN and faculties in UI were randomly selected using the balloting method. The colleges were Humanities and Management Sciences for Redeemers University and faculties of Science and Social Sciences for University of Ibadan.

The next stage of sampling involved the purposive selection of two departments with the highest number of undergraduates in each of the faculties. The selected departments in the Colleges of Humanities and Management Sciences in RUN were English, History/International Relations, Economics and Accounting while Chemistry, Computer Science, Psychology and Sociology were selected from the Faculties of Science and Social Sciences in the UI.

The last stage involved the selection of the sample size from the departments. Gay and Airasan (2003) in educational research: competencies for analysis and application averred that one rule of thumb for determining an adequate sample size for descriptive research is that it

should consist of 10 to 20% of the population under study. This view was further asserted by Singh (2006) in fundamental of research methodology and statistics who suggested that one should select 10-20% of the accessible population for the sample. Based on the submission by Gay and Airasan (2003) and Singh (2006) and in order to effectively manage the size with respect to getting high quality information at minimum cost from undergraduates in each department that will be truly representative of the target population, a sampling fraction of 18% was used. This therefore gave a sample size of 386.

The questionnaire was the main research instrument used to collect data for the study. The reliability of the questionnaire was also done through a pilot study. Thirty copies of the questionnaire were administered to undergraduates in Lead City University Ibadan which is not part of the actual study sample. The Cronbach's Alpha method was used to determine the reliability coefficient of the instrument. The co-efficient alpha of the scales for each of the section (B, C, D, E and F) on the questionnaire was measured. The details of the results obtained on the sections are as follows; (α=.90) for use of web search engine and reference sources (Section B); (α=.70) for research activities (Section C); (α=.92) for frequency of use of web search engines and reference sources (Section D); (α=.83) for preference between web search engines and reference sources (Section E); (α=.91) for constraints to the use of web search engines and reference sources.

The analysis of the data collected was based on the use of simple descriptive statistical analysis of frequency counts and percentages. Figures and tables were used to present the findings. Inferences and recommendations were also drawn from them.

Results

Questionnaire Administration and Return Rate

A total of 386 copies of the questionnaire were distributed to the respondents who comprised of 233 undergraduates students of the University of Ibadan (UI) and 153 of the Redeemer's University (RUN), and 341 copies were returned and used for analysis giving a response rate of 88% (Table 2).

Table 2 Distribution of questionnaire administration and return rate

Universities	Distribution	Return
University of Ibadan	233	201

Redeemer's University	153	140
Total	**386**	**341**

Demographic characteristics of respondents

Table 3 revealed that majority of the undergraduates in UI 99 (49.4%) and RUN 45 (32.1%) were in 400 level. This gives more credence to the study as these individuals had spent over three years in the university system and as such would have interacted with the reference sources and also web search engines in the course of their various research activities. The response of these students carries more weight. Most of the undergraduates of UI and RUN who responded to the questionnaire consisted of more female with a response rate of 110 (54.7%) and 98 (70.0%) respectively, as against male which recorded a response rate of 90 (44.8%) and 42 (30.0%) respectively.

The result in Table 3 indicated that most of the undergraduates in UI 112 (55.7%) who were respondents were between the ages of 21 to 25. While in RUN, the result was different as most of the undergraduate students 81 (57.9%) were between 16 to 20 years of age. This shows that students in RUN which is a private university are younger in age than their counterparts in UI which is a public institution. The result also showed that most of the respondents 162 (80.6%) and 132 (94.3%) in the two universities practiced the Christian faith. The obvious reason why the percentage was very high in RUN is because the institution is owned by a Christian body which is the Redeemed Christian Church of God (RCCG).

Table 4.2 also revealed that most of the undergraduates in UI 190 (94.5%) and RUN 136 (97.1%) were single individuals. This is very realistic and practical looking at the age bracket of the students; they are not expected to have family responsibilities at this stage. Their studies should be their top priority. Findings also indicated that the personal income of the most of respondents in the two universities were between 10,000- 19,999 Naira. This was the response of 74 (36.8%) in UI and 52 (37.1%) in RUN respectively. This has a lot of implications especially for the use of web search engines. In order to access these search tools on the internet, there as to be internet connectivity made possible by a subscription. It costs money to subscribe, and undergraduates with this monthly income and their various needs may still need to set something aside for internet access.

Table 3 Demographic characteristics of respondents

Variables		University of Ibadan		Redeemer's University	
		Freq	%	Freq	%
Level	100	27	13.4	28	20.0
	200	39	19.4	36	25.7
	300	36	17.9	31	22.1
	400	99	49.4	45	32.1
Sex	Male	90	44.8	42	30.0
	Female	110	54.7	98	70.0
Age	16-20	38	28.9	81	57.9
	21-25	112	55.7	55	39.3
	26-30	24	11.9	4	2.9
	31-35	5	2.5	-	-
	41 and above	2	1.0	-	-
Religion	Christianity	162	80.6	132	94.3
	Islam	38	18.9	4	5.7
	African Traditional religion	1	0.5	-	-
Marital status	Single	190	94.5	136	97.1
	Married	11	5.5	4	2.9
	Separated	-	-	-	-
	Divorced	-	-	-	-
Personal Monthly Income					
	Below 10,000	72	35.8	17	12.1
	10000-19999	74	36.8	52	37.1
	20,000-29,999	32	15.9	40	28.6
	30,000-39,999	13	6.5	16	11.4
	40,000-49,000	5	2.5	3	2.1
	Above 50,000	5	2.5	12	8.6
		N=201		**N=140**	

Answers to research questions

Research question one: What are the web search engines and reference sources utilized for research activities by undergraduates?

