

Assessment of Library and Information Services in Support of Researchers and Librarians at the Federal Institute of Industrial Research Oshodi, Nigeria

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Abstract

The study that directed this article aimed to assess the opinions of industrial researchers and librarians regarding library and information services provided by the research library of the Federal Institute of Industrial Research Oshodi (FIIRO), Nigeria. The library of the modern era is expected to develop naturally, growing bigger to accommodate different kinds of information resources and services for better information provision to its users. This study set out to determine if library and information services at FIIRO were indeed answering this call. A mixed-methods design was adopted with the use of questionnaires, face-to-face interviews and observation for data collection. It was found that both groups, the industrial researchers and the librarians, were not satisfied with the library and information services offered by the institute's library. Poor funding, lack of political will by the management and government authorities, and the lack of internet connectivity were highlighted as some of the main problems facing library fitness. In order to improve these services of information provision, the study recommends several innovations, mainly that librarians should be involved in management decisions, especially in the formulation of library policies and strategies.

Keywords: library and information services; industrial researchers; librarians; Federal Institute of Industrial Research Oshodi (FIIRO)

Introduction

Shiyali Ranganathan, the late renowned librarian, stated in his early twentieth century *The Five Laws of Library Science*, that the library must be a growing organism (Ranganathan 2006). Today, this “fifth law” still has a lot to say about any kind of library—be it an academic or research library. Among its strong implications is that the library is expected to develop naturally, growing bigger to accommodate different kinds of information resources and services for better information provision to its users. With expanded knowledge, as we can see from the evolution of modern media resources, this “law” is still retained due to its importance—despite propositions of its re-modification (Simpson 2008). Therefore, the library, as a living organism, must be carefully studied over time in order to identify the right changes to make for it to serve its functions. Among these factors, as enunciated by Ranganathan, are library staff (librarians), readers (library users), and a library’s physical infrastructure—and an adjustment to any of these factors is expected to influence the others (Connaway and Faniel 2015). This paper focuses on the assessment of library and information services offered to industrial researchers (users) in a research library by librarians with the aim of improving these offerings.

Background

The Federal Institute of Industrial Research Oshodi (hereafter FIIRO) is a prominent federal research institute in Lagos, Nigeria. It has well-trained industrial researchers from the fields of food technology, biochemistry, microbiology, biotechnology, agriculture, and engineering. These industrial researchers support the transfer, adaptation and utilisation of technologies that FIIRO has developed locally. Furthermore, FIIRO engages in project evaluation and consultancy services. The industrial research carried out at FIIRO is spread across six functional research-based departments, specifically: 1) Production, Analytical and Laboratory Management; 2) Biotechnology; 3) Chemical, Fibre and Environmental Technology; 4) Food Technology; 5) Project Development and Design; and 6) Planning, Technology Transfer and Information Management. FIIRO was set up in 1956 with an expansive directive to hasten industrialisation in Nigeria, and today there have been commercial evidences of FIIRO’s research indicating the accomplishments of the institute. FIIRO is regulated by the Federal Ministry of Science and Technology. It is headed by a director-general who supervises the directors of the six research departments.

The FIIRO library was created in 1957 in order to make information available to industrial researchers as they engage in research and development undertakings. It encompasses circulation, collection development, serial, and audio visual units. It is run by five librarians and some supporting staff. The library resources contained in the FIIRO library are books, journals, abstracts, directories, standards, trade catalogues, photographs, video recordings, research reports, technical memoranda, seminal papers, industrial profiles, and other publications of FIIRO. The FIIRO library, comparable to

other research libraries, tries within its limited means to provide and update library resources to satisfy the information needs of industrial researchers.

Extant literature shows that many studies have been conducted on how users are satisfied with library and information services in academic libraries (especially in higher institutions), public libraries as well as research institutions' libraries. These studies have been conducted in Nigeria, other African countries and in many parts of the world. As observed from the literature, user satisfaction studies in academic libraries have been many, and more than that of non-academic settings, especially research libraries. Consequently, the important question to ask is: Have industrial researchers and librarians been appropriately examined to know if their expectations are being met regarding the library and information services they use (for industrial researchers); and the library and information services they offer (for librarians)? This study aimed to identify weak areas of library and information services, and intended to provide recommended strategies for the overall improvement of the library. This would empower the library to offer satisfactory services and to address the information needs of industrial researchers.

Significance of the Study

This study is expected to motivate the evaluation of research libraries in Nigeria and other developing countries. Substantial research is tied to information provision for researchers and should be statutorily provided by competent research libraries. The study will present an opportunity to improve and reinforce enduring library and information services in research libraries. The study will be valuable to librarians, information professionals and administrators in Nigeria and other developing nations for the enhancement of library and information services.

Statement of the Problem

Ezeala and Yusuff (2011) assert that agricultural research institute libraries in Nigeria need to make library performance evaluation a tradition. There is a view that users' perceptions and satisfaction regarding library services have been ignored by researchers and practitioners of library and information science, due to the nature of underdevelopment in the country (Mairaj and Naseer 2013, 319). This exposition and extant literature consulted gave the researchers an understanding that Nigerian research libraries have perpetual problems hindering information access. These challenges include the misapprehension of users' information needs by the librarians and management of research institutions. One of the ways to uncover and resolve inadequate library services, is constant research from the perspectives of users and librarians.

