

## Availability and Utilization of Resources Discovery Services in Academic Libraries in Delta State

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### Abstract

The study investigated the availability and utilization of resource discovery services in academic libraries in Delta State, Nigeria, with emphasis on the challenges affecting their effective use and the strategies required for improvement. Four research questions guided the study. The study adopted a descriptive survey design. A total of 113 librarians across universities, polytechnics, and colleges of education in Delta state were used for the study. Data were collected using an observation checklist and a structured questionnaire, and analyzed using percentages, mean scores, and standard deviations. Findings revealed that traditional cataloguing tools, such as manual catalogue cards and card indexes, remain the most widely available and utilized resource discovery mechanisms, while modern digital and metadata-driven discovery tools show limited availability and low utilization. Although systems such as OPAC, KOHA, Google Scholar, and EBSCOhost Discovery Service are gradually emerging, their usage is still minimal. Major challenges identified include inadequate funding, poor internet connectivity, fragmented or low-quality metadata, users' limited search skills, and low technological familiarity. The study further identified several strategies necessary for improving discovery services, including sustained funding, improved technological infrastructure, quality metadata management, system interoperability, information literacy programmes, and enhanced digital skills among librarians. The study concludes that academic libraries in Delta State are still in a transitional phase between traditional and modern discovery systems, emphasizing the need for increased investment and capacity building to fully optimize resource discovery services for improved access to information resources.

**Keywords:** Availability, Utilization of Resources, Discovery Services, Academic Libraries

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## **Background to the Study**

The catalog has been the standard tool for searching and discovering library collection for decades, when its collections were primarily on print or physical items. The catalog was close to a “one stop shop” for finding library materials as was possible at the time. Presently, libraries have incorporated more online content into their collections. They now purchase electronic resources, establish databases and provide digital information services for readers, through the internet which fully meets the readers' demand for information resources. Libraries invest huge amount in their collection development through these various information resources or platform every year but most of such resources are underutilized, due to lack of powerful search tools that provide single interface. These libraries now have greater difficulties in electronic resources management. The workload is increasing, and readers are facing new problems on retrieving these resources. This has led to integration of library resources to prevent library from being marginalized in the digital era. Libraries now develop their websites to facilitate access to these resources. They now accumulate large collections of digital resources whose size can be a strong hindrance to users finding quality.

The challenge, however, is facing the complex and changing information environment and integrating the existing library electronic resources to provide readers with an easy unified and powerful platform for electronic resources. The ability to facilitate users' effectiveness in searching for this large collection to find or discover relevant actionable evidence-based information is a problem that library experts are expected to solve. Hence, libraries identified web scale discovery a way to make library resources more visible to users by providing a single search interface that could serve the needs of the diverse populations that use the library resources. The progress seen in the successive generations of technology beginning from online catalogue to meta search tools, to current generation of index-based discovery services represents an incredible improvement. Now users start their discovery with a search engine provided by the library itself, which directs them to the most appropriate content for their search that the library has available. This is called library discovery services (Pati and Karadia 2015).

Library resource discovery service refers to a single search platform of simultaneously retrieving metadata of database and full database. Discovery services are assembled index that covers many libraries' electronic resources. It displays full text of all formats of materials to which the library has access (Gray 2013). The evolution of discovery services brought a revolution as it provides a combined ability to perform a search among the vast resources subscribed by the library (Jolinda 2014). Discovery tools started appearing in libraries as a post development of next generation library catalogue. Discovery service providers have started working in partnership with ILS (Integrated Library System) vendors to re- index (OPAC) holdings and other electronic resources into a new single unified index. This will turn all the resources subscribed by the libraries into a single common format, which will retrieve based on relevancy upon a search query formulated by user. Discovery services are used when the library has access to many electronic resources, the resources have a variety of access points and when the library want to bring together print and electronic resources

through a single search function. Library resource discovery service is a new name for the traditional information retrieval system and the best option to ensure easy search and retrieval of the increasing online and print resources in the university libraries (Pal 2017). It provides a simple retrieval method to search academic literature in a wider range and search out many disciplines and sources.

Resource discovery tools complement the other search tools libraries offer rather than replacing them. They are designed for quick and simple searching not for the more controlled searching you might carry out on a database. They pull together wide ranges of content in a single results list so they can be popular with users as a more tailored alternative to a Google search. These tools are web software that searches journal articles and library catalog metadata in a unified index and presents search results in a single interface. In the present day, much commercial and open-source library discovery services software are available. The commercial resource discovery service software is led by EBSCO discovery service, ProQuest, Ex-Libris, OCLC, and World Cat. While the open-source library discovery service software is VuFind and Blacklight. These resources are new technologies in the library which arise because of the increase in online and print resources. Different resources discovery approaches require different levels of technology integration and system interoperability. Librarians must seriously think over the search and retrieval system of these documents to ensure a simple search on various databases of the library.