Table 4 revealed that the most used web search engine for research activities was Google as noted by respondents in UI 195 (97.0%) and 130 (92.9%) in RUN. Results also showed that the second most used web search engine was Yahoo as 126 (62.7%) of undergraduates of UI and 70 (50%) of those in RUN pointed out. The table also presented results on the reference sources used for research activities by undergraduates in the two universities. Findings showed that dictionaries were the most used reference source as 179 (89.1%) in UI and 114 (81.4%) in

RUN affirmed. The distribution on the reference sources used by undergraduates for research activities showed that dictionaries are important in the course of research to the undergraduates.

Table 4 Web search engines and reference sources used for research activities by undergraduates

University of Ibadan						**Redeemer's University**					
Web search engines		**Freq.**	**%**	**Reference sources**	**Freq. %**	**Web search engines**		**Freq.**	**%**	**Reference sources**	**Freq. %**
Google	Yes	195	97.0	Dictionaries Yes	179 89.1	Google	Yes	130	92.9	Dictionaries Yes	114 81.4
	No	6	3.0	No	22 10.9		No	10	7.1	No	26 18.6
Yahoo	Yes	126	62.7	Encyclopedia		Yahoo	Yes	70	50.0	Encyclopedia	
	No	25	37.3	Yes	145 72.1		No	70	50.0	Yes	89 63.6
				No	56 27.9					No	51 36.4
Bing	Yes	72	35.8	Indexes Yes	64 31.8	Bing	Yes	39	27.9	Indexes Yes	15 10.7
	No	129	64.2	No	137 68.2		No	101	72.1	No	125 89.3
MSN	Yes	29	14.4	Abstracts Yes	77 38.3	MSN	Yes	18	12.9	Abstracts Yes	12 8.6
	No	122	85.6	No	124 61.8		No	122	87.1	No	128 91.4
Alta Vista	Yes	8	4.0	Maps Yes	63 31.3	Alta Vista	Yes	4	2.9	Maps Yes	29 20.7
	No	193	96.0	No	138 68.7		No	136	97.1	No	111 79.3
Askjeeves	Yes	12	6.0	Atlases Yes	41 20.4	Askjeeves	Yes	5	3.6	Atlases Yes	17 12.1
	No	189	96.0	No	160 79.6		No	135	96.4	No	123 87.9
Dog pile	Yes	9	4.5	Yearbooks Yes	35 17.4	Dog Pile	Yes	7	5.0	Yearbooks Yes	10 7.1
	No	192	95.5	No	166 82.6		No	133	95.0	No	130 92.9
HotBot	Yes	8	4.0	Directories Yes	36 17.9	HotBot	Yes	8	5.7	Directories Yes	20 14.3
	No	193	96.0	No	165 82.6		No	132	94.3	No	120 85.7
Lycos	Yes	6	3.0	Almanacs Yes	29 14.4	Lycos	Yes	7	5.0	Almanacs Yes	11 7.9
	No	195	97.0	No	172 85.6		No	133	95.0	No	129 92.1
Infoseek	Yes	11	5.5	Bibliographies		Infoseek	Yes	8	5.7	Bibliographies	
	No	190	94.5	Yes	49 24.4		No	132	94.3	Yes	26 18.6
				No	152 75.6					No	114 81.4
Mamma	Yes	21	10.4	Handbooks Yes	48 23.9	Mamma	Yes	4	2.9	Handbooks Yes	21 15.0
	No	180	89.6	No	153 76.1		No	136	97.1	No	119 85.0
Meta Crawler				Biographies Yes	43 21.4	Meta Crawler				Biographies Yes	18 12.9
	Yes	5	2.5	No	158 78.6		Yes	11	7.9	No	122 87.1
	No	196	97.5				No	129	92.1		
DuckDuckGo				Online		DuckDuckGo				Online dictionaries	
	Yes	6	3.0	dictionaries Yes	109 54.2		Yes	10	7.1	Yes	52 37.1
	No	195	97.0	No	92 45.8		No	130	92.9	No	88 62.9
Infospace	Yes	17	8.5	Online		Infospace	Yes	8	5.7	Online	
	No	184	91.5	encyclopedias			No	132	94.3	encyclopedia	
				Yes	95 47.3					Yes	52 37.1
				No	106 52.7					No	88 62.9
Aol Search	Yes	23	11.4	Online indexes		Aol Search	Yes	13	9.3	Online indexes	
	No	178	88.6	and abstracts			No	127	90.7	and abstracts	
				Yes	52 25.9					Yes	20 14.3
				No	149 74.1					No	120 85.7
N= 201										**N=140**	

Research question two: What are the research activities that necessitate the use of web search engines and reference sources by undergraduates?

Table 5 presented the response of the undergraduates on the research activities that influenced them to make use of the web search engines and the reference sources. Results

showed that a very high percentage 185 (92.0%) of undergraduates in UI and 127 (90.7%) in RUN indicated that they made use of web search engines for the purpose of assignment completion. As regards the reference sources, most of the respondents in UI 168 (83.6%) and 111 (79.3%) in RUN also noted that they made use of the reference sources in order to complete their assignment. This gives a similar pattern of response to that of the web search engines, even though the percentage in favour of web search engines use was high, they all agreed that assignment completion was a priority that made them use either web search engines or reference sources.

