

**SURVEY OF ENGINEERING INFORMATION RESOURCES AVAILABLE IN THE LIBRARIES
OF SOME POLYTECHNICS OF NORTH WESTERN NIGERIA**

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Abstract

This study surveyed the major information resources available in some of the Polytechnics of the North western Zone of Nigeria. The method used was survey of the major information resources as observation and documents were used as the major instruments. The population of the study was the Polytechnics of the zone that cut across Kebbi states, Kano state, Katsina state, Kaduna state, Jigawa state and Zamfara state. Objectives of the study are to make the information resources more known to the staff, students and visitors. The result indicates that the resources are available in most Polytechnics as observed. Further findings of the study indicate that information resources available in these Polytechnics are used and differed from Polytechnic to Polytechnic. Engineering journals, and engineering abstracts are more available in these Polytechnics. Similarly, engineering standards and engineering codes are not fully accessible and utilised. Some of the recommendations are need to speed awareness by the library personnel and library management should seek for reasonable funding in order to acquire engineering information resources.

Keywords: Information resources, Polytechnics, North western zone

Introduction

Information resources in Engineering are vast considering the importance of the discipline. Engineering encompasses the following fields, however not restricted: Mechanical engineering, Civil engineering, Mineral resources engineering, Chemical engineering, Railway engineering, Computer engineering, Foundry, Mechatronics, Agricultural engineering. The following fields contributed in generating these information resources through: researches, assignments, term papers, conferences, seminars, workshops, field studies, among other channels that led to the creation of knowledge and information. The Engineers and Technologies need the resources to succeed in their careers. Ozioko (2010) states that the most important kinds of information in Science, Technology and Engineering are obtained from primary sources. As primary sources present new facts and help guide research efforts in the proper direction. Some of the primary sources are periodicals, patents, technical reports, notebooks, diaries, proceedings, transactions, theses, dissertations, manuscripts, and oral recordings.

The study focus at bringing the information resources and expose them to the scrutiny of the library customers that are the engineers, the managers that are the library personnel and the policy makers that are the governments in all levels. We cannot continue to claim that the government is sponsoring us to acquire information resources such as: Engineering abstracts, Engineering journals, professional magazines, electronic databases subscription, conference proceedings, Engineering indexes, bibliographic of Engineering, etc. These resources are in physical and in electronic formats yet the utilization of the resources is minimal. Thus, the purpose for undertaking this study at this material time to find out. According to Gabriel, Sahabi, and Garba (2020) on electronic information resources, they opined that, electronic information resources have many roles and benefits that can positively impact performance of students and researchers in the advanced institutions of learning.

Statement of the Problem

There are many Engineering information resources available in the academic libraries of most Polytechnic in the North Western states of Nigeria. These information resources include abstracts, bibliographies, books, journals, standards, DVDs, indexes. They are very vital in research and general aspects of teaching and learning. The academic libraries need to serve the engineers and their students for our zone and the country to make good progress. Umar and Yahaya (2020) Academic libraries are libraries found in the higher institutions of learning. They contain collection of various information resources and services. Such resources include books, periodicals, reference materials, media resources, and the structure where these resources are housed.

The study aim at examining these resources and to see how the engineers can exploit them in their teaching and others scholarly activities. Research question

1. How aware are the library customers are of the information resources in the Libraries of the Polytechnic in North Western Nigeria?
2. How accessible are the information resources in the libraries of the Polytechnic in North Western Nigeria?
3. How are the information resources being utilized in the Polytechnic Libraries of North western Nigeria?
4. How satisfied are you with the use of the information resources in the Polytechnic libraries of the North Western Nigeria?
5. What are the problems associated with accessibility and use of information resources in the libraries of the Polytechnics in North Western Nigeria? Research Objectives
 1. To examine the level of awareness of the library customers of the information resources in the Libraries of the Polytechnic in North Western Nigeria?
 2. To know how accessible are the information resources in the libraries of the Polytechnic in North Western Nigeria?
 3. To know the level of utilization of information resources in the libraries of Polytechnic of North Western Nigeria.
 4. To examine the level of satisfaction with the use of the information resources in the Polytechnic of North Western Nigeria?
 5. To proffer solutions to some problems affecting information resources in the libraries of the Polytechnics in North Western Nigeria? Literature Review

Engineering information resources are vast because of the many

interesting disciplines of Engineering and the active approach of engineers, technologists, and other scholars in the field of Technology in general. Although, as seen in most literature or writing and speech Technology is more popular and generic than the Engineering field. The authors choosed Engineering for the fact that the Colleges and the Departments in the areas of study or Polytechnics preferred to use such terms as College of Engineering, Department of Engineering among others.