The dearth of research on library services in Nigeria motivated the authors to explore some of the problems faced at FIRO, that hinder researchers and librarians from reaching their full potential of service delivery.

Therefore, based on the analogy above, the following research questions were formulated:

The overarching research question for this study is:

1. Are industrial researchers and librarians satisfied with the library and information services they are offered based on resources available in the research library?

Specific sub-questions include:

2. How do industrial researchers and librarians access information at the *Federal Institute of Industrial Research Oshodi*?
3. What strategies could be employed to improve library and information services offered?

Literature Review

The study commenced by doing a thorough online literature review of current and past studies that highlight this problem. Sources consulted include academic journal articles, university repositories, and institutional research. Specific attention was given to existing research findings regarding perceptions on the adequacy of library services. This article presents a brief overview of the study's literature review.

Libraries, as growing organisms, are expected to get users' opinions on their collection development; and these they get from users' suggestions on possible new and current resources (International Federation of Library Associations and Institutions 2012). In agreement, Mairaj and Naseer (2013, 319) pinpoint that "a library is an integral part of an academic and research organisation, and users are the key stakeholders who require information." Besides, librarians are expected to select most of the library resources because of their knowledge about users' needs and library expenditures (Karel 2013).

Ezeala and Yusuff (2011) found that many research officers of 14 agricultural research institutes in Nigeria were not highly satisfied with the library services provided by their research libraries. Slightly more than half of the respondents were satisfied only with the duration of book loans. They were not satisfied with key library services such as photocopying services, selective dissemination of information, interlibrary loan services, indexing and abstracting services, internet services, compilation of subject bibliographies, books (as they were dated) and the answering of users' queries. In terms of usage of the library, data showed that many of the respondents did not strongly agree with all the library usage factors such as available library facilities, library environment, user involvement in library acquisition process, and staff orientation on library usage. Few of the respondents used the library occasionally. Overall, the respondents reported that electronic resources were inadequate.

In the research of Uganneya, Ape, and Ugbagir (2012) involving three agricultural research institutes' libraries in Nigeria, data showed that many of the users were satisfied with reference and circulation services that were adequately provided by those libraries. However, they were not satisfied with the referral service and shelf management of books. The majority of the users highlighted irregular internet services, expensive internet services, outdated materials, staff unresponsiveness, and slow processing of data as limiting factors to circulation and reference services satisfaction. Similarly, in the review of literature by Olaifa and Oyeniyi (2014)—though on ICT utilisation—they found that information professionals in research libraries in Nigeria could not have been able to render satisfactory information services to researchers. This was largely due to funding problems, inadequate technology and infrastructure, and a shortage of expertise. Equally, in a recent study by Ibegwam, Unobe, and Uzohue (2019), a majority of the surveyed librarians of a medical research institute in Nigeria cited reasons such as an increasing depth of collection development, cost saving, sharing resources, utilising staff more fully, sharing expertise, demonstrating proactive approach, and ICT adoption as the motives behind the demand for improved libraries through library collaboration. These reasons were likely established problems with the current library services being offered, which called for an upgrade. Besides, librarians pointed to organisational and management-dependent financial, human and leadership components as factors that would expedite collaboration—if they were put in place. These factors will have a direct impact on research information provision, provided they are ideally situated in any research library or organisation.

Nnadozie, Aniebo, and Chukwueke (2017) found that electronic services involving current awareness, resource searching and referencing were available in a Nigerian agricultural research library, but access to them was low. This was due to challenges such as internet connectivity issues, inadequate ICT facilities, lack of library ICT policy, poor funding of the library, and librarians' lack of upgrade. In contrast, the librarians and library officers that were surveyed disagreed with the dearth of trained personnel and inadequate ICT skills of users as challenges to the use of electronic resources. Likewise, Alade and Fagbola's (2017) survey showed that agricultural researchers of three agricultural research institutes in Nigeria had no smooth access to electronic resources and of course, the internet. This was largely due to poor funding. However, they confirmed having access to print resources such as textbooks and journals.

In earlier research of our survey institute (FIIRO), Makinde, Jiyane, and Mugwisi (2019a) identified that a majority of the researchers accessed databases, archives and indexes from their homes. The institute's library was least used among indicated locations for accessing databases, archives and indexes. Furthermore, the researchers had to use alternative sources such as mobile phones, iPads and personal laptops or desktops, even though it meant they personally paid for data subscriptions. They also utilised cybercafés. Also, in the same institution, Makinde, Jiyane, and Mugwisi (2019b), as well as Makinde, Jiyane, and Mugwisi (2020), reported that researchers complained of library-related issues such as dated books, bibliographic issues, shelving

concerns, and electronic services provision among the problems preventing them from accessing adequate information.

The findings of previous studies conducted in Nigeria, as mentioned above, will also be discussed with the results of this study so as to understand the local perspective of the status of library and information services and user satisfaction. It will also have strong implications for research libraries in other developing nations.