Table 5 Research Activities of Undergraduates

University of Ibadan				**Redeemer's University**			
Web search engines	**Freq. %**	**Reference sources**	**Freq. %**	**Web search engines**	**Freq. %**	**Reference sources**	**Freq. %**
Research activities		**Research activities**		**Research activities**		**Research activities**	
Project writing		Project writing		Project writing		Project writing	
Yes	139 69.2	Yes	133 66.2	Yes	86 61.4	Yes	78 55.7
No	62 30.8	No	68 33.8	No	54 38.6	No	62 44.3
Assignment Completion		Assignment completion		Assignment completion		Assignment completion	
Yes	185 92.0	Yes	168 83.6	Yes	127 90.7	Yes	111 79.3
No	16 8.0	No	33 16.4	No	13 9.3	No	29 20.7
Examination preparation		Examination preparation		Examination preparation		Examination preparation	
Yes	161 80.1	Yes	140 69.7	Yes	92 65.7	Yes	91 65.0
No	40 19.9	No	61 30.3	No	48 34.3	No	49 35.0
Continuous assessment Preparation		Continuous assessment preparation		Continuous assessment preparation		Continuous assessment preparation	
Yes	147 73.1	Yes	136 67.7	Yes	85 60.7	Yes	80 57.1
No	54 26.9	No	65 32.3	No	55 39.3	No	60 42.9
Personal development		Personal development		Personal development		Personal development	
Yes	142 70.6	Yes	120 59.7	Yes	75 53.6	Yes	64 45.7
No	59 29.4	No	81 40.3	No	65 46.4	No	76 54.3
Group presentation		Group presentation		Group presentation		Group presentation	
Yes	111 55.2	Yes	102 50.7	Yes	73 52.1	Yes	60 42.9
No	90 44.8	No	99 49.3	No	67 47.9	No	80 57.1
Group Discussions		Group Discussions		Group Discussions		Group Discussions	
Yes	91 45.3	Yes	91 45.3	Yes	49 35.0	Yes	37 26.4
No	110 54.7	No	110 54.7	No	91 65.0	No	103 73.6
Preparation for lectures		Preparation for lectures		Preparation for lectures		Preparation for lectures	
Yes	71 35.3	Yes	70 34.8	Yes	43 30.7	Yes	44 31.4
No	130 64.7	No	131 65.2	No	97 69.3	No	96 68.6
Preparation for debates		Preparation for debates		Preparation for debates		Preparation for debates	
Yes	67 33.3	Yes	65 32.3	Yes	34 24.3	Yes	40 28.6
No	134 66.7	No	136 67.7	No	106 75.7	No	100 71.4
Seminar presentation		Seminar presentation		Seminar presentation		Seminar presentation	
Yes	73 36.3	Yes	64 31.8	Yes	37 26.4	Yes	40 28.6
No	128 63.7	No	137 68.2	No	103 73.6	No	100 71.4

N=201 **N=140**

Research question three: What is the frequency of use of web search engines and reference sources for research activities by undergraduates?

The results in Table 6 and 7 showed the frequency of use of web search engines by undergraduates in UI and RUN. Most of the undergraduates 180 (74.6%) in UI made use of Google daily, while only 3 (1.5%) had never made use of it. Similarly, majority of the undergraduates in RUN 87 (62.1%) used Google daily and just 1 (0.7%) indicated otherwise. Web search engines like Bing and MSN had never been used by majority of the undergraduates. Findings showed that 108 (53.7%) and 145 (72.1%) of undergraduates in UI noted this. While, 94 (67.1%) and 108 (77.1%) of their counterparts in RUN also expressed that they had never made use of these web search engines.

Table 6 Frequency of use of web search engines by undergraduates in University of Ibadan

Web search engines	Daily		Twice a week		Once a week		Occasionally		Never	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Google	150	74.6	18	9.0	9	4.5	21	1.4	3	1.5
Yahoo search	56	27.9	23	11.4	16	8.0	61	30.3	45	22.4
Bing	16	8.0	13	6.5	18	9.0	46	22.9	108	53.7
MSN	7	3.5	3	1.5	9	4.5	37	18.4	145	72.1
Alta vista		-	3	1.5	6	3.0	17	8.5	175	87.1
Askjeeves	1	0.5	2	1.0	4	2.0	14	7.0	180	89.6
Dog pile	1	0.5	4	2.0	2	1.0	12	6.0	182	90.5
HotBot	1	0.5	2	1.0	2	1.0	11	5.5	185	92.0
Lycos	1	0.5	1	0.5	3	1.5	13	6.5	183	91.0
Infoseek		-	1	0.5	5	2.5	15	7.5	180	89.6
Mamma		-	2	1.0	3	1.5	21	10.4	175	87.1
Meta crawler	1	0.5%		-	2	1.0%	15	7.5%	183	91.0%
DuckDuckGo	1	0.5	1	0.5		-	16	8.0	183	91.0
Infospace	2	1.0	2	1.0	5	2.5	26	12.9	166	82.6
Aol Search		-	3	1.5	7	3.5	28	13.9	163	81.1

N=201

Table 7 Frequency of use of web search engines by undergraduates in Redeemer's University

Web search engines	Daily		Twice a week		Once a week		Occasionally		Never	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Google	87	62.1	11	7.4	2	1.4	39	27.9	1	0.7
Yahoo search	16	11.4	15	10.7	15	10.7	51	36.4	43	30.7
Bing	6	4.3	5	3.6	3	2.1	32	22.9	94	67.1
MSN	3	2.1	7	5.0	3	2.1	19	13.6	108	77.1
Alta vista		-	7	5.0	1	0.7	7	5.0	125	89.3
Askjeeves		-	4	2.9	4	2.9	7	5.0	125	89.3
Dog pile	4	2.9	2	1.4	3	2.1	8	5.7	123	87.9
HotBot		-	2	1.4	3	2.1	8	5.7	127	90.7
Lycos		-	1	0.7	2	1.4	8	5.7	129	92.1
Infoseek		-		-	5	3.6	3	2.1	132	94.3
Mamma		-	4	2.9	2	1.4	3	2.1	131	93.6
Meta crawler	3	2.1	2	1.4	3	2.1	2	1.4	130	92.9
DuckDuckGo		-	3	2.1		-	7	5.0	130	92.9
Infospace		-	2	1.4	2	1.4	11	7.9	125	89.3
Aol Search	1	0.7	4	2.9	1	0.7	11	7.9	123	87.9

N=140

Table 8 and 9 presented results on the frequency of use of reference sources by the undergraduates of University of Ibadan and Redeemer's University. Findings showed that close to half 99 (49.3%) of undergraduates in UI made use of dictionaries daily, while 10 (5.0%) surprisingly said they never made use of dictionaries. A similar result was obtained in RUN where more than half 59 (42.1%) of the undergraduates indicated that they used dictionaries daily and 7 (5.0%) used them once a week. On the frequency of use of encyclopaedias, there was also a consensus of opinion between the undergraduates in the two universities, as most of the undergraduates 72 (35.8) noted that they used encyclopaedias occasionally in UI while 54 (38.6%) in RUN also concurred. Though, 18 (9.0%) of undergraduates in UI expressed that they used encyclopaedias once a week and 14 (10.0%) in RUN said they used encyclopaedias twice a week.