The review is based on the following sub – topics: engineering field; engineering information resources; Academic libraries; empirical researches studied; summary of the review.

Engineering Field

Engineering is a field of study that include disciplines such as – Civil engineering, mechanical, Computer engineering, Foundry engineering, Chemical engineering, software engineering, Bioengineering, Agricultural engineering. The field sometime is refers to as Technology. Wright, (2000) asserted that, engineering is a process that that develops the specifications for products, structures, processes, and services. In other word engineering made it for our consumption. He further explained that, engineering develops the specifications. This is done through two basic activities – design interpretation, and engineering testing. Based on the role of the engineering field their information resources are vital to our own continue existence.

Engineering Information Resources

The Engineering information resources cut across printed and non- printed resources found in academic libraries or the audio and visual resources. These resources can be in digital or non- digital formats. They are in book, journals, magazines, Dvds, flyers, databases, indexes, abstracts, bibliographies, standards, patterns, codes, charts, etc. formats. They play important roles in research, design, lecture/teaching, conferences, seminars, workshops, etc. Based on the above reasons an Open Educational Resources (OER) have emerged as a viable solution to quality assurance and supplement in Science, Technology, Engineering and Mathematics (STEM) education and is gaining significant attention in recent years due to their potential to enhance teaching and learning in the fields. (Kangiwa, et al., 2024). As the resources are growing there is the need to be aware of their existence, to get access to them and to utilise especially in the Engineering fields The reasons for acquiring Engineering information resources are for research, learning, education, information, references, among others.

As Adebayo et al. 2017 put it, library facilities and services assist the learners and the academics in educational processes. The cognitive skills are developed by making the users to use the library resources. Therefore, provision of information facilities is not enough there is the need to offer effective services to the customers in order to encourage them to utilize the information resources or the whole facilities in the Library.

Academic Libraries

As the name implies, academic libraries are the libraries in the higher institutions of learning such as Polytechnics, Colleges of education, Universities. They are established to support the research, information, reference, education, aesthetics and learning need of an institution. The academic library has been described as the heart of the learning community, providing a place for students and faculty to advance their knowledge. (Adebayo et al., 2017) in similar way academic library is thus portrayed as – library that offer a wide array of engineering resources, both physical and digital to support students, faculty (college), and researchers in their studies (Science direct.com).

If you go to these libraries in your institution you will discover that there are sections/ departments or divisions that help to facilitate organization of knowledge and learning. Like in the serials sections or periodical section journals, flyers, magazines, bibliographies, abstract are managed here. The library customer visits this section to read, learn or discuss.

Empirical Researches Studied

Some researches as conducted by previous research were thus presented below. Simmond and Andaleeb (2001) as quoted by Adebayo, et al., 2017 in an article: Usage of Academic Libraries – The role of service quality, resources, and user characteristics. The authors stressed that access to information provided by the libraries is seen as more important than the materials physically available in the library. On the other hand, Nnadozie (2016) evaluates the services and collection (resources) of the Federal Medical Centre Library, Owerri, Nigeria. His findings revealed that the librarians were not proactive and

that there was no personalized information service in place. He concludes that the basic tools and facilities for the delivery of qualitative library services are either available but in an inadequate quantities or completely non – existent. The latter statement is more close to reality, as we can see funding is lacking in most libraries of Nigeria.

Similarly, Majid (2010) used a questionnaire survey to investigate all possible factors that had great impact on library performance. The result showed that collections, equipment and physical facilities were viewed as most important issues. On the same, most of these libraries in the institutions are lacking these essential facilities.

