EFFICACY OF INDEXING AND ABSTRACTING SERVICES IN THE DISSEMINATION OF AGRICULTURAL INFORMATION RESOURCES IN THE INSTITUTE FOR AGRICULTURAL RESEARCH LIBRARY, AHMADU BELLO UNIVERSITY, ZARIA

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ABSTRACT

The efficacy of Indexing and Abstracting service for effective organization, storage and retrieval of information resources for agricultural research in Ahmadu Bello University, Zaria necessitated examining the situation in Agricultural Library, Institute for Agricultural Research, Samaru. The study examines the processes, awareness and problems militating against the effective exploitation of the indexing and abstracting services in the Agricultural library established in 1975. The study was conducted ex post facto, data collected span from 2006 – 2010. Total sample sizes of 752 patrons and 20,236 intellectually indexed and abstracted resources were involved in the study. Data collected were subjected to descriptive and inferential statistics. The result revealed that a total of 644 articles were indexed and abstracted, 35% of these was done in 2010. Results for awareness show 452 (60.11%) to be aware in 2008. A total 584 articles were indexed and abstracted from which 167 (28.59%) was retrieved in 2006. Patrons, 270 (35.90%) attributed the poor use of the service to assumption it is a referral unit. The hypothesis testing revealed that there is significant association between articles indexed and abstracted with information consulted by patrons ($\chi2_{cal}$,100.31$\geq$ $\chi2_{tab}$,9.488) at 5% level of probability and df, 4. In conclusion, enormous documents on Nigerian agriculture are indexed and abstracted in the unit, implying that the service is desirous and consistent. The study recommends that the unit should explore the use of modern technology, employ a permanent subject specialist, train and retrain the unit staff as well as intensify it general orientation campaigns to focus on awareness and use of the indexing and abstracting services.

Keywords: Library service, indexing, abstracting, agriculture, information dissemination

Introduction

Agricultural Library, Institute for Agricultural Research is a satellite library of the main university library (Kashim Ibrahim Library, Ahmadu Bello University, Zaria). The library collection is a reflection of the institute's national mandate on cereals, legumes and oil crops, fibre and corresponding farming systems from within and without the institute and Faculty of Agriculture. This necessitated the Institute in 1975 to establish an agricultural information storage and retrieval system. The system replicates information on feature cards and documents card which contains index and abstracts of the resources. The document relates to Nigerian agriculture both formally and informally published and capable of performing analyses [1]. The main input comes from IAR mandates and extended to other agricultural research organizations in Nigeria. This became necessary considering the explosion of literatures, requisition of agricultural information and challenges impeding the plight of patrons during information needs. The call to enhance and simplify access to information through appropriate representations has also been shared by numerous writers [2], [3], [4], [5]. Baeza-Yates and Ribeiro, [2] and Case [5] denoting the significance of information representations proposed the provision of platforms capable of permeating well articulated dialogue to mediate, direct and facilitate access to information.

The American Standards Association (ASA)[6] defined an index within the fields of library practice and documentation as a guide to the contents of any reading matter or other documentary materials which provides a systematic, sustained subject analysis of the contents of such materials arranged according to alphabetical, chronological, numerical, or other chosen order. Harrod [7], however, defined an index as a systematically arranged list giving enough information for each item to be traced by means of a page number or other symbol indicating its position in a sequence.

Lancaster [8] defined an abstract as a very brief overview of a literary work by providing what was done, extent of work, what was found and its underlying implications and applications. According to [7], abstract is any form of current bibliography in which sometimes books, but mainly contributions to periodicals, are summarized: they are accompanied by adequate bibliographical descriptions to enable the publications or articles to be traced, and are frequently arranged in classified order. They may be in the language of the original or be translations to other languages.

Problem Statement

Indexing and Abstracting services is the most comprehensive way to represents information, depicts professionalism and librarian's competency level, it also enable the availability of surrogate copies, specific components of a literary work and other descriptors with the sole aim and purpose of providing a well detailed, sieved and representation of information to meet the felt needs of patrons.

Despite the enormous significance of indexing and abstracting service and its introduction for effective utilization by patrons of the Agricultural library, it has been noted that patrons have not optimally utilized or even explore these services. What must have constituted this challenges and how can this be ameliorated is the problem statement of the study.