The current discovery environment in the academic library arena is dominated by a set of products within the genre of index-based discovery services which rely on a large central index. The central index of discovery services is potentially generated from a variety of categories of content like metadata and full text from commercial publishers, metadata and full text from open access repositories, metadata or full text from relevant institutional repositories and bibliographic and holdings of information from a library's resource management system. The development and deployment of these services require extensive resources including a highly scalable technology platform; a broad program of publisher relations that negotiate and execute agreements relative to the provision of content to populate central indexes and the development of software for interfaces, indexing, relevancy and many other technical components that comprise these services. All these are geared toward increasingly comprehensive coverage.

Discovery tools are becoming increasingly popular in academic libraries because they acquire content from different sources in different formats. While the catalog has traditionally been the tool for searching information owned by the library, the catalog does not include the capability of search at the article level for materials that have appeared on journals, magazine etc. a researcher normally will use the catalog to search through the library's print and media collections and then use one or more of the library's research databases to search for articles that have been published in any number of periodical published. Ultimately, it makes sense that a library would strive to provide a single search for all its resources as google provides a single search for information available on the internet. Actualizing this will support teaching

and learning by providing access to the library's collections. The question is, are these resources discovery services available in most academic institutions? This emphasizes the need to ensure that these services are made available in institutions of learning to provide users with other methods for discovering content.

### **Purpose of the Study:**

The purpose of the study is to find out the availability and utilization of resources discovery services in academic libraries in Delta State, Nigeria. The Specific Purposes are

1. Find out the availability of resources discovery services in academic libraries in Delta State, Nigeria.
2. Find out the extent of utilization of resource discovery services in academic libraries in Delta State, Nigeria.
3. Find out the challenges facing the effective utilization of resources discovery services
4. To find strategies to explore to ensure availability and effective utilization of these services.

### **Research Questions**

1. What are the available resources discovery services in academic libraries in Delta state, Nigeria
2. What is the extent of utilization of resources discovery services in academic libraries in Delta state, Nigeria
3. What are the challenges affecting the provision and effective utilization of resource discovery services.
4. What are the necessary strategies put in place to provide and ensure effective utilization of resource discovery services?

### **Methods**

The design of this study is descriptive survey. The population of this study consists of 113 librarians in academic institutions in Delta State. This includes Colleges of educations, Polytechnics and Universities. The universities include Delta state University Abraka, Dennis Osadebe University Anwai, University of Delta Agbor, Maritime University Okerekoko, Admiralty University of Nigeria, Delta state University Ozoro, Federal University of Petroleum Resources Effurum,. Polytechnics are Delta state polytechnic Oqwash while Colleges of Education includes Delta state college of physical education Mosogar, College of Education Warri, and Federal College of Education Technical Asaba. Census sampling techniques will be used for the study because the population is quite small and manageable. An observation checklist and a structured questionnaire were used for data collection. The observation checklist was analyzed using percentages, the research questions were also analyzed using mean and standard deviation. The cut off point for observation checklist is 50% while that of research question is 2.5, so the decision rule is that any response that has a mean score of 2.5 and above is accepted while any response with a mean score below 2.5 is rejected

## Results

### Research Question 1

What are the available resources discovery services in academic libraries in Delta state, Nigeria.

**Table 1:** Percentage rating of the Observation checklist of the: Availability of Resources Discovery Services in academic libraries in Delta State.

SN	ITEM	AVAILABLE (%)	NOT AVAILABLE (%)
1	Card Indexes	57 (57.6)	42 (42.4)
2	Manual Catalogue Cards	75 (75.8)	24 (24.2)
3	Online Public Access Catalogue	63 (63.6)	36 (36.4)
4	Metadata Schema	39 (39.4)	60 (60.6)
5	Dubic Core Metadata Initiative (DCMI)	15 (15.2)	84 (84.8)
6	BibframeBiblocore	15 (15.2)	84 (84.8)
7	Marc Record 2nd ed.	42 (42.4)	57 (57.6)
8	MARC_20	33 (33.3)	66 (66.7)
9	Web OPAC	54 (54.5)	45 (45.5)
10	KOHA (Open Source)	72 (72.7)	27 (27.3)
11	Apache Soir	21 (21.2)	78 (78.8)
12	Apache Lucene	12 (12.1)	87 (87.9)
13	Lib Hul Discovery Tool	36 (36.4)	63 (63.6)
14	Encore Discovery	21 (21.2)	78 (78.8)
15	Exlibris Primo	21 (21.2)	78 (78.8)
16	EBSCOHOST Discovery	51 (51.5)	48 (48.5)
17	Google Scholar	63 (63.6)	36 (36.4)
18	Proquest Summon	42 (42.4)	57 (57.6)
19	OCLC Word Cut Discovery	45 (45.5)	54 (54.5)
20	Wufind (Open Source)	21 (21.2)	78 (78.8)
21	Black Light (Open Source)	27 (27.3)	72 (72.7)