Summary of the Review

Engineering fields are vast it is as a result of this literature in digital and physical forms are generating by the scholars and students. These literature or information resources are available on the shelves of many academic libraries of the Polytechnics of North western, Nigeria. Having them in the libraries is a good effort put by the managers and the government. As some empirical studies indicated the resources are not available as to go round and the funding issues is affecting their access and availability in some of the libraries. The main objective of this study is to bring to the notice of the government, Polytechnic management and other donors to help in making the resources available and accessible.

Methodology

The study used survey method as it is relevant in Social science based research like this. Therefore, available documents, questionnaire, interviews and other resources both online and offline were used and observation was also used in order to obtain data that are relevant for the study on engineering information resources in some Polytechnics in the North Western part of Nigeria. Percentages (means) were used in analyzing data.

Table 1.0 States in the North western zone of Nigeria

| S/N | STATE |
|-----|---------|
| 1. | Kaduna |
| 2. | Katsina |
| 3. | Kano |
| 4. | Kebbi |
| 7. | Zamfara |

Source: <https://www.wikipediastatesofnigeria>

Table 1.1 Some Polytechnics in the North Western zone of Nigeria

| S/N | POLYTECHNIC | LOCATION/STATE |
|-----|-----------------------------------|------------------------------|
| 1. | Kaduna Polytechnic | Kaduna |
| 2. | Nuhu Bamalli Polytechnic | Zaria , Kaduna |
| 3. | Hasan Usman Polytechnic | Katsina |
| 4. | Federal Polytechnic Kauran Namoda | Kauran Namoda, Zamfara state |
| 5. | Federal Polytechnic Birnin Kebbi | Birnin Kebbi, Kebbi state |
| 6. | Kano state Polytechnic | Kano, Kano state |

- 7. Federal Polytechnic Daura Daura, Katsina state
- 8. Federal Polytechnic Kabo Kabo, Kano state
- 9. Haliru Abdu Polytechnic, Birnin Kebbi Birnin Kebbi, Kebbi state
- 10. Umaru Ali Shinkafi Polytechnic Sokoto, Sokoto state

Source: <https://www.wikipedia> list of polytechnics in Nigeria

Above are the Polytechnics selected as sample where the study was carried on. Similarly, the researchers will generalize the findings at the end of the study.

Data Analysis

The questionnaires collated were subjected to analysis base on percentages. The following tables further give full explanation of the findings.

Table 1.2 Awareness of engineering information resources (EIR).

| S/ | EIR | SA | % | A | % | RA | % | NA | % | Total | Mean |
|-----|-----------------------------------|----|-----|---|-----|----|----|----|----|-------|------|
| 1. | Engineering abstracts 5.0 | 5 | 100 | - | - | - | - | - | - | - | 5 |
| 2. | Engineering journals 2.5 | 1 | 20 | 4 | 80 | - | - | - | - | - | 5 |
| 3. | Engineering standards 2.5 | - | - | 2 | 40 | 3 | 60 | - | - | - | 5 |
| 4. | Engineering magazines 2.5 | 4 | 80 | 1 | 20 | - | - | - | - | - | 5 |
| 5. | Engineering manuals 5.0 | - | - | 5 | 100 | - | - | - | - | - | 5 |
| 6. | Institutional repositories 5.0 | - | - | 5 | 100 | - | - | - | - | - | 5 |
| 7. | Codes | - | - | 3 | 60 | 2 | 40 | - | - | 5 | 2.5 |
| 8. | Engineering databases 5.0 | 5 | 100 | - | - | - | - | - | - | - | 5 |
| 9. | Patents | 1 | 20 | 2 | 40 | - | - | 2 | 40 | 5 | 1.7 |
| 10. | Conference proceedings 2.5 | 2 | 40 | 3 | 60 | - | - | - | - | - | 5 |
| 11. | Newsletters 5.0 | - | - | 5 | 100 | - | - | - | - | 5 | 5.0 |
| 12. | Engineering indexes 2.0 | - | - | 2 | 40 | 3 | 60 | - | - | - | 5 |
| 13. | Bibliographies of engineering | 2 | 40 | 3 | 60 | - | - | - | - | 5 | 2.5 |