Findings on the frequency of use of web search engines and reference sources by undergraduates in the two universities revealed that apart from Google and Yahoo which were used daily and occasionally by most of the respondents, all other web search engines were not

actually used by majority of the undergraduates for their research activities. The same goes for the reference sources, while dictionaries were used daily by most of the respondents, encyclopaedias were used occasionally and the others were never used. It shows that undergraduates were perhaps only aware of the popular and known web search engines and reference sources and they were not willing to try out others for their research activities.

Table 8 Frequency of use of reference sources by undergraduates in University of Ibadan

Reference sources	Daily		Twice a week		Once a week		Occasionally		Never	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Dictionaries	99	49.3	30	14.9	11	5.5	51	25.4	10	5.0
Encyclopaedias	46	22.9	32	15.9	18	9.0	72	35.8	33	16.4
Indexes	14	7.0	13	6.5	15	7.5	48	23.9	111	55.2
Abstracts	11	5.5	10	5.0	18	9.0	55	27.4	107	53.2
Maps	10	5.0	10	5.0	18	9.0	56	27.6	107	53.2
Atlases	5	2.5	5	2.5	14	7.0	52	25.9	125	62.2
Yearbooks	4	2.0	2	1.0	8	4.0	54	26.9	133	66.2
Directories	6	3.0	6	3.0	19	4.5	42	20.9	138	68.7
Almanacs	6	3.0	4	2.0	7	3.5	40	19.9	144	71.6
Bibliographies	3	1.5	10	5.0	13	6.5	45	22.4	130	64.7
Handbooks	10	5.0	7	3.5	11	5.5	47	23.4	126	62.7
Biographies	9	4.5	7	3.5	10	5.0	51	25.4	124	61.7
Online Dictionaries	46	22.9	31	15.4	12	6.0	47	23.4	65	32.3
Online Encyclopaedias	31	15.4	18	9.0	18	9.0	52	25.9	52	40.8
Online Indexes and Abstracts	9	4.5	13	6.5	10	5.0	49	24.4	120	59.7

N=201

Table 9 Frequency of use of reference sources by undergraduates of Redeemer's University

Reference sources	Daily		Twice a week		Once a week		Occasionally		Never	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Dictionaries	59	42.1	15	10.7	7	5.0	47	33.6	12	8.6
Encyclopaedias	22	15.7	14	10.0	12	8.6	54	38.6	38	27.1
Indexes	2	1.4	2	1.4	6	4.3	27	19.3	103	73.6
Abstracts	6	4.3	3	2.1	5	3.6	23	16.4	103	73.6
Maps	-		3	2.1	13	9.3	34	24.3	90	64.3
Atlases	-		2	1.4	5	3.6	26	18.6	107	76.4
Yearbooks	-		2	1.4	5	3.6	23	16.4	110	78.6
Directories	3	2.1	3	2.1	4	2.9	13	9.3	117	83.6
Almanacs	-		2	1.4	2	1.4	14	10.0	122	87.1

Bibliographies	-		2	1.4	5	3.6	17	12.1	116	82.9
Handbooks	7	5.0	1	0.7	5	3.6	22	15.7	105	75.0
Biographies	1	0.7	9	6.4	-		31	22.1	99	70.7
Online Dictionaries	15	10.7	7	5.0	4	2.9	28	20.0	86	61.4
Online Encyclopaedias	10	7.1	8	5.7	6	4.3	32	22.9	84	60.0
Online Indexes and Abstracts	5	3.6	3	2.1	4	2.9	23	16.4	105	75.0

N=140

Research question four: What is the preference of undergraduates between web search engines and reference sources for research activities?

Tables 10, 11 and 12 presented results on the preference of undergraduates between web search engines and reference sources. Majority of the undergraduates in UI 132 (65.7%) and 93 (66.4%) in RUN strongly agreed that used search engines because information can be retrieved easily from them. Most of the undergraduates in the two universities perceived that the web search engines were useful in getting the needed information for their research activities. This view was expressed by 125 (62.2%) in UI and 81 (57.9%) in RUN (Table 10).

Table 11 presented the findings based on the response of the undergraduates as regards the reasons why they used the reference sources. Majority of the undergraduates in UI 109 (54.2%) and 67 (47.9%) in RUN opined that they used the reference sources because of the credible information contained in them. Close to three-fifths of undergraduates in UI 115 (57.2%) and 82 (58.6%) in RUN used reference sources because they provided authoritative information that were useful for research activities. The reference sources were also used by most of the undergraduates because they had the opportunity to get back to a reference librarian for assistance, 105 (52.2%) of undergraduates in UI agreed to this and 77 (55.0%) of undergraduates in RUN also concurred.

Table 12 showed that most of the undergraduates in UI 170 (84.6%) preferred web search engines to reference sources. Similarly, most of the undergraduates of RUN 111 (79.3%) indicated their preference for web search engines as against 29 (20.7%) that went for the reference sources. This result gives credence to the wide popularity and acceptance of web search engines.

