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victor chuks nwokedi Dr.

University of Jos, victorchuksnwokedi@yahoo.com

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**INFORMATION RETRIEVAL TOOLS AND LIBRARY PHYSICAL ENVIRONMENT
AS CORRELATE OF LIBRARY UTILIZATION BY MEDICAL STUDENTS IN
UNIVERSITY OF JOS, JOS, NIGERIA**

Shelbut Nancwat Change and Victor Chuks Nwokedi *Ph.D., CLN*

**Library and Information Science Unit,
Department of Social Science Education,
Faculty of Education,
University of Jos, Jos, Nigeria**

**E-mail: victorchuksnwokedi@yahoo.com
nwokediv@unijos.edu.ng**

ABSTRACT

This study investigates information retrieval tools and library physical environment as correlates of library utilization by medical students in University of Jos. The research was guided by four objectives, and four research questions. Two hypotheses were formulated for the study. The study adopted a co-relational design. The population of the study consisted of 506 registered under-graduate medical students out of which a sample of 217 was drawn using krejcie and Morgan, 1970 Statistical table. The instrument used for data collection was structured questionnaire. The data collected for the research questions were analyze using Pearson Product Moment Correlation (PPMC) and hypothesis tested at 0.05 level of significance using T-Test. The result revealed that, medical students made use of the various information resources to a high extend, information retrieval tools are provided in the library to a high extend, there is a very strong and positive relationship between information retrieval tools available and medical students use of the library. Positive and significant relationship exists between the library environment and medical students' use of the library. It was therefore, recommended among others that medical students should be sensitized more on the use of periodicals and fiction for relaxation, even though relationship between retrieval tools and use is significant, there is still need for medical students to be sensitized on how to use the library through adequate orientation on information retrieval tools. University management should ensure that good library environment is maintained and sustained.

**Key word: Information, Retrieval, Tools, Library, Environment, Utilization, Medical
Students, University, Jos**

INTRODUCTION

Information resources as a variable, plays a role in the way libraries are utilized. Utilization of library and information resources and services has been a concern from time libraries changed from being cultural monuments to knowledge acquisition and information communication center. According to Edom (2012) the traditional stock in trade of libraries all over the world is information resources in order to provide effective and efficient services to the users of the library, information resources in print and non print formats are acquired to enhance the knowledge the users used to excel in their various endeavors. However, the absence of these resource amount to the challenges of their under utilization as faced by some library. Information resources are not only acquired but organized in such a way they can be easily accessed and retrieved by users.

Information retrieval is concerned with the exploitation and extraction of information and other contents of documents from different information source (Akanwa & Udo-Anyanwa, 2017). Retrieval tools are crucial for retrieving information for educational outcomes. Success in information seeking and utilization requires some basic skills.

(Breen and Fallon,2005) and Uzuegbu (2004) claimed that to be information literate, a person must be able to recognize when information is needed and have ability to locate, evaluate and use effectively the needed information.

Anato and Filson (2004) succinctly observe that because of the growing complexity of new information environment, individuals are faced with diverse abundant information choices in their personal and academic lives. Under utilization of library resources by undergraduates in

university libraries have been of great concern to librarians. Cochrance (1985) and Okon (2007) observed poor use of libraries by students while Ajiboye, Ovedipe and Alewiye (2013) lamented that library basic tools for accessing information were rarely used by students. More so, methods of accessing and using information resources have changed and are still evolving. What is apparently not clear is whether inadequate knowledge of information retrieval tools or otherwise is affecting the utilization of library resources. In view of these developments librarians conceived the ideas of educating the library users in finding and locating information they need on their day today activities. The earliest evidences of library users education was reported at the Harvard college in 1820s (Tieffel, 1995). These early librarians were professors with part-time library appointments who taught students the use of libraries for academic purposes. Information retrieval tools according to Edom (2012) are the simple mechanisms or apparatuses that aid the library user to locate, retrieve and use the needed documents from the library or information from a book or document. He further outlined the tools to include; bibliographies, indexes and abstracts, catalogues, computer filing or websites, subject index, title index, directorate, OPAC, CD-ROMS, online databases, internet search engine, etc. presently, there are various tools at students: disposal to aid them in access the information they need.