Key: SA= strongly aware, A= aware, RA= aware, RA= rarely aware , NA= Not aware

As shown in the table 1.3 above awareness of EIR shows that in the libraries of the Polytechnics of North Western, Nigeria as indicated by the respondents. Engineering abstracts, (mean = 5.0); engineering manuals (mean = 5.0); institutional repositories 5 (100%) and (mean = 5.0); engineering databases and newsletters (100%) and (mean = 5.0) are the most aware EIR. The less aware are: engineering journals, engineering standards, engineering magazines, codes, conference proceedings, engineering indexes and bibliographies of engineering (mean = 2.7). The least EIR aware of are patents with (mean =1.7). As Abubakar (2011) stated, academic libraries are at the

forefront of providing information services to their respective communities which comprises of students, lecturers, and researchers in order to support their teaching, learning and research needs. That is awareness must be created in order to encourage use of the library resources by the customers.

Table 1.3 Accessibility of engineering information resources (EIR).

| S/n | EIR | HA | % | A | % | RA | % | NA | % | Total | Mean |
|-----|-----------------------------------|----|----|---|----|----|----|----|----|-------|------|
| 1. | Engineering abstracts 2.5 | 2 | 40 | 3 | 60 | - | - | - | - | 5 | |
| 2. | Engineering journals 2.5 | 4 | 80 | 1 | 20 | - | - | - | - | 5 | |
| 3. | Engineering standards 1.7 | 2 | 40 | 2 | 40 | 1 | 20 | - | - | 5 | |
| 4. | Engineering magazines 1.7 | 3 | 60 | 2 | 40 | - | - | - | - | 5 | |
| 5. | Engineering manuals 2.5 | 3 | 60 | 2 | 40 | - | - | - | - | 5 | |
| 6. | Institutional repositories 2.5 | 2 | 40 | 3 | 60 | - | - | - | - | 5 | |
| 7. | Codes | - | - | 1 | 20 | 4 | 80 | - | - | 5 | 2.5 |
| 8. | Engineering databases 2.5 | 4 | 80 | 1 | 20 | - | - | - | - | 5 | |
| 9. | Patents | 2 | 40 | 1 | 20 | 2 | 40 | - | - | 5 | 1.7 |
| 10. | Conference proceedings 2.5 | 3 | 60 | 2 | 40 | - | - | - | - | 5 | |
| 11. | Newsletters | 2 | 40 | 2 | 40 | 1 | 20 | - | - | 5 | 1.7 |
| 12. | Engineering indexes 1.7 | 2 | 40 | 2 | 40 | 1 | 20 | - | - | 5 | |
| 13. | Bibliographies of engineering | 2 | 40 | 2 | 40 | - | - | 1 | 20 | 5 | 1.7 |

Key: HA=highly accessible, A= accessible, RA= rarely accessible NA= not accessible

In the table 1.4 the respondents showed that engineering abstracts, engineering journals, engineering manuals, institutional repositories, codes, engineering databases and conference proceedings with (mean = 2.5), they are more accessible in the polytechnics of North western Nigeria. The following EIR with (mean = 1.7) : engineering standards, engineering magazines, patents, newsletters, engineering indexes and bibliographies of engineering are less accessible to the library customers in these libraries. To corroborate this, Kumar and Kaur (2005) stated that, international network (internet) as the most powerful tool for an instant access to information. Infact, information is now just a “finger touch” distance away from the user and it would not be inappropriate to say that internet has become the biggest global digital information library, which provides the fastest access to the right kind of information in nano seconds of time to end – user at any time and at any place in the world. The internet can provide access to essentially unlimited resources of information not conventionally obtained through other means. Also Tella and Olaniyi (2018) suggested library shifts from a repository for materials to a platform for learning and participation, its ability to provide access to vast amounts of contents in all formats is vital.