Research Question

The paper intends to provide answers to the following questions:

1. What processes of indexing and abstracting, and its intellectual implications affecting patronage?

2. What ways are the patrons' made aware of the availability and use of the indexing and abstracting services?

3. What problems militate against effective indexing and abstracting services in the institute and faculty?

Objective of the Study

The broad objective of this paper is assess the efficacy of indexing and abstracting services in the dissemination of agricultural information resources in the Institute for Agricultural Research Library, Ahmadu Bello University, Zaria. The specific objectives of the paper are to:

1. assess the processes of indexing and abstracting, and its intellectual implications in the agricultural library.

2. determine patrons levels of awareness and use of the indexed and abstracted resources.

3. identify the problems militating against the efficacy of indexing and abstracting services by patrons of library.

Hypothesis

The hypothesis to be tested in this study is: "There is no significant association between the articles indexed and abstracted with information resources consulted by patrons".

Significance of the Study

1. The study on the efficacy of the indexing and abstracting services of the Agricultural Research Library, IAR, ABU., Zaria will facilitate assessing the quality, popularity and use by patrons.

2. It is expected that the paper will provide the factors militating against effective indexing and abstracting and suggest appropriate measures to overcome the challenges outlined.

Scope of the Study

The study is conducted in the Agricultural Research Library, IAR, ABU, Zaria. The subject studied were patrons from the Institute, Faculty of Agriculture and from other institutions who have utilized service from 2006 - 2010. The findings cannot be generalized beyond the Agricultural Research Library, IAR, ABU, Zaria.

LITERATURE REVIEW

Intellectual Implications of Indexing and Abstracting

Indexing and abstracting services in the Agricultural library is manually or intellectually done by experts as reported elsewhere [9]. The tasks required numerous processes thereby making it very tasking. According to [8], indexing and abstracting needs trained and experienced specialists who can perform content analysis, selection, generalization and summary.

Keyhani [10] opined that indexing and abstracting like electronic publishing enable possibility of linking an article with the body of literature on a given subject, imperatively relying on cognitive synthesis of human coordination. Manoff *et al.* [11] submitted that only indexers and abstractors can guarantee whether catalogues will disappear, since these have important functions in retrieval and knowledge representations. Pinto and Lancaster [12] proved that statistics gathered by libraries lack relevance and do not measure library performance in terms of element importance to patrons needs comparable to the capability of indexing and abstracting service which provide contents with level of precisions within large volumes of information resources. Baeza-Yates and Ribeiro-Neto [2] and [13], believed that information storage and retrieval devices which incorporated indexing and abstracting are capable of integrating systems, provide retrieval pointers to information and the retrieval of the actual documents pointed to, finally facilitating combination in one act.

Two principal steps have been acknowledged by [9] to achieve intellectual processing; conceptual analysis and translation techniques. These techniques are utilized simultaneously at

both pre- and post- coordination. Accordingly, conceptual indexing addresses contents of a document and use, targeting peculiar patrons of a library in order to sort the best prognosis of the future use of the document indexed. The translation however, emphasizes the stages in the indexing not restricting the assigning of terms in English language only but the use of popular vernaculars and scientific terms which are all practiced and imbedded into the Agricultural Library policy on indexing and abstracting. It also allows the use of relationships that include see also reference, role operators, etc. This agree with [14] who supported the choice criteria when he suggested that an index is to anticipate what terms people with information gap within the scope of a field will search for.

Patrons Levels of Awareness

Patrons of the Agricultural library include academics, researchers, students, technical and administrative staff. Visitors from other organizations and agencies also benefits from the indexing and abstracting service. This specificity has somewhat made indexing service 'user-centered' in the library. According to [15] patrons' level of awareness is very imperative because it makes them capable of broadening their knowledge necessary to make meaningful and effective use of the library resources. Hjorland [16] posited that for indexing services to be effective, it must be tailored to the needs of a particular clientele and capable of permitting conceptual analysis of terms, assigning terms and use of controlled vocabulary. The call to reciprocate the level of awareness as argued by [17] is to ascertain to a greater extent the patron's information needs, their characteristics of needed materials, context of research processes in which information needs occur and extent to which the service resolves their challenges. The packaging of indexed and abstracted resources and the underlying processes to arrive at different sources of information indexed and abstracted is very uncommon to the patrons, this necessitated at every contact with patron a dialogue must be initiated in a form of interview and the filling of questionnaire capable of performing content and context analyses. This operation is supported by [18] who proposed the interpretation of service routines to patrons to ease, improve their understanding and salvage their time when utilizing indexing and abstracting services.