To surmount the problem of retrieving information, certain skills are required to selectively retrieve accurate and sufficient information stored to documents instead of all the information that may not be relevant for the student needs. This is in accordance with the assertion of Gui (2007) that the skills for retrieving information needed by the users include the skills to navigate, select, evaluate, and reuse information. These skills involve the ability to handle the

different retrieval tools that abound. This is made possible if the students are exposed and encouraged to exploit all through various user orientation and education programs available to them.

Furthermore, effective utilization of the library by students to a great extent depends on the conduciveness and adequacy of the facilities of the entire library environment. A good library is that whose environment is conducive and attractive, clean, free from noise with durable and comfortable furniture, and good lighting/illumination for meaningful study. Any academic library where these facilities are inadequately provided could result in low level of use by the students. Mcvey & Nock cited in Oyedum (2011) in their study asserted that the learning conditions such as light, temperature and sound if not properly incorporated into the library design may negatively affect human beings and later learning. The undergraduate students, for instance, who use the library resources in carrying out academic related work or for other reason, will only do so if the library environment is conducive. The absence of variables such as adequate retrieval tools and conducive, serene and adequate facilities within the library environment must be checked to enhance full utilization of the library and its resources.

The faculty of medical sciences, university of Jos, started in October, 1977, it has twenty-one departments. The total number of lecturers in the faculty of medical sciences, university of Jos, was two hundred and twenty-two (222) as at the time of this investigation (university of Jos, academic planning annual report, and 2016/2017 academic session). The faculty has a library (medical library) which is located few kilometers (3km) away from the faculty. However, the

main library which the lecturers often preferred to visit (university of Jos main library) has a computer laboratory with 80 desktops all with free internet access for staff and students.

The nucleus of the university of Jos library was established in February 1972 when this institution remained the Jos campus of the University of Ibadan. It is located along Murtala Mohammed Way on the temporary town-site of the University. This library has undergone significant extension to both its building and stocks. Today it has the medical science collection and Bindery. The medical library has seating accommodation for 1650 readers and a few reading stations reserved for staff and postgraduates' students. In December 1976, a branch library which has also undergone some extensions was opened at the Bauchi road campus of the university, some five kilometers away from the town-site campus. It has now become the main library housing the Administration, support services, documents sections and serving the faculties of Natural, Pharmaceutical, Environmental sciences. It has seating accommodation for 733 readers and some reserved reading area for staff, postgraduates and handicapped readers. The Law library has been moved to the faculty of Law, and has seating accommodation for 123 readers.

In 1985, construction of the central university library building at permanent site was completed. However, due to general space problem in the university, the building now houses faculties of Arts and social sciences. The first-floor housing Arts, social sciences and Education libraries, has seating accommodation for 486 readers. The total stocks in these libraries before the fire inferno at the Naraguta Campus Library are 169,404 volumes of books 25,824 bound journals and 20,263 materials in documents section.

STATEMENT OF THE PROBLEM

Despite the establishment of libraries in virtually all tertiary institutions of higher learning throughout the federation to enhance academic excellence through the effective utilization of its resources, yet, there is still continuous record of poor usage especially by medical students. According to Popoola (2008) affirmed that the information resources and services available in institutional information system must be capable of supporting research activities among medical students and faculty members.

The underutilization of library resources has remained a recurring issue in most university libraries in Nigeria. This however, has become a matter of serious concern and needs to be address. In a related work by Dike and Edem (2015), which examined the extent of use of library catalogue as retrieval tools by students, it was revealed that low awareness of catalogue use as retrieval tools was a factor in the under-utilization of its library resources. The researcher seeks to find out if information retrieval tools and library environment have any role to play in the utilization of library resources by medical students of university of Jos. This study therefore, seeks to examine the relationship between availability of information retrieval tools, the library environment and utilization of the library by medical student of University of Jos.