Table 10 Undergraduates preference for web search engines

	University of Ibadan				Redeemer's University			
Statement	**SA Freq. %**	**A Freq. %**	**D Freq. %**	**SD Freq. %**	**SA Freq. %**	**A Freq. %**	**D Freq. %**	**SD Freq. %**
I use web search engines because I retrieved information easily from them	132 65.7	61 30.3	5 2.3	3 1.5	93 66.4	39 27.9	4 2.9	4 2.8
Web search engines are very useful in getting the information I need for my research activities	125 62.2	76 37.8	-	-	81 57.9	53 37.9	3 2.1	3 2.1
I use web search engines because I can get the needed information for my research activities anytime and anywhere	109 54.2	90 44.8	2 1.0	-	65 46.4	56 40.0	16 11.4	3 2.1
I have access to all kinds of information in different formats for my research activities through the search engines	95 47.3	97 48.3	9 4.5	-	76 54.5	57 40.7	5 3.6	2 1.4

N=201 **N=140**

Table 11 Undergraduates preference for reference sources

	University of Ibadan				Redeemer's University			
Statement	**SA Freq. %**	**A Freq. %**	**D Freq. %**	**SD Freq. %**	**SA Freq. %**	**A Freq. %**	**D Freq. %**	**SD Freq. %**
I use reference sources because I retrieve credible information from them	85 42.3	109 54.2	6 3.0	1 0.5	65 46.4	67 47.9	4 2.9	4 2.9
Reference sources provide me with authoritative information useful for my research activities	80 39.8	115 57.2	5 2.5	1 0.5	41 29.3	82 58.6	11 7.9	6 4.3
I have the opportunity to get back to a reference librarian for assistance in case I can retrieve the needed information from the reference sources	55 27.4	105 52.2	36 17.9	5 2.5	39 27.9	77 55.0	19 13.6	5 3.6
I use reference sources because I do not need to structure my question using a particular format before I can retrieve the needed information for my research activities	54 26.9	106 52.7	39 19.4	2 1.0	37 26.4	82 58.6	13 9.3	8 5.7

N=201 **N=140**

Table 12 Undergraduates preference between web search engines and reference sources

University of Ibadan				Redeemer's University			
Web search engines		**Reference sources**		**Web search engines**		**Reference sources**	
Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
170	84.6	31	15.4	111	79.3	29	20.7

N=201

Research question five: What are the constraints to the use of web search engines and reference sources for research activities by undergraduates?

Tables 13 and 14 reported on the constraints that undergraduates in UI and RUN. Findings indicated that most of the undergraduates in UI 81 (40.4%) and RUN 60 (42.9%) agreed that even though they preferred web search engines, they admitted that they had to contend with too many search results. Majority of the undergraduates 111 (55.2%) in UI and 63 (40.5%) in RUN agreed that they had difficulty in finding relevant information (Table 13). Results also showed most of the undergraduates 96 (47.8%) in UI and 57 (40.7%) in RUN noted that lack of current reference resources as a constraint to their use of reference resources. The highest percentage of respondents in UI 109 (54.2%) and RUN 63 (45.0%) agreed that the reference resources were inadequate (Table 14).

Table 13 Constraints to the use of web search engines

	University of Ibadan				Redeemer's University			
Statement	**SA** **Freq. %**	**A** **Freq. %**	**D** **Freq. %**	**SD** **Freq. %**	**SA** **Freq. %**	**A** **Freq. %**	**D** **Freq. %**	**SD** **Freq. %**
Too many search results	55 27.4	81 40.3	53 28.4	12 6.0	27 19.3	60 42.9	42 30.0	11 7.9
Difficulty in finding relevant information	34 16.9	77 38.3	82 40.8	8 4.0	16 11.4	63 45.0	53 37.9	8 5.7
Slow internet speed	54 26.9	97 48.3	44 21.9	6 3.0	41 29.3	70 50.0	25 17.9	4 2.9
Too many irrelevant results	37 18.4	92 45.8	61 30.3	11 5.5	28 20.0	52 37.1	51 36.4	9 6.4
Inadequate finance to access the internet	37 18.4	77 38.3	72 35.8	15 7.5	15 10.7	48 34.3	58 41.4	19 13.6
Lack of full citation to downloaded	30 14.9	104 51.7	58 28.9	9 4.5	16 11.4	58 41.4	51 36.4	15 10.7

documents								
Difficulty in searching with the use of keywords	32 15.9	64 31.8	89 44.3	16 8.0	12 8.6	54 38.6	53 37.9	21 15.0
It takes time to download needed information	30 14.9	75 37.3	84 41.8	12 6.0	20 14.3	61 43.6	47 32.6	12 8.6
Lack of information skills	33 16.4	56 27.9	90 44.8	23 10.9	16 11.4	55 39.3	55 39.3	14 10.0
Most useful documents are not free to access	55 25.9	89 44.3	50 24.9	10 5.0	25 17.9	63 45.0	40 28.6	12 8.6

N=201 **N=140**

Table 14 Constraints to the use of reference sources

	University of Ibadan				**Redeemer's University**			
Statement	**SA Freq. %**	**A Freq. %**	**D Freq. %**	**SD Freq.%**	**SA Freq. %**	**A Freq. %**	**D Freq. %**	**SD Freq. %**
Lack of current reference resources	55 27.4	96 47.8	42 20.9	8 4.0	33 23.6	57 40.7	43 30.7%	7 5.0
Inadequate reference resources	36 17.6	109 54.2	48 23.9	8 4.0	21 15.0	62 44.3	50 35.7	7 5.0
Restricted library hours	42 20.9	95 47.3	54 26.9	10 5.0	29 20.7	47 33.6	57 40.7	7 5.0
Lack of assistance from reference librarian	50 24.9	99 49.3	45 22.4	7 3.5	12 8.6	44 31.4	71 50.7	13 6.3
Lack of search skills	36 17.9	81 40.3	72 35.8	12 6.0	11 7.9	49 35.0	67 47.9	13 9.3
Lack of access to online reference sources in the library	61 30.3	88 43.8	40 19.9	12 6.0	18 12.9	55 39.3	56 40.0	11 7.9

N=201 **N=140**

Discussion of Findings

Majority of the undergraduates indicated that their most used web search engine utilised for research activities was Google. This finding is consistent with the result obtained by Sakina, Khalid and Farzana (2008) who conducted a study on internet use where majority of the respondents mentioned that Google was the search engine they utilised the most for research.