Methodology

The study that directed this paper was part of a larger doctoral thesis designed to study the information needs and information-seeking behaviour of industrial researchers at FIIRO. The study employed a mixed-method research design, namely a quantitative and qualitative study, using questionnaires, face-to-face interviews and observation for data collection. According to Johnson, Onwuegbuzie and Turner (2007, 123), “mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e. g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.”

The questionnaire was administered to the target population, comprising 165 industrial researchers of FIIRO. It was pre-tested on seven industrial researchers of the survey institute, and minor issues that were identified during the pre-test were reviewed for clarity and appropriateness. Out of the 165 questionnaires, 114 were returned valid (69.1%). The questionnaire was divided into seven sections, with questions on: a) background information of researchers; b) information needs of researchers; c) information sources used by researchers; d) factors affecting information-seeking behaviour of researchers; e) evaluating the accessibility of information by researchers; f) information communications technology infrastructure at the institute; and g) information services provision to meet researchers’ information needs. Data analysis was based on descriptive statistics of frequencies and percentages. The findings were presented in charts and discussions.

As a second instrument of data collection, an interview schedule was prepared for the five librarians working in the institute’s library. The interviewees were chosen based on expert sampling, since they would be able to give honest and expert information on the gaps being investigated. The interview schedule was sent to the interviewees ahead of the interviews to familiarise them with the questions. Eventually, all five librarians were interviewed. Each interview took 55 to 65 minutes. The interview questions targeted information on: librarians’ background; services available in the library; librarians’ opinions on the status of the library; collection development and utilisation; user support; ICT infrastructure in the library; librarians’ skills acquisition and professional development; challenges faced in the provision of information to researchers, among others. Notes (reflexive notes included) were carefully taken and later each interview answer was thematically analysed.

The third instrument of data gathering entailed observation of how the library was organised to perform its statutory role. Observations were also recorded in written reports to consolidate the information gathered from the interviews and the questionnaires. It addressed issues of physical location, size, lighting, shelving, sitting space, office space, library guides, availability of computers and other ICTs, and collection outlook.

A duly signed letter of consent was obtained from the Director-General of FIIRO before the study commenced. Five research assistants, who were appropriately trained by the researcher, were used in the administration and collection of the questionnaires only. The interviews and observations were executed by the researcher. Data collection (using the three research instruments) was concluded between October and November 2017.

Findings

This section presents the main findings of the study, and discusses the responses of researchers as users of the FIIRO library, as well as those of librarians employed by the FIIRO library. The findings are supported by summaries and charts. The findings of this study are also related to the findings of extant literature. In the discussion that follows, the authors describe findings and observations and explore possible reasons for the findings.

Researchers as Users of the FIIRO Library

Respondents' Demographics

The respondents were asked questions related to their gender, age, highest academic qualification, and working experience. The results showed that of the 114 respondents, 60 (52.6%) were male and 54 (47.4%) were female. Forty nine (43%) of the respondents were 30–39 years of age, followed by 25 (21.9%) 40–49 years, 24 (21.1%) 20–29 years, and 16 (14%) were 50 years and above. Slightly more than one third (40, 35.1%) had a bachelor's degree qualification (the highest number indicated by the respondents). This was followed by a master's degree (35, 30.7%), postgraduate diploma (21, 18.4%) and doctorate degree (18, 15.8%). In terms of working experience in descending order, we had, 1–5 years (39, 34.2%), 6–10 years (26, 22.8%), 16–20 years (18, 15.8%), 11–15 years (17, 14.9%), 26 years and above (8, 7.0%), and 21–25 years (6, 5.3%).

Information Access through the Library

The respondents were asked about the ease with which they accessed information at the institute's library. Out of 114 respondents, 40 (35.1%) indicated that information accessibility at the library was easy, while in contrast 74 (64.9%) indicated the opposite. Majorly, respondents could not enjoy access to information in the library due to the factors of dated books, poor infrastructure and poor environment. Figure 1 shows details of the factors responsible for the difficulty faced in accessing information.