1.1 RESEARCH QUESTIONS

- I. To what extent do medical students use information resources in the library?
- II. What is the relationship between information retrieval tools provided in the library and students use of the library?
- III. What is the relationship between library environment and students use of the library?

IV. What is the relationship between information retrieval tools provided in the library and students use of information resources?

1.2 HYPOTHESIS

The following hypotheses were formulated for this study.

Ho1: There is no significance relationship between availability of information retrieval tools and utilization of the library by medical students in University of Jos.

HO2: There is no significant relationship between the library environment and utilization of the library by medical students in University of Jos.

LITERATURE REVIEW

Nwosu and Ottong (2014) define information access or retrieval tools as systems created to facilitate access or retrieval of information in an organized information centre. They see them as basic building blocks for systems that organized recorded information that are collected by libraries, archives and museums.

The need to equip prospective library users with knowledge of information retrieval tools cannot be overemphasized. It can be very time wasting and frustrating if users have spent fruitless and laborious efforts in searching and looking for information materials needed in vain.

Echem and Udo-Anyanwu (2008) stressed that the effectiveness of a library as an instrument of learning is determined by the success with which it is able to provide the users with the necessary tools capable of accessing and retrieving the information they seek. Retrieval tools

enable information seeker to quickly and efficiently search, find, or locate and retrieve the sources that they seek.

According to Ojedokun (2007) information access or retrieval tools also sometime called finding aids are produced for the sole purpose of leading users to particular type of information sources. Some of the traditional tools in libraries include catalogues, indexes, abstracts and bibliographies. In recent times due to developments in ICTs, computerized access tools have begun to offer full-text access to digital documents in addition to bibliographic records.

Okafor (2006) investigated abstracts and indexes as guides to information retrieval. The study revealed a significant importance and usefulness of abstracts and indexes in libraries as access facilitators to library resources.

Inyokwe (2011) carried out a study on the relationship between retrieval devices and utilization of information resources in university libraries in Nigeria. The result also showed positive relationship between information retrieval devices such as abstracts, bibliographies, author/title catalogues, indexes, and students utilization of information resources in the universities libraries. In a related work by Dike and Edem (2015) which examined the extent of use of library catalogue as retrieval tools by students, it was revealed that low awareness of catalogue use as retrieval tool was a factor in the under-utilization of its library resources.

Marcum and George (2003) in a study of national information use survey of 3,234 faculty members, graduate students and undergraduate from 392 doctoral researches universities (public and private). And private liberal art colleges reported that 93.9% of the respondents of the combined group of all institutions “agreed strongly” or “moderately” that they were

comfortable retrieving and using information electronically, while at category level, the responses was 94.6% for undergraduate. Respondents were also asked if they were comfortable locating and using print information. Those that expressed agreed strongly and moderately including undergraduate students for print information were 94.8% as against 93.9% for electronic information. The print resources still impacted positively on patrons because it has standard and systematic approach to locating information established over the years.

RESEARCH METHODOLOGY

Research Design:

Survey Research Design was adopted for this study. According to Buser and Harter (1980), survey research design enables specific issues to be investigated through information gathering on people's opinions and believes over a wide population. Buser and Harter (1980) further claimed that survey research techniques can "save time and money without sacrificing efficiency, accuracy, and information adequacy in a research process". This technique is relevant to this study because it enabled the researcher to properly sample opinions of medical students on the subject: information retrieval tools and library physical environment as correlate of library utilization by medical students in university of Jos.

Population and Sample

The targeted population for this study comprises all the five hundred and six (506) medical students of university of Jos, Nigeria.

Sampling Techniques

Based on the statistical table of sample size of any given population by krecia and Morgan (1970), two hundred and seven-teen (217) students were randomly selected and each given a copy of the questionnaire to fill and return.