Problems Militating Against the Efficacy of Indexing and Abstracting Services

The problems militating against the effect use of indexing and abstracting service have been widely reported ([16], [9] and [18]). Moen [9] and [18] emphasized the ambiguity of terms, choice of classification system, controlled language and poor updating of vocabularies as serious

challenges from the professional perspectives. In developing countries, however, [8] listed problems of poor subscription to current information resources, difficulty in changing technologies, high drudgery and costs to retrospectively convert resources as institutional challenges. Baeza-Yates and Ribeiro-Neto [2] were concerned by staff competencies, the dependence of the system on catalogue descriptors which is somewhat duplication of efforts and waste of resources and time. Moen [9] noted the problem of data–handling, the human effort and cognitive component challenged by processing time and obsoleteness of the processed index and abstract article. According to [19], the problems of indexing and abstracting services are numerous, relative and affected by peculiar factors especially "aboutness" which signifies comprehensibility, timeliness, and style contribute to users' relevance judgments is also adjudged by numerous authors [20], [21] and [22]

MATERIALS AND METHOD

The study was conducted *ex post facto,* in *ex post facto* research the variables are no longer subject to manipulations as the incidence under investigation had occurred [23], [24]. Data collected span from 2006 – 2010. The sample sizes for this study were patrons who under the period benefitted from the indexing and abstracting services of the library. A total of 752 patrons were captured, this were the total patrons who duly filled a validated questionnaire at contact as a policy of the unit. The questionnaire facilitates patrons to provide details of their information needs that are extracted from 20,236 intellectually indexed and abstracted resources (capacity as at 31st December, 2010), and the details are thereafter used to generate terms from the free/control language vocabulary to enable access and retrieval of available stored information resources in the library database. Data gathered were subjected to analysis using descriptive statistics and hypothesis tested for association using Chi-square (χ^2).

RESULTS AND DISCUSSION

TABLE 1
Frequencies of Indexed and Abstracted Agricultural Information Resources Produced
Intellectually in the Library from 2006 to 2010

Year	Total articles intellectually indexed and abstracted	Percentage (%)
2006	84	13
2007	55	9
2008	61	10
2009	220	33
2010	224	35
Total	**644**	**100**

The table reflects the performance of the intellectually produced indexes and abstracts for the period under study (2006 – 2010). The thrust in 2009 (33%) and 2010 (35%) were attributable to improved acquisition of new resources through the centralized programme of the University main library, the unit also had additional professional staff that facilitated the raise in the intellectual processing. This finding agrees with [8] who reported appreciable volume of intellectual processing of indexes and abstracts by trained and experienced specialists.

TABLE 2
Distribution Frequencies of Patrons who Show Level of Awareness and have used the Indexing
and Abstracting Services of Agricultural Library (2006 – 2010).

Year	Number of patrons	Percentage (%)
2006	98	13.04
2007	49	6.52
2008	452	60.11
2009	135	17.95
2010	18	2.39
Total	**752**	**100**

Refer to the fraction of patrons who after participating in the library orientation and sensitization programmes availed themselves the use of the indexing and abstracting services.

The highest number of patrons were recorded in 2008 with 452 patrons representing 60.11% of the entire population who benefitted from the service, closely following is 2009 with 135 (17.95%); 2006 with 98 (13.04); 2007 with 49(6.52) and the population with the lowest level

of awareness and turn up were recorded in 2010 with only 18 (2.39%), respectively. Even though the library has made its indexing and abstracting service user-centered through its freshman orientation and sensitization programme, periodic staff and students orientations and seminars to showcase the library activities, available information resources, services and more, to enable it significantly boost patrons awareness level, it is yet to yield desired goal [25]. The efforts, however, corroborate with the studies by [16] and [18] who focuses on tailoring the indexing and abstracting services to provide the information needs of patrons.

TABLE 3
Frequencies, Percentages and Ranking of Index and Abstract Materials Retrieved by Patrons in Agricultural Library (2006 – 2010).

Year	Frequency of materials retrieved	Percentage	Ranking
2006	167	28.59	1st
2007	127	21.75	3rd
2008	110	18.84	4th
2009	140	23.97	2nd
2010	40	6.85	5th
Total	**584**	**100**	

Results in Table 3, show the distribution of patrons based on the number of index and abstract consulted. In 2006 a total of 167 materials were consulted, ranking first with 28.59%. The least number of index and abstract information resources consulted was in 2010 with only 40 (6.85%), the remaining distributions of materials consulted were in 2007, 127(21.75%), 2008, 110 (18.84%) and in 2009, 140 (23.97%), respectively. Poor response according to [19] could be the differences in perspectives and status of patrons. For instance, while student or layman look for index and abstract about a topic, the scholar/researcher's information need is, in most cases, substantially different. This group of users deals in ideas and theories, and wants to know whether specific ideas have previously been expressed in the literature.