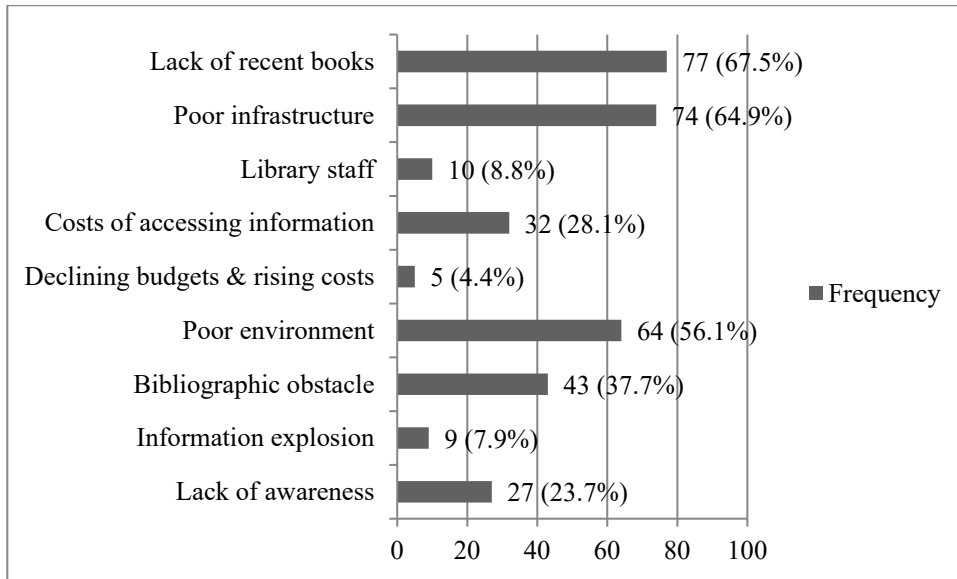


Figure 1: Factors responsible for difficulty in accessing information

Visits to the Library

The respondents were asked to indicate how often they patronise the institute's library. Twenty (17.5%) of the respondents indicated that they were regular visitors to the library, whereas 94 (82.5%) of the respondents revealed that they were not regular visitors to the library.

Time Spent at the Library

The respondents who visited the library were asked to indicate the hours spent in the library per week. Fourteen (12.3%) of the respondents (which was the highest number) spent less than five hours per week in the library. None of the respondents spent more than 20 to 30 hours per week in the library. Figure 2 shows the specifics of the time spent in the library. From these results, it can be seen that time spent by the respondents at the library was low.

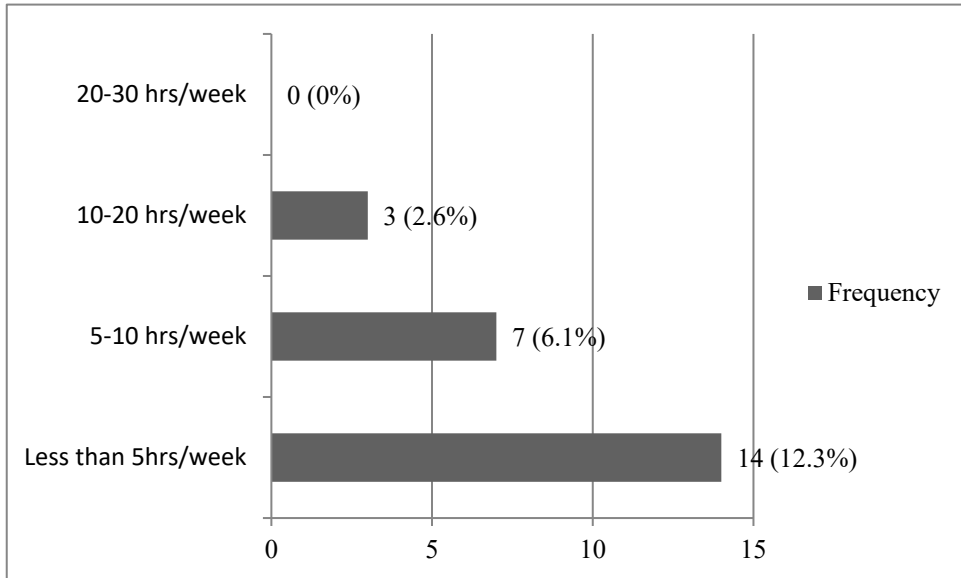


Figure 2: Time spent at the library when respondents visit

The findings on information access through the library, visits to the library and time spent at the library are consistent with the study of Ezeala and Yusuff (2011), who found occasional usage of the library by just a few of their surveyed research officers. Makinde et al. (2019a) revealed that the majority of their surveyed researchers assessed databases, archives and indexes from their homes, and not from the institute's library.

Information Technology Usage Effect

Ten (8.8%) of the respondents revealed that the use of information technology at the library motivated them to visit the library, while 104 (91.2%) indicated that information technology usage in the library did not affect their visit to the library. Respondents who revealed that information technology usage had encouraged them to visit the library pointed to printing, photocopying and scanning as information technology services that attracted them to the library.

This result is connected with the findings of Ezeala and Yusuff (2011), Uganneya et al. (2012), and Olaifa and Oyeniya (2014), who point to the non-satisfaction of users with key library services and facilities such as photocopying services, IT-related services and internet services. This is definitely associated with the inconsistencies in the delivery of these services.

Usage of Mobile Phones or iPads in Getting Research Information

One hundred-and-ten (96.5%) of the respondents indicated that they often use mobile phones or iPads, and 4 (3.5%) indicated that they sometimes use mobile phones or iPads.

All the respondents (114, 100%) indicated that they consider the mobile phone or iPad more helpful in obtaining research information than using the FIIRO library. This is rather uncommon, since most researchers should prefer the library instead of using their personal devices. It illustrates the low level of development of the institute's library. In line with our finding, Makinde et al.'s (2019a) study showed that researchers used alternative sources such as mobile phones or iPads and personal laptops or desktops, thus, paying for data subscription with their own money because of the lack of ICT resources in the library or organisation.

Information Resources and Services

Eighteen (15.8%) of the respondents indicated that they always found information sought at the institute's library, while 96 (84.2%) of the respondents indicated otherwise. In terms of the collection of books, journals and services (figure 3), 56 (49.1%) of the respondents rated the library to be poor, and only five (4.4%) rated the library to be very good. These findings are not surprising, since Makinde et al. (2019b) and Makinde et al. (2020) have identified the same tendency as highlighted in this study. Issues related to the library such as dated books, poor library infrastructure, information-resources organisation lapses and inconsistent electronic-services provision, were all mentioned in their works.