Description of Instrument

The instrument used for data collection was questionnaire. A 52 items structured questionnaire was designed. The questionnaire was divided into 2 sections. Section 'A' sought for information on personal (Demographic) data of the respondents. Section "B" sought for information on the opinion of the medical students on "Retrieval Tools and Library Physical Environment as Correlate of Library Utilization by Medical Students In University of Jos, Jos, Nigeria"

Validation and Reliability of Instrument

Validation of the Instrument

The questionnaire went through content validity check. Copies of the questionnaire were given to senior colleagues in the profession. The essence of this exercise was to ensure that the questions were clear, simple and appropriate for the study. On the basis of their suggestions and modifications, some of the items were modified to suit the objectives of the study. A final draft of the questionnaire was then prepared and used for the study.

Reliability test

A reliability test of the study was conducted using test and re-test method. Twenty (20) medical students of university of Maiduguri, Nigeria were used to test the reliability of the questionnaire. The reliability coefficient of $r=0.89$ was obtained, and the coefficient was considered high enough for reliability (Tiraieyari, et al, 2011). This enabled the researcher to ascertain whether or

not the questions asked were able to generate the required data. The questionnaire was then distributed.

Method of Data Analysis

Data collected through the research instrument were analyzed using descriptive statistics of Frequency Counts and Percentages for answering the research questions and Pearson Product Moment Correlation (PPMC), using T-Test was used to analyze the hypothesis. Tables were also provided where necessary.

RESULTS AND DISCUSSIONS

4.1 RESULTS

RESEARCH QUESTION ONE: To what extent do medical students use information resources in the library?

s/n	ITEMS	VHE	HE	LE	VLE	TOTAL	MEAN	STANDARD DEVIATION
1	TEXTBOOKS	80	20	60	40	200	3.58	0.739
2	REFERENCE MATERIALS	40	50	40	70	200	3.52	0.663
3	JOURNALS	60	60	20	60	2100	2.37	0.858
4	INTERNET RESOURCES	100	40	30	30	2000	3.80	0.907
5	PERIODICALS (Magazines)	30	61	44	65	2000	2.47	1.176
6	FICTIONS	30	44	26	100	2000	2.00	1.215

source field work (2019).

Grand= 2.04

Table 1 reports the respondents' opinion on the extent of medical students' use of information resources in the library. The result reports a grand mean of 2.04 indicating that the respondents

reported in most cases., That the extent of medical students use of information resources in the library is to a high extent. The result has further shown that medical students used information resources in the library such as textbooks (with mean score of 3.58 and a standard deviation of 0.739) and reference materials (with a mean score of 3.52 and a standard deviation 0.663) to a very high extent. While information resources in the library such as journals (with a mean score of 2.37 and standard deviation of 0.858), and internet resources (with a mean score of 3.80 and a standard deviation of 0.907) were used to high extent. Information resources in the library used to a low extent by undergraduate medical students are periodicals (with a mean score of 2.47 and a standard deviation of 1.176) and fiction (with a mean score of 2.00 and a standard deviation of 1.215). This result further concludes that the undergraduate medical students of University of Jos, studies were reported to make use of information resources in the library to a high extent. This finding corroborates that of Sahak and Sa'ad (2012) who conducted a study on the usage of information resources, services and facilities among first- and third-year medical students in the Faculty of Medicine and Health Science, University of Putra, Malaysia (UPM). All respondents, 205 (100%) claimed that they visited the library to study and use the internet, while majority of the students 199(97.1%) also regularly visited the library to do their assignment, discussion with friends, online data bases, library(OPAC), full text journals, encyclopedia and statistical reports were however, found to be less frequently used.

RESEARCH QUESTION 2: What is the relationship between information retrieval tools provided in the library and medical students' use of the library?

Ho1: There is no significant relationship between information retrieval tools provided in the library and medical students' use of the library.