Reeves et al (2009) investigated students' use of research content in teaching and learning in University of Central Lancashire (UCLAN) United Kingdom and three other universities and reported a result similar to that of this study. The findings of the study showed that the most used search engine was Google; this was the indication of majority of the respondents. Rieger (2009) also studied search engine use behaviour of students and faculty with a view to examine their perception, interestingly, all the respondents all agreed that Google was the search engine of choice.

Most of the undergraduates also revealed that they utilised Yahoo after Google for research activities. This corroborates the findings of Malik and Mahmood (2009) who examined the web search behaviour of University of Punjab students. Results showed that almost all of the respondents attested to the fact that Google was their favourite search engine, followed by Yahoo with 143 (72%). Muniandy (2010) who conducted a study on the use of the Internet among undergraduates also reported that most of the students stated that they used Google and Yahoo. The study done by Shaikh (2014) also substantiated the result of this study as most of the B.Ed. Students in Pune University India used Google, followed by Yahoo.

The undergraduates pointed out that apart from dictionaries and encyclopaedias which were used by majority; other reference materials like indexes were not used. This concurs with the findings of Mohammadi, Moghaddam and Yeganeh (2008) that examined students' perception of the impact of user education on the use of reference sources in Qom Islam Azad University (QIAU) Iran, most of the respondents indicated that they were not aware of indexes and as such did not utilize them for research activities. This is however in contrast with the result of Gunasekera (2010) and Saikia and Gohain (2013) who in their separate studies reported that a significant number of their respondents who were undergraduates affirmed that they used reference source for research activities.

Majority of the undergraduates noted that they made use of the web search engines and the reference sources for mainly assignment completion and preparation for examinations. This finding is in agreement with the work of Jamil, Tariq and Jamil (2013) who examined the utilization of library resources by teachers and students in Punjab Province of India. Most of the undergraduates that were part of the sample indicated that they used reference sources in accessing information that would assist them in preparation of assignments and examinations. The findings of the study conducted by Sahin, Baltan and Ercan (2010) presented a different

view as almost all the students of the Department of Tourism and Hotel Management in Yasar University, Turkey that were studied averred that they used web search engines to retrieve information for their term project.

The study also revealed that on the average most of the undergraduates asserted that apart from Google, Yahoo, Dictionaries and Encyclopaedias that were used daily and occasionally, all other web search engines and reference sources were never used. This does not agree with results of study on how college students evaluate and use information in the digital age done by Head and Eisenberg (2013), where findings showed that about half of the students used reference sources like encyclopaedias (print and online) for their daily research activities. The experimental study conducted by Cheon, Jeon and Kim (2013) on how a day will look like without a search engine also showed that individuals searched for information on a daily basis especially for research purposes.

Most of the undergraduates preferred web search engines to reference sources for research activities. Studies by Kin and Sin (2007), Muniandy (2010) and Head and Eisenberg (2010) revealed similar trend. Kin and Sin (2007) examined the perception and selection of information sources by undergraduates and results showed that among nine sources, web search engines were the most frequently used source, while reference sources ranked 8th. The findings of the study done by Munaindy (2010) showed that a significant number of undergraduates preferred the use of search engines in searching for information to the use of the university library resources that included reference sources. The results of the study carried out by Head and Eisenberg showed that the undergraduates had a clear preference for web search engines as indicated by most of the respondents.

Findings of this study also showed that most of the undergraduates preferred web search engines because they had access to all kinds of information in different formats for their research activities and because they retrieved information easily from them. The findings are in consonance with the observation of Sadeh (2007) who highlighted that web search engines are preferred because they provided access to a variety of information resources that can be downloaded in multiple formats like portable document format (PDF), word document, power point and multimedia format. Similarly, in the study carried out by Malik and Mahmood (2009) one of the reasons why the undergraduates preferred web search engines to reference sources as

indicated by a very high percentage of the respondents was because of ease of use of web search engines.

Most of the undergraduates pointed out that that the constraints that they faced in the use of web search engines included too many search results, difficulty in finding relevant information, slow internet speed and too many irrelevant results. The result is supported by the findings of Reeves et al (2007), Malik and Mahmood (2009) and Mostafa (2011) where they most of their respondents identified bewilderment of the amount of responses, information overload and slow internet connectivity as constraints inhibiting the use of web search engines for research activities.

Lack of current reference resources and inadequate reference sources were also identified by most of the undergraduates as constraints affecting the use of the reference sources. The findings are in agreement with results of the study by Kumar (2013) and Okeke, Oghenetga and Nwabu (2013) where most of their respondents opined that lack of current reference materials, outdated reference materials and inadequate reference resources were challenges that they faced in the use of the reference sources for research activities.

Conclusion

The fact that undergraduates indicate their preference for web search engines as against the reference sources in the university library does not mean that the university library should be considered ineffective. This is because the reference sources (print and electronic) that are available and accessible through the library contain valuable information that can provide the undergraduates with the necessary information for their research activities if proper orientation and user education are carried out. The reference sources still have the potential of providing answers to any type of users' queries. The management of university libraries should realise that the competitive environment that the libraries operate today provides opportunities for them to be creative and be innovative in the provision of reference sources in order to find ways of encouraging the undergraduates to utilise them.