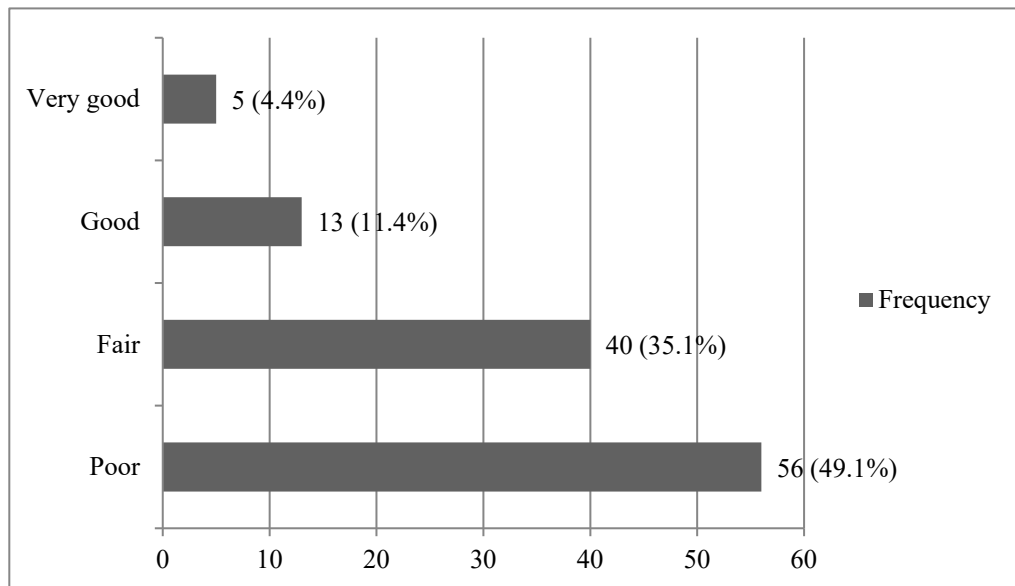


Figure 3: Rating of collection of books, journals and services

Out of all the information services offered by the institute's library, the preferred one by the respondents was newspaper-clipping services. The least preferred one was interlibrary loan. Specifics of types of information services preferred are shown in figure 4. It can be observed from figure 4 that many of the industrial researchers did not tick many of the information services. This is likely due to no provision and unreliable provision of these services. This is not unconnected with the discontent expressed by research officers on the significant library services provided by research libraries in Nigeria (Ezeala and Yusuff 2011).

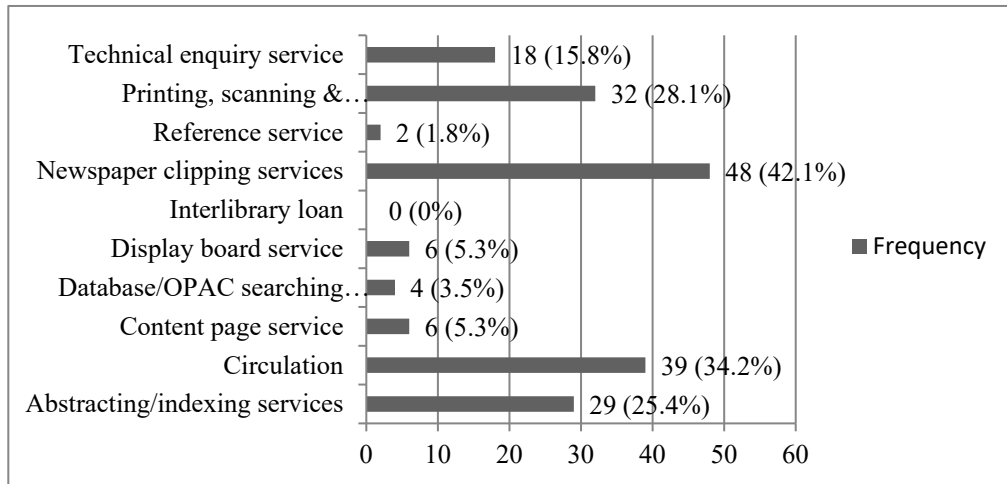


Figure 4: Information services types preferred as offered by the library

Nineteen (16.7%) of the respondents indicated that they were satisfied with the present information services offered by the institute's library, whereas 95 (83.3%) indicated otherwise. This is a striking result emerging from our data. The respondents that indicated non-satisfaction with the present information services offered by the library, revealed the reasons for their standing. In descending order, they revealed: 1) unavailability of journal or database subscription [both online and print] (95, 83.3%); 2) old books (93, 81.6%); 3) no internet facilities (93, 81.6%); 4) no interlibrary loan services (64, 56.1%); and 5) no well-directed vision and mission on information services provision (10, 8.8%). These findings are in close agreement with all the studies in our literature review (Alade and Fagbola 2017; Ezeala and Yusuff 2011; Ibegwam et al. 2019; Makinde et al. 2019a; Makinde et al. 2019b; Makinde et al. 2020; Nnadozie et al. 2017; Olaifa and Oyeniyi 2014; Uganneya et al. 2012). In spite of these mentioned studies spanning over a period of nine years, they still point to predictable factors (just like this present study's findings) responsible for gaps in the provision of information to researchers. Dissatisfaction with information services is likely related to the clamour for library collaboration as uncovered by librarians in the study of Ibegwam et al. (2019). They emphasise factors such as depth of collection development increase,

sharing resources, sharing expertise, and ICT adoption as library-saving factors that library collaboration can bring, so as to alleviate information provision problems.