Table 1.4 Utilisation of engineering information resources (EIR).

| S/n | EIR | HU | % | U | % | RU | % | NU | % | Total | Mean |
|-----|------------------------------|----|----|---|----|----|---|----|---|-------|------|
| 1. | Engineering abstracts 2.5 | 4 | 80 | 1 | 20 | - | - | - | - | 5 | |

| | | | | | | | | | | | |
|-----|-----------------------------------|---|----|---|----|---|----|---|----|---|-----|
| 2. | Engineering journals 2.5 | 3 | 60 | 2 | 40 | - | - | - | - | 5 | |
| 3. | Engineering standards 1.7 | 2 | 40 | 2 | 40 | 1 | 20 | - | - | 5 | |
| 4. | Engineering magazines 2.5 | 3 | 60 | 2 | 40 | - | - | - | - | 5 | |
| 5. | Engineering manuals 2.5 | 1 | 20 | 4 | 80 | - | - | - | - | 5 | |
| 6. | Institutional repositories 1.7 | 2 | 40 | 2 | 40 | 1 | 20 | - | - | 5 | |
| 7. | Codes | 1 | 20 | 3 | 60 | 1 | 20 | - | - | 5 | 1.7 |
| 8. | Engineering databases 2.5 | 3 | 60 | 2 | 40 | - | - | - | - | 5 | |
| 9. | Patents | 2 | 40 | 2 | 40 | 1 | 20 | - | - | 5 | 1.7 |
| 10. | Conference proceedings 2.5 | 3 | 60 | 2 | 40 | - | - | - | - | 5 | |
| 11. | Newsletters | 2 | 40 | 2 | 40 | - | - | 1 | 20 | 5 | 1.7 |
| 12. | Engineering indexes 2.5 | 3 | 60 | - | - | 2 | 40 | - | - | 5 | |
| 13. | Bibliographies of engineering | 2 | 40 | 2 | 40 | 1 | 20 | - | - | 5 | 1.7 |

Key: HU=highly utilise, U= utilise, RU= rarely utilise, NU= not utilise

In this table 1.5 utilisation of EIR indicates that the respondents across the North west Polytechnics indicated the following variables with high mean of (mean = 2.5) engineering abstracts, engineering journals, engineering magazines, engineering manuals, engineering databases, conference proceedings and engineering indexes are utilised most. The less used EIR with (mean = 1.7) are engineering standards, institutional repositories, codes, patents, newsletters and bibliographies of engineering. Ali (2014) studied electronic resources in selected engineering college libraries of Chittor district. Analysis of data collected from a sample of 150 library customers of Sri Vidyaniketan and Sreenivesa Institute libraries about their use of electronic resources using questionnaire method reveals that most of the Library customers (students) (54.89%) use online journals. Most users (61.73%) replied that they have to access online journals from the library.

Table 1.5 Satisfaction with engineering information resources (EIR).

| S/ | EIR | HS | % | S | % | RS | % | NS | % | Total | Mea |
|-----|-----------------------------------|----|-----|---|----|----|----|----|----|-------|-----|
| n | | | | | | | | | | | n |
| 1. | Engineering abstracts 2.5 | 4 | 80 | 1 | 20 | - | - | - | - | - | 5 |
| 2. | Engineering journals 5.0 | 5 | 100 | - | - | - | - | - | - | - | 5 |
| 3. | Engineering standards 1.7 | - | - | 2 | 40 | 2 | 40 | 1 | 20 | 5 | |
| 4. | Engineering magazines 1.7 | 2 | 40 | 2 | 40 | 1 | 20 | - | - | 5 | |
| 5. | Engineering manuals 2.5 | 4 | 80 | 1 | 20 | - | - | - | - | 5 | |
| 6. | Institutional repositories 5.0 | 5 | 100 | - | - | - | - | - | - | 5 | |
| 7. | Codes | - | - | 3 | 60 | - | - | 2 | 40 | 5 | 2.5 |
| 10. | Conference proceedings 2.5 | 4 | 80 | - | - | - | - | 1 | 20 | 5 | |

| | | | | | | | | | | | |
|-----|-------------------------------|---|----|---|----|---|---|---|---|---|-----|
| 11. | Newsletters | 3 | 60 | 2 | 40 | - | - | - | - | 5 | 2.5 |
| 12. | Engineering indexes | 4 | 80 | 1 | 20 | - | - | - | - | - | 5 |
| | 2.5 | | | | | | | | | | |
| 13. | Bibliographies of engineering | 3 | 60 | 2 | 40 | - | - | - | - | 5 | 2.5 |