Recommendations

1. Staff in the reference section should provide user education to the undergraduates on the various types of information that can be retrieved from the reference sources during library orientation programmes.

2. The university library management should ensure that current and adequate reference sources in print and electronic formats are available and accessible to the undergraduates.
3. Concrete steps should be taken by the management of the university libraries to guarantee a sustained 24-hour library service, either through ensuring that the library is opened all day with staff on duty or providing access to the reference sources electronically. This will remove the problem of restriction that undergraduates encounter in the use of reference sources.
4. Search engine developers should build systems that will emphasize specificity and not exhaustivity, so that the search results will be those actually needed by the users.

References

Aguirre, M.C., Freberg, K. & Allard, S. (2011). Perceptions and uses of Google Scholar among undergraduates students. Poster submission 33rd *Annual Research Symposium College of Communication and Information*, University of Tennesee.

Aina, L.O. (2004). *Library and information science text for Africa*. Ibadan: Third World Information Services.

Anenene, E.E., Alegbeleye, G.B. & Oyewole, O. (2017). Factors contributing to the adoption of institutional repositories in universities in South-west, Nigeria: perspectives of library staff. *Library Philosophy and Practice*, 1508. Retrieved from http://www.digitalcommons.unl.edu/libphilprac/1508

Antherjanam, S.D. (2008). Impact of ICT on library and information science: major shifts and practices in CUSAT Central Library. *6th International CALIBER, University of Allahabad*. Retrieved June 26, 2013 from http://www.ir.inflibnet.ac.in/bitstream/1944/.../4.pdf

Anunobi, C.V. & Nwogwugwu, N.O. (2013). What resources do philosophers use for research? Evidence from postgraduates theses and dissertations. *Nigerian Librarians, Journal of the Nigerian Library Association*. 46(1), 15.

Brophy, J. & Bawden, D. (2005). Is Google enough? Comparison of an internet search engine with academic library resources. *ASLIB proceedings*, 57, 498-512.

Chen, Y., Jeon, G.V. & Kim, Y. M. (2013). A day without a search engine: an experimental study of online and offline searches. *Experimental Economics.* Retrieved from http://www.umich.edu

Davis, P.M. (2003). Effect of the web on undergraduate citation behaviour: guiding student scholarship in a networked age. *Libraries and the Academy*. 3(1). Retrieved from http://www.muse.jhu.edu

Emwanta, M.G. & Nwalo, K.I.N. (2013). Influence of computer literacy and subject background on use of electronic resources by undergraduate students in universities in South-western Nigeria. *International Journal of Library and Information Science*,5(2), 29-42. Retrieved from http://www.academicjournals.org/IJLIS

Fallows. D. (2008). Search engine use. *Pew Internet and American Life Project*. Retrieved from http://www.pewinternet.org/2008/.../search

Fawole, I. Egbokhare, F.O, Itiola, O.A, Odejide, A.I and Olayinka, A.I. (2006). *Definition, spectrum and types of research*. Methodology of Basic and Applied Research, Postgraduate School University of Ibadan.

Fayose, P.O. (2000). *Library resources and their roles in education*. Ibadan: Centre for External studies University of Ibadan.

Ganaie, S.A. (2013). A glimpse of information technology enabled library services. *International Journal of Digital Library Services*. 3(1), 78-32. Retrieved from http://www.ijodis.in

Georgas, H. (2013). Google Vs. the library: student preferences and perceptions when doing research using Google and a federated search tool. *Portal: Libraries and the Academy*, 3(2), 165-185.

Gunasekera, C. (2010). Students' usage of an academic library: a user survey conducted at the main library University of Peradeniya. *Journal of the University Librarians Associations of Sri Lanka*, 14(1), 43-60. doi: 10.4038/jula.v14i1.2687.

Head, A.J. & Eisenberg, M.B. (2010). *Truth be told. How college students evaluate and use information in the digital age*. Project information literacy progress report. Mac Arthur Foundation.

Hochstottter. N. & Martina, K. (2008). Standard parameters for searching behaviour in search engines and their empirical evaluation. *Journal of Information Science*, 35(1), 45-66. Retrieved from http://www.sagepub.com/

Igwe, U.O. (2004). *The library and information collection. In Efurosibina Adegbija (Ed) Language, Communication and Study Skills*, Ota Ogun State, Nigeria. Covenant University.

Iroaganachi, M.A. & Ilogho, J.E. (2011). Utilisation of reference books by students: a case study of Covenant University, Nigeria. *Chinese Librarianship: an International Electronic Journal*, 34. Retrieved from http://www.iclu.us/cliej/c134II.pdf

Islam, S. & Islam, N. (2006). Information and Communication Technology (ICT) in libraries: A new dimension in librarianship. *Asian Journal of Information Technology*, 5(8). Retrieved from http://www.nazmul81.weebly.com/uploads/.../ajit.pdf

Jamil, M., Tariq, R. & Jamil, S. (2013). Library resources utilisation by teachers and students. *Bullentin of Education and Research*, 35(2), 19-35.

Kim, K., Yoo-Lee, E. & Sin, S. (2012). Social media as information source: undergraduates use and evaluation behavior. *Proceedings of the American Society for Information Science and Technology*, 48(1). Retrieved from http://www.onlinelibrary.wiley.com/doi/10.../abstract

Kim, S.K. & Sin, S.C.J. (2007). Perception and selection of information sources by undergraduate students: effects of avoidant style, confidence, and personal control in problem solving. *The Journal of Academic Librarianship*, 33(6), 655-665.

Korah, A. & Cassidy, E. D. (2010). Students and federated searching: a survey of use and satisfaction. *Reference and User Services Quarterly*, 49(4), 325-332.