Regarding new or different information services desired by the respondents from the library, one hundred and four (91.2%) of the respondents revealed that they wanted a standard, modern library with internet facilities (an electronic library); 63 (55.3%) revealed that they wanted interlibrary loan services; and 23 (20.2%) revealed that they wanted a library that subscribes to online journals. In descending order, the shortcomings of the library in supporting information needs were: 1) lack of up-to-date materials (88, 77.2%); 2) research materials not adequate (81, 71.1%); 3) poor library environment (61, 53.5%); 4) insufficient reading space and furniture (57, 50.0%); and 5) retraining of library staff and librarians (17, 14.9%). The successes of the library in supporting respondents' information needs were attached to staff commitment. The successes included the willingness of librarians and library staff to assist in finding information, despite the fact that so many things are out of place in the library and librarians' assistance in tracking the history and statistics of some facts and concepts.

Assistance in the Library

Regarding the frequency of assistance requested from the library staff during information seeking, only one (0.9%) of the respondents indicated often; 90 (78.9%) revealed they sometimes requested for assistance; while 22 (19.3%) indicated that they never did. The frequency of not requesting assistance from the library staff during information seeking could be linked to limited visits to the library. Concerning library staff and librarians' assistance in the conduct of respondents' research, 14 (12.3%) of the respondents indicated that they do assist with photocopying; 15 (13.2%) indicated that they assist in the preparation of bibliographies; 20 (17.5%) indicated that they assist in searching for books that are relevant to their research; and 79 (69.3%) indicated that they offer no assistance at all. In addition, in terms of helpfulness, 14 (12.3%) of the respondents indicated that librarians have been helpful; 22 (19.3%) indicated that librarians have not been helpful; and 78 (68.4%) were neutral in their responses.

These results have further strengthened the findings of past studies such as that of Uganneya et al. (2012), who state library staff's unresponsiveness as a major factor responsible for users not being satisfied with circulation and reference services; Ibegwam et al. (2019), who itemise utilisation of library staff in a greater way as one of the key reasons why library collaboration is needed; and Nnadozie et al. (2017), enumerating librarians' lack of upgrade as a major challenge to accessing information in the library.

Actions Taken after Search Failure

In descending order, actions taken by respondents after search failure were as follows: consulting colleagues and librarians (47, 41.2%); visiting another library (27, 23.7%); borrowing from a friend (25, 21.9%); and finding from a friend (22, 19.3%). None of

the respondents indicated that they would take no action, and come back later to try reserve collections after a search failure.

Consulting other Libraries apart from the Institute's Library

Twenty-seven (23.7%) of the respondents indicated that they did not consult other libraries apart from the institute's library, and 87 (76.3%) indicated that they consulted other libraries. Regarding the respondents that consulted other libraries, the libraries they consulted in descending order included: University of Lagos Main Library (12, 10.5%); public libraries (11, 9.6%); Lagos State University Main Library (10, 8.8%); University of Ibadan Main Library (5, 4.4%); and the International Institute for Tropical Agriculture Library (2, 1.8%).

The respondents' consultation with other libraries is most likely due to their dissatisfaction with the library and information services provided by the FIIRO library. Credence is given to this finding by the studies of Makinde et al. (2019a), Makinde et al. (2019b), and Makinde et al. (2020). These mentioned studies were conducted in the same institution and they pointed to conspicuous evidence of deterioration in the library and information services provided by the institute's library. Certainly, this factor pushed the industrial researchers to consult other libraries.

Librarians Employed by the FIIRO Library

With regards to the librarians, there was a 100% response rate, as all the five librarians were satisfactorily interviewed. They provided expert views on the status of the library and the library and information services that the respondents had evaluated in the survey questionnaire.

Background Information, Membership, Sitting and Shelving Space

The interviewees possessed admirable qualifications in library science and they were of suitable working experience. In terms of qualifications, two interviewees had a higher national diploma, two had a bachelor's degree and one had a master's degree—all in library science. In relation to working experience, one interviewee had five years, one had 10 years, two had 13 years and one had 21 years.

The interviewees stated that though the library was primarily established to attend to researchers' information needs, it is also expected to cater for some information needs of other employees, students, as well as other government departments having related functions. For instance, one interviewee said:

Apart from our researchers and other FIIRO staff we also allow outsiders like university students, industrial attachment students.

The interviewees were not pleased with the sitting and shelving space. They were of the opinion that the current library space does not conform to what a contemporary library

requires. The interviewees also clamoured for more office space and ergonomic furniture for library users. These demands were revealed in statements such as:

Additional space is needed for patrons to portray a modern-day library.

Shelving of library collections is poor; we need space and shelves urgently.