Table 2: Information retrieval tools provided

S/N	ITEM	SA	A	D	SD	TOTAL	MEAN	STANDARD DEVIATION
1	CARD CATALOGUE	165	5	20	10	200	3.61	0.563
2	BIBLIOGRAPHY	172	8	15	5	200	3.7	0.506
3	INDEXES	167	10	20	3	200	3.59	0.631
4	ABSTRACTS	159	11	25	5	200	3.58	0.598
5	SEARCH ENGINES	107	77	10	6	200	3.28	0.859
6	OPAC	119	1	20	60	200	3.35	0.854

Source: Field Work 2019

GRAND MEAN= 3.5

Table 2B: relationship between information retrieval tools provided and medical students use of the library

VARIABLES	N	MEAN	STANDARD DEVAITION	CORRELATION COEFFICIENT	P-VALUE
information retrieval tools provided	200	3.40	0.635	0.904	0.000
Use of library	200	3.03	0.845		

Table 2B reports the relationship between information retrieval tools provided and medical students use of library. The result has shown that the mean score for information retrieval tools

provided in the library accounts for a mean of 3.40 and a standard deviation of 0.635 indicating that most of the respondents strongly agreed to the six items information retrieval tools are provided in the library. The study has further revealed the information retrieval tools provided in the library and the extent of medical students use of the library, observing that a correlation coefficient of 0.904 exist.

The analysis in table 2B shows a P-value less than 0.05% level of significance (i.e $p < 0.05$) which complies that the correlation coefficient between the independent and dependent variables is statistically significant. Therefore, the null hypothesis (HO) is rejected and the alternative accepted, "stating that: there is a significant relationship between information retrieval tools provided in the library and medical students used of the library". It is therefore concluded that there is a positive and strong relationship existing between information retrieval tools provided in the library (independent/predicting variable) and medical students use of the library (dependent variable) in University of Jos is statistically significant.

This finding is in line with Onyenania and Oni (2001) who assessed internet search engine (ISE) usage by undergraduate medical students in the Delta State University. The purpose of the study was to find out the type of internet search engine used, their ability to use and method of acquiring ISE search skills. The study revealed that medical students used ISE mainly for the purpose of retrieving information resources to meet their academic information needs in a related work, Odini (1994) compared the performance of two manual indexes and three related online databases as information retrieval devices. This finding showed that the most common sources to search for topic was found to be online databases, this finding was

essential because this provided faster, more thorough and efficient means of carrying out literature search item than the card method.

RESEARCH QUESTION 3: WHAT IS THE RELATIONSHIP BETWEEN LIBRARY ENVIRONMENT AND MEDICAL STUDENTS USE OF THE LIBRARY?

Ho2: There is no significant relationship between library environment and student’s use of library.

TABLE 3A: LIBRARY ENVIRONMENT

S/N	ITEMS	SA	A	D	SD	TOTAL	MEAN
1	The reading chairs and carrels are comfortable for reading purpose	180	5	10	5	200	3.70
2	There is a library standby power supply system	160	10	20	10	200	3.50
3	The library is always well illuminated	142	18	10	30	200	3.04
4	The library reading hall is always quiet	143	19	9	29	200	3.50
5	Facility to serve the number of users	97	13	20	70	200	3.07
6	Location of windows in the library allows for cross ventilation	103	78	11	8	200	3.00

GRAND MEAN= 3.04

TABLE 3B: RELATIONSHIP BETWEEN LIBRARY ENVIRONMENT AND MEDICAL STUDENTS USE OF THE LIBRARY

S/N	VARIABLES	N	MEAN	STANDARD DEVIATION	CORRELATION COEFFICIENT	P-VALUE
1	library environment	200	3.50	0.679		
2	Use of library by medical	200	3.00	0.857	0.941	0.000

Table 3B reports the relationship between library environment and medical students use of the library. The result accounts a mean score of 3.50 for library environment and standard deviation of 0.679 indicating that most of the respondents agreed to all the six items in the library environmental factors. The study has further related the library environment and the extents of medical student use of the library, observing that a correlation efficient of 0.941 exist. This result shows that library environment has a very strong and positive relationship with medical student use of the library.