Key: HS=highly satisfy, S= satisfy, RS= rarely satisfy, NS= not satisfy

The respondents response showed that the following variables with highest means (mean = 5.0) : engineering journals and engineering databases satisfied them most. Secondly, engineering abstracts, engineering manuals, codes patents, conference proceedings newsletters, engineering index and bibliographies of engineering with (mean = 2.5) are satisfying to the respondents. The third or less satisfying EIR are engineering standards and engineering magazines with (mean = 1.7). Corroborating this Veeramally, et al (2021) stated in their study, found that a large number of respondents were satisfied with library resources and services .

Table 1.6 Problems associated with engineering information resources (EIR).

| S/n | Problems of EIR | TOTAL | % | MEAN |
|-----|--|-------|----|------|
| 1. | Funding shortage | 3 | 60 | 3.0 |
| 2. | Ignorance of use of library | 2 | 40 | 2.0 |
| 3. | Cost of internet subscription | 2 | 40 | 2.0 |
| 4. | Lack of some information resources | 3 | 60 | 3.0 |
| 5. | Lack of time | 2 | 40 | 2.0 |
| 6. | Unfriendly habits of some library personal | 2 | 40 | 2.0 |
| 7. | Location of the library | 1 | 20 | 1.0 |
| 8. | Security system of the library | - | - | - |
| 9. | Poor security system of the library | 2 | 40 | 2.0 |
| 10. | Overcrowd in the library | 1 | 20 | 1.0 |
| 11. | Unreliable power supply in the library | 1 | 20 | 1.0 |
| 12. | Shortage of ICT facilities in the library | 2 | 40 | 2.0 |
| 13. | Unawareness of some information resources | 1 | 20 | 1.0 |

In the table1.7 above respondents indicated the following major problems affecting EIR, namely funding shortage and lack of some information resources with (60%, and mean = 3.0). Secondly, other problems are ignorance of use of library, cost of internet subscription, lack of some information resources with (40% and mean 2.0). The least

problems are location of the library; overcrowd in the library, unreliable power supply in the library and unawareness of some information resources with (20% and mean 1.0). Emezie (2018) in a study reveal that the majority of the respondents 174 (98%) affirmed that poor services as a major challenge to innovative services and practices in the Federal University of Technology Owerri library, while 172 (97%) agreed that funds constitute a major challenge. Furthermore, 158 (89%) were positive on poor network; 149 (84%) indicated management issues; while 144 (81) viewed poor infrastructure. On the whole the response showed that major problems beseech information resources that need to be addressed. Similar to the above views Oyedum (2006) in related study discovered the following findings: problems of inadequate number of computers with internet connectivity, problem of constant power supply, the speed of the internet services is low, there is no regular training organised for internet users and the cost of the services is high for some students.

Conclusion

In conclusion, engineering information resources (EIR) are available in the Polytechnic libraries of the North western region of Nigeria. What is affecting these resources as observed by some researchers include funding paucity, internet services cost, epileptic power supply, among others. Similarly, the EIR are available in most of the Polytechnics. It is of note that, some polytechnics have more of the resources than the others. With effective management of the Polytechnic libraries changes that are positive to improve EIR can be obtained.

Recommendations

The following recommendations are therefore proffered:

1. There is the need for the library personnel in the Polytechnics to apply more effective strategies to enlighten the library customers about these EIR.
2. The libraries in these Polytechnics should improve access to their resources through online and physical means.
3. The library personnel should shelf well, catalogue and classify well and should reach the departments in order to market the libraries and encourage usage.
4. Need to provide effective power in the library.
5. The library managements of these Polytechnics should seek for effective funding so that they can buy more journals, computers, inverters, subscribe and lessen the cost of browsing and printing for the lecturers and students.

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