There should be provision of more offices for librarians.

Modern-day reading furniture cannot be found here.

Information Sources

With respect to the information sources used by the respondents, the interviewees stated that respondents use books, journals and research reports in the library. The interviewees also talked about respondents preferring current materials. For instance, the interviewees said:

Researchers always use books, journals and research reports in this library.

Researchers here utilise books a lot, in fact the most.

I am aware that researchers appreciate and use current materials a lot in this library.

The interviewees commented on the library collections. For instance, they said:

Most of the library collections here are not current.

There are multimedia collections such as microfiche, slides, films, videotapes, digital photographs and so on but I do not know the number and they are small collections anyway.

The interviewees indicated that the library collections do not follow a particular budget blueprint, but the chief librarian presents a proposed list of library materials for acquisition every year. The institute does not have a library committee and titles are only added based on available funds. However, industrial researchers, librarians and management contribute to library materials selection. Ultimately, the institute's management decides on library collections.

The statements of the librarians were not consistent with those of the respondents, who exposed in their questionnaires that they did not enjoy the institute's library collection of books. Not up to a tenth of the respondents rated the library's books collection to be very good, and slightly more than one tenth rated the library's books collection to be good (figure 3). This finding contradicts Alade and Fagbola's (2017) survey, which reported that surveyed researchers had access to print resources such as textbooks and journals.

ICT Infrastructure in the Library

Interviewees indicated that the adoption of ICTs by the library had helped in the following ways: 1) process of communicating research information to the respondents; 2) timely access to library resources; and 3) access to a wide range of information materials. Interviewees also added that they made photocopies for the respondents with the assistance of the photocopier, but they often ran out of paper. The interviewees revealed that the library had two working photocopiers. Other ICT items, as stated by the interviewees, included a projector, two digital cameras, CD-ROMs, eight flash drives and two DVDs. Interviewees mentioned that the typical procedures of the library, such as cataloguing and circulation, had not been automated. The interviewees disclosed that the library did not have a webpage and internet connection at the time of the study. They pointed out that researchers subscribed to internet service providers themselves by the usage of modems and mobile phones. This agrees with the result of Makinde et al. (2019a) on the use of mobile phones or iPad alternatives by the researchers in getting information outside of the library. The interviewees indicated that when they had internet connection in the library, they experienced challenges with the use of the ICT infrastructure in the library as they attended to respondents' information needs. For instance, they said:

Librarians and researchers alike know how electricity instability is a major problem in Nigeria and how it affected both researchers and librarians in enjoying ICT infrastructure when we had internet connection.

Inadequate computers and modern network printers are problems here.

Internet disruptions coming from the angles of management not paying for the service as when due, internet service providers (ISPs) not providing good services and bandwidth palaver.

Information Services and Partnerships by the Institute's Library

The interviewees indicated that the library supported researchers by providing relevant information based on requests to support research and development activities. Interviewees made provision for researchers' requests in the proposed lists of books to be purchased as demanded by the management of the institute. They revealed that the information services provided by the library (at the time of the study) included book loan services, provision of techno-economic information to satisfy respondents' technical enquiry quests, photocopying services, retrospective search for old journal editions and research reports and journal content page. In addition, referral services and current awareness services were also provided. The interviewees also mentioned that the institute's library collaborated with other libraries and information centres nationally in the area of exchange of newsletters and magazines.

The interviewees disclosed that the strengths of the library included: having well-educated and well-trained library professionals to attend to industrial researchers;

proper documentation and storage of in-house generated information, especially FIIRO publications; provision of current research information sources as soon as they are available; and librarians' availability throughout the working hours from Monday to Friday. However, they complained of some things that were out of place in the management of the library. In the words of the interviewees, they said:

The library is not well funded.

Internet must be reawakened.

ICT needs must be urgently attended to.

We want to be involved in budgets, operations, acquisitions.

Books are old and need to be updated and we need to offer electronic library services to make researchers happy.

Skills Acquisition and Professional Development

Four out of the five interviewees indicated that in the preceding two years they had been trained to use ICTs to process, store and disseminate information. This is captured as follows:

We are trained on ICT usage—in relation to processing, disseminating and storing information.

By and large, the findings of the study agree with those of reviewed literature (such as Nnadozie et al. 2017; Ibegwam et al. 2019). These mentioned studies agree with the fact of infrastructural decline and failure in most research libraries in Nigeria that negatively affect the provision of library and information services. Also, Ibegwam et al.'s (2019) study is consistent with the views of librarians in our study, vouching for their proficiency. Librarians in our study believe that information resources and services provision are connected to funding and the institute's management. Also, they mentioned that they wanted to be genuinely involved in the processes of budgets, operations, and acquisitions. This is why Ibegwam et al. (2019) believe in the organisational and management-dependent financial, human and leadership components as factors that will enhance information provision.

Observation

As an additional data gathering instrument of the multi-method approach, the researcher undertook physical observation of the FIIRO library to verify findings from the questionnaires and interviews. The observations were as follows:

Physical Location and Maintenance

The library was situated in the main administrative building and very close to the main gate. Generally, this made the library accessible to users. In relation to physical maintenance, it was observed that the library was neglected. Air-conditioning units were not repaired and they looked dusty—this exposed library collections to dust and moisture since windows had to be opened for ventilation. Chairs and tables were old and not well maintained.