TABLE 4
Factors Militating Against the Effective Use of the Indexing and Abstracting Services in
Agricultural Library (2006 – 2010).

Factors	Frequency	Percentage (%)
Absence at the freshmen orientation and sensitization programme	188	25.00
The service is more of referral	270	35.90
Difficulty to maneuver technology	150	19.95
Staff competency	144	19.15
Total	**752**	**100**

Table 4 revealed the factors militating against the effective use of the indexing and abstracting services offered by the Agricultural library enumerated by respondents. The distribution revealed factors to include absenteeism during the freshmen orientation and sensitization progrmme (188, (25%)), those complaining that the service is more of referral 270 (35.90%), those complaining of difficulty to maneuver the technology accounted for 150 (19.95%) and complaint as hindering factor because of staff competency accounted for 144 (19.15%) respectively. Similar opinions of factors militating against the effective utilization of indexes and abstracts were shared by [19], [2] and [9].

Details of the results testing the hypothesis of this study are presented in Table 5. The 5% level of probability was adopted and degree of freedom arrived at using $(c – 1)(r – 1)$, where c = number of columns and r = number of rows, it is the acceptable level of significance. Degree of freedom equals 4, the extent of the relationship is established using the Chi-square (Uhegbu, 2009). This is expressed as:

$$X^2 = \Sigma \frac{(Observed\ frequency - Expected\ frequency)^2}{Expected\ frequency}$$

TABLE 5
Test of hypothesis using Chi-square statistics

Year	Articles index and abstract	Information resources consulted	Total
2006	84 (132)*	167 (119)	251
2007	55 (96)	127 (87)	182
2008	61 (88)	110 (81)	171
2009	220 (189)	140 (171)	360
2010	224 (139)	40 (126)	264
Total	**644**	**584**	**1228**

Figures not in parenthesis are the observed frequencies while those in parenthesis are the expected frequencies

Calculating χ2 for Table 5.

Observed (O)	Expected (E)	(O – E)	(O – E)^2	(O – E)^2/E
84	132	-48	2304	17.46
55	96	-41	1681	17.51
61	88	-27	729	8.28
220	189	31	961	5.08
224	139	85	7225	51.98
				100.31

$\chi^2_{cal} = 100.31$

$df = (c - 1)(r - 1)$

$= (2 - 1)(5 - 1) = 4$

$\chi^2_{tab} = 9.48$

When the table value of the Chi-square is equal to or greater than that calculated value, the null hypothesis. Therefore, referring to the Chi-square table, at degree of freedom of 4 at 5% level of probability gave $9.48 \leq 100.31$. This implies that the null hypothesis is rejected and concludes that there is significant association between articles indexed and abstracted with information resources consulted by patrons in the library at 5% level of probability.

CONCLUSION

The presentation concludes that indexing and abstracting services exist in IAR since 1975. Enormous documents on Nigerian agriculture were indexed and abstracted and organized as surrogate (document cards) and subject holdings (feature cards). The reason for the establishment of the unit is a clear indication that the service is desirous, the trend of use also revealed consistency apart from when affected by strikes, funding and/or student vacations. Indexing and Abstracting services were therefore useful and efficient mediums for effective agricultural dissemination in the Institute for Agricultural Research and Faculty of Agriculture respectively. The study also revealed significant association between articles indexed and abstracted for consultation by patrons at 5% level of probability, implying that, the collection development activities of the library remains an imperative functionality requirement of the indexing and abstracting service.

RECOMMENDATIONS

Based on the paper findings the following recommendations are made:

(i)   The advent of the electronically processed indexing and abstracting facilities is recommended for use in the library to tap the enormous advantages that include collaboration, permissible and accessible to many. The use of automation can also reduce the time taken to process items and increases the search and retrieval time (high precisions) to that of the computer speed.

(ii)   Subject knowledge remains a very relevant requirement to effectively index resources; the library must maintain agricultural specialist to overcome the problems of emerging new terms and areas in the field of agriculture.

(iii)   Changing curriculum and areas of research is necessary for the library to undertake to facilitate her during periodical updating of control vocabulary.

(iv)   The library must endeavour to support, release and train its staff responsible for indexing and abstracting services. Staff with such experience and on-the-job training must be replaceable before transfers and retirements catch up with them.

(v)   Continue to intensify the general orientation and sensitization of the library advocating the indexing and abstracting services.

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