Kumar, P. (2013). Use of library resources by the students of Indian Institute of Management (IIM), Rohtak, India. *International Journal of Library Science and Research (IJLSR)*, 3(1), 7-12.

Lopatovska, I. Fento, M.R. & Campot, S. (2012). *Examining preferences for search engines and their effects on information behavior*. ASIST. Baltimore, M.D USA.

Malik, A. & Mahmood, K. (2009). Web behaviour of university students: a case study at University of the Punjab. *Webology*, 6(2). Retrieved from http://www.webology.ir/2009/u6n2/a70.html

Mashin, E. (2013). First year and final year undergraduate student's academic use of the internet. Case of a Zimbabwean University. *Information and Knowledge Management*, 3(10). Retrieved from http://www.iiste.org

Moahi, K.H. (2002). *Computer Applications in Library and Information Science Research. Research in Information Science: An African Perspective*. Ibadan: Striling-Horden Publishers.

Mohammadi, M. & Moghaddam, A.I. (2008). Students' perception of the impact of user education on the use of reference sources: an Iranian experience. *Library Philosophy and Practice*. Retrieved from http://www.webpages.uidaho.edu/~mbolin/llp

Mostafa, M. (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.

Muniandy, B. (2010). Academic use of internet among undergraduate students: a preliminary case study in a Malaysian University. *International Journal of Cyber Society and Education*, 3(2), 171-178.

Muniandy, B. (2010). Academic use of internet among undergraduate students: a preliminary case study in a Malaysian University. *International Journal of Cyber Society and Education*. V3 (2), 171-178.

Nwalo, K.I.N. (2000). *Reference sources and services*. Ibadan: center for external studies, University of Ibadan. 13-34.

Okeke, I.E., Oghenetga, L.U. & Nwabu, E.C. (2013). Students' attitude towards the use of reference and information services (RIS) in academic libraries in Nigeria. *Journal of Library and Information Science*, 5(10), 335-341. Retrieved from http://www.academicjournals.org/IJLIS

Okiy, R.B. (2010). Globalization and ICT in academic libraries in Nigeria: the way forward. *Library Philosophy and Practice*. Retrieved from http://www.webpages.uidaho.edu/~mbolin/llp

Onuoha, U.D., Ikonne, C.N. & Madukoma, E. (2013). Perceived impact of library use on the research productivity of postgraduate students at Babcock University, Nigeria. *IOSR Journal of Research and Method in Education (IOSR-JRME.* Retrieved from http://www.iosrjournals.org

Oyewole, O. & Adetimirin, A. (2015). Lecturers and postgraduates perception of libraries as promoters of teaching, learning and research in University of Ibadan, Nigeria. *New Review of Academic Librarianship*, 21(1), 83-93. Retrieved from http://dx.doi.org/10.1080/13614533.2014.934965

Reeves, S.H., Mashiter, C., Westaway, J. Lumsden. P, Day. H, Hewertson. H & Hart. A. (2009). *Students use of research content in teaching and learning. A report for the Joint Information Systems Council (JISC).* Centre for Research-Informed Teaching. University of Central Lancashire

Rieger, O.Y. (2009). Search engine use behaviour of students and faculty: user perceptions and implications for future research. *First Monday*, 14(12). Retrieved from http://www.journals.uic.edu/ojs/index.php/fm/article/view/2716/2385

Sadeh, T. (2007). User-centric solutions for scholarly research in the library. *Library Quarterly*, 17(¾). Retrieved from http://www.liber.library.journal

Sahin, Y.G. Balta, S. & Ercan, T. (2010). The use of internet resources by university students during their course projects elicitation. A case study. *The Turkish Online Journal of Educational Technology*, 9(2), 205-231. Retrieved from http://www.sbalta.yasar.edu.tr/yayinlarim/

Saikia, M. & Gohain, A. (2013). Use and user's satisfaction in library resources and services: a study in Tezpur University (India) *International Journal of Library and Information Science*, 5(6), 167-170. Retrieved from http://www.academicjournals,org/IJLIS

Sakina, B., Khalid, M. & Farzana, S. (2008). Internet use among university students: a survey in University of the Punjab, Lahore. *Pakistan Journal of Library and Information Science*, 9, 49-65. Retrieved from http://www.library.sssec.wisc.edu/.../

Shaikh, S.A. (2014). Use of internet tools by B.Ed. Students. *Scholarly Research Journals for Interdisciplinary Studies*. Retrieved from http://www.srjis.com

Singer, G. Norbibrath,U. & Lewandowski, D. (2013). Ordinary search engine users carrying out complex search tasks. *Journal of Information Science Archive, 39(3)*, 346-358. Retrieved from http://www.jis.sagepub.com/content/39/3/346

Tarakeswar, K. & Kavitha, D. (2011). Search engines: a study. *Journal of Computer Applications (JCA)*, IV(1). Retrieved from http://www.academia.edu

Thanuskodi, S. (2011). Internet use among the faculty members and the students in the professional colleges at Tirunelveli Region: an analytical study. *Educational Research*, 2(3), 1868-1875. Retrieved from http://www.interesjournals.org/ER

Waller, V. (2011). Not just information. Who searched for what on the search engine Google?. *Journal of the American Society for Information Science and Technology*, 62(4), 761-775.

Wijetunje, P. (2014). Digital information resource preferences of undergraduates with special reference to faculties of Agriculture, Arts, Engineering and Science of the University of Peradeniya, Sri Lanka. *Proceedings of the Peradeniya Univesity International Research Sessions, Sri Lanka*. 18.

Zhang, Y. (2013). An exploratory study of users' preferences and use of sources for seeking health information. *iConference Proceedings*, 38-49. Retrieved from http://doi.org/10.9776/13130

Zhou, M. (2013). A systematic understanding of successful web searches in information based tasks. *Educational Technology and Society*, 16(1), 321-331.