Size and Lighting

The size of the library was not commensurate with the number of researchers working in the institute. Therefore, the space was considered inadequate. In terms of lighting, the library was not well illuminated.

Shelving and Sitting Space

Shelving space was identified as one of the major challenges affecting the library. For instance, some documents and books were placed on one of the reading tables, while some new books were kept in the office of the assistant chief librarian, awaiting shelving because of lack of shelving space. Some books were seen placed on top of each other on the shelves because of lack of shelves for proper arrangement.

Office Space

The library had two offices: one for the principal librarian and the other for the assistant chief librarian. Other librarians and library staff sat around a table, which functioned as their office.

Library Guides

There were visible library guides in the form of big stickers on all 20 shelves in the library, indicating the kinds of library materials they contained and the fields of study. The library guides also indicated the section accessible to users and library staff only. However, the library guides did not reinforce library rules and regulations. Few industrial researchers used the library and some of them communicated very loudly, disturbing other users. There were no library guides to point to sections like the circulation desk, visitor's cubicle, audio-visual table and the two offices in the library.

Availability of Computers and other ICTs

The library had six computers, three printers, two photocopiers, and one server. One computer was intended for circulation, but was not being used for this function (at the time of the study) due to lack of library automation. One computer served the audio-visual unit and the remaining four were for library users. The computers had no internet connection. One photocopier was not working at the time of this observation.

Collection Outlook

The library collections were not good enough to support modern-day research and development activities. The collections were mainly volumes of periodicals and books dating back from the pre-1960s to the early 1970s. The early 1980s and 1990s collection of books and journals were also many. These collections were visibly old as exhibited by the browning of covers and book edges. Some new titles of encyclopaedia of foods and their healing power—published in 2007 and 2010 (five of them)—were seen shelved at the reference book section.

On the whole, the study's observation gives credibility to the findings from the questionnaires and interviews. Moreover, many of our reviewed works also support the results of the observation. Largely, the study's observation revealed funding issues as earlier revealed by the librarians. This assertion is in line with the studies of Olaifa and Oyeniyi (2014), Nnadozie et al. (2017), and Alade and Fagbola (2017).

Conclusions

The study researched the appraisal of industrial researchers and librarians regarding the library and information services provided by the library of the Federal Institute of Industrial Research Oshodi (FIIRO). Industrial researchers' information needs (that will be met and their information-seeking behaviour that will be enhanced) will unswervingly rely on the library's capability and librarians' expertise. Most of the findings of this study agree with those of the reviewed studies (such as Makinde et al. 2019a; Makinde et al. 2019b; Makinde et al. 2020). It was found that industrial researchers and librarians were not satisfied with the library and information services offered by the institute's library. Industrial researchers encountered problems such as dated books on the shelf, unavailability of journals and database subscription (online and print), unavailable internet connectivity, poor library environment, and unsatisfactory reading space and furniture. Characteristically, with the absence of internet connection, internet-supported key information services such as abstracting and indexing services, database and OPAC browsing, interlibrary loan, reference services, and technical enquiry services were not available. Even traditionally, some of these services that could manually be provided by the librarians were ineffectually done.

Librarians experienced similar problems that respondents had already listed in performing their tasks. Summarily, the problems encountered by the industrial researchers and the librarians are connected to funding and lack of political will by the institute's management and the present-day government to make information available to researchers. Also of great importance, is the appeal of librarians that they want to be involved in the budgetary, operations and acquisitions processes of the institute, especially as it relates to the library, so that they could add their expert inputs.

Recommendations

The following recommendations are made based on conclusions of the study, and aim to address the third research question of this study, namely: What strategies could be employed to improve library and information services offered?

1. The respondents' non-satisfactory conclusion regarding offered library and information services calls upon library and information professionals and the management of the institute to reconsider their roles in the provision of research information.
2. Adequate funding of the institute's library should be encouraged. The institute's management should consciously demand adequate funding for the library from supervising government authorities. This is to boost the provision of modern-day library and information services in the library and the enhancement of the library environment.
3. Internet connection should be rekindled because modern-day library activities depend on it.
4. A library webpage should be developed to facilitate information provision. Additionally, librarians can relate with the researchers via electronic gadgets such as mobile phones and iPads.
5. Library collaboration should be reinvigorated, especially interlibrary loans.
6. Collection development and a management team should be inaugurated so as to weed dated materials and plan for new materials as soon as resources are provided.
7. Librarians should be involved in management decisions, especially in the formulation of library policies and strategies.
8. The training and retraining of researchers and librarians should be done, particularly in relation to modern information services usage and offering.
9. An all-inclusive survey should be done by the institute's management to identify researchers' and librarians' demands. Furthermore, librarians can hand out quarterly questionnaires aimed at obtaining responses from researchers in a bid to satisfy their information needs and to also develop appropriate information services and systems.
10. Similar studies should be reproduced in other federal research institutions by library and information professionals with the intention of evaluating research libraries. The much desired industrial development in any developing nation will have its foundation in the acceptable provision of information to researchers through research libraries.

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