The analysis in table 3B has also revealed a p-value of 0.000 which is less than 0.05% level of significance (i.e $P < 0.05$), which implies that the correlation coefficient between independent and dependent variables is statistically significant. Therefore, the null hypothesis (HO) is rejected and the alternative accepted, stating that “there is a significant relationship between library environment and medical students use of the library”. It is therefore concluded that the positive and strong relationship existing between library environment (independent/predicting variable) and medical students used of the library (dependent variable) in the University Of Jos studied is statistically significant

QUESTION 4: WHAT IS THE RELATIONSHIP BETWEEN INFORMATION RETRIEVAL TOOLS PROVIDED IN THE LIBRARY AND MEDICAL STUDENTS USE OF INFORMATION RESOURCES?

TABLE 4A: INFORMATION RETRIEVAL TOOLS PROVIDED IN THE LIBRARY

S/N	ITEMS	SA	A	D	SD	TOTAL
1	Card catalogue	100	50	10	40	200
2	Finding aid	50	40	100	10	200

3	Bibliographic	10	20	60	110	200
4	Indexes	100	60	30	10	200
5	Abstracts	90	10	50	50	200
6	Search engines	165	20	5	10	200

TABLE 4B: RELATONSHIP BETWEEN INFORMATION RETRIEVAL TOOLS PROVIDED IN THE LIBRARY AND MEDICAL STUDENTS USE OF INFORMATION RESOURCES

S/N	VARIABLE	N	MEAN	STANDARD DEVIATION
1	Information retrieval tools provided in the library	200	3.60	0.535
2	Use of information resources	200	3.78	0.757

Table 4B: reports the relationship between information retrieval tools provided in the library and medical students use of information resources. The result has shown that the mean score for information retrieval tools provided in the library is 3.60 and a standard deviation of 0.535 indicating that most of the respondents agreed to most of the six item information retrieval tools are in the library. The study revealed that information retrieval tools provided in the library and medical students often use information resources in the library.

This was in line with the of Popoola (2008) who affirmed that the information resources and services available in institutional information system must be capable of supporting research activities among medical students and faculty members. This result shows that information retrieval tools provided in the library record a very strong and positive relationship with medical students' use of information resources.

CONCLUSION

Despite the establishment of libraries in virtually all tertiary institutions of higher learning through-out the federation to enhance academic excellence through the effective utilization of its resources, yet, there is still continuous record of poor usage especially by medical students. According to popoola (2008) affirmed that the information resources and services available in institutional information system must be capable of supporting research activities among medical students and faculty members. The under-utilization of library resources has remained a recurring issue in most university libraries in Nigeria. This however, has become a matter of serious concern and needs to be address. In a related work by Dike & Edom (2015), which examined the extent of use of library catalogue as retrieval tools by students, it was revealed that low awareness of catalogue use as retrieval tools was a factor in the under-utilization of its library resources. Hence, the researcher seeks to find out if information retrieval tools and library environment have any role to play in the utilization of library resources by medical students of university of Jos. Specifically, the study investigated information retrieval tools and library physical environment as correlate of library utilization by medical students of university of Jos.

The findings of this study revealed that various information resources are used by the undergraduate medical students in the library studied to a high extent. The findings further reveals that the environment also plays a positive role in the utilization of library resources. The research therefore, concludes that both the retrieval system and environmental condition of

the library have shown positive relationship with the use of the library by the medical students of university of Jos, Nigeria.

RECOMMENDATION

1. Bearing in mind the general roles academic libraries play in the lives of the medical students, medical students should be sensitized more on the use of periodicals and fiction materials for relaxation.
2. Even though the relationship between retrieval tools and use of library is significant, there is still need for medical students to be sensitized on how to use the library through adequate orientation on information retrieval tools. However, library use as a course should cut across all the departments of universities.
3. The management of University of Jos should ensure that good environment be maintained and sustained. This is the only way to continually cause create room and sustain medical students' high patronage which will in turn boost their academic excellence and success.
4. Librarian should ensure that standard mode of retrieving information and problems regarding the system's usability must be properly sustained and maintained. Absent of standardization and usability may result in medical students' negative perception toward the use of information retrieval tools and utilization of library services

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