Results in Table 1 above show the availability of different resource discovery services (both traditional and digital tools) in academic libraries in Delta state. The result indicates that the following resources are highly available in the institutions of the research study manual catalogue cards (75.8%); KOHA (Open-Source ILS) (72.7%); Online Public Access Catalogue (OPAC) (63.6%); Google Scholar (63.6%); Card Indexes (57.6%) and EBSCOhost Discovery Service (51.5%). The results also reveal that the following resources are moderately available OCLC WorldCat Discovery (45.5%); ProQuest Summon (42.4%) and MARC Record 2nd Edition (42.4%) while other resources indicate a low availability (less than 40%) in the institutions. The findings from the results indicate that traditional systems are still dominant, for instance Manual catalogues (75.8%) and card indexes (57.6%) remain prevalent, suggesting slow migration to fully digital systems. While KOHA and

OPACs lead digital adoption. KOHA's open-source model makes it accessible for libraries with limited budgets. Commercial discovery tools like (EBSCOhost, OCLC, ProQuest) are moderately adopted — likely in more resourceful institutions. On the other hand, more advanced or specialized discovery frameworks and metadata standards show low availability. Tools such as Dublin Core Metadata Initiative (15.2%), BibframeBiblocore (15.2%), Apache Lucene (12.1%), and Apache Solr (21.2%) are rarely implemented. This indicates limited adoption of metadata-driven and open-source discovery infrastructures,

### Research Question 2

What are the extents of utilization of resources discovery services in academic libraries in Delta state, Nigeria.

**Table 2:** Mean and Standard Deviation Response of Respondents on the Extent of Utilization of Resource Discovery Services in Academic libraries in Delta State.

S/N	Items	Mean	Std.	Remark
		Deviation		
1	Card Indexes	2.33	1.23	Low Extent
2	Manual Catalogue Cards	2.70	1.22	High Extent
3	Online Public Access Catalogue	2.67	1.30	High Extent
4	Metadata Schema	2.09	1.14	Low Extent
5	Dublin Core Metadata Initiative (DCMI)	1.64	0.92	Low Extent
6	BibframeBiblocore	1.64	0.89	Low Extent
7	Marc Record 2nd ed.	1.91	1.09	Low Extent
8	MARC 21	1.94	1.11	Low Extent
9	Web OPAC	2.24	1.24	Low Extent
10	KOHA (Open Source)	2.45	1.24	Low Extent
11	Apache Solr	1.82	1.06	Low Extent
12	Apache Lucene	1.64	0.92	Low Extent
13	Lib Hul Discovery Tool	1.76	0.96	Low Extent
14	Encore Discovery	1.61	0.92	Low Extent
15	Exlibris Primo	1.64	0.89	Low Extent
16	EBSCOHOST Discovery	2.45	1.16	Low Extent
17	Google Scholar	2.67	1.15	High Extent
18	Proquest Summon	2.21	1.07	Low Extent
19	OCLC Word Cut Discovery	2.15	1.02	Low Extent
20	Vufind (Open Source)	1.73	0.90	Low Extent
21	Black Light (Open Source)	1.82	0.94	Low Extent
	Grand	2.05	0.73	Low Extent

Table 2 presents the mean and standard deviation scores on the extent to which various resource discovery services are utilized in the libraries studied. The grand mean score of 2.05 ( $SD = 0.73$ ) reveals that, overall, the extent of utilization of resource discovery services is low among the libraries surveyed. Among the listed items, only three resource discovery services were utilized to a high extent: *Manual Catalogue Cards* (Mean = 2.70), *Online Public Access*

*Catalogue (OPAC)* (Mean = 2.67), and *Google Scholar* (Mean = 2.67). This indicates that while libraries are beginning to embrace digital discovery tools such as OPAC and Google Scholar, the users still heavily depend on traditional cataloguing methods such as manual catalogue cards. The high use of Google Scholar further suggests that both librarians and patrons rely on open-access, web-based academic discovery tools for Research.

Conversely, most of the resource discovery tools particularly the metadata-based and open-source systems were utilized to a low extent. These include *Dublin Core Metadata Initiative* (Mean = 1.64), *BibframeBiblocore* (Mean = 1.64), *Apache Solr* (Mean = 1.82), *Apache Lucene* (Mean = 1.64), *LibHub Discovery Tool* (Mean = 1.76), and *Wufind* (Mean = 1.73). Even widely recognized systems such as *KOHA* (Mean = 2.45) and *EBSCOhost Discovery Service* (Mean = 2.45) recorded low mean values, indicating that while such systems may be present in some libraries, their active utilization remains minimal.

### **Research Question 3.**

What are the challenges affecting the availability and effective utilization of resource discovery services.

**Table 3:** Mean Response and Standard Deviation Response on Problems Encountered in Ensuring the Availability and Utilization of Resource Discovery Services

S/N	Statement	Mean	Std. Deviation	Remark
1	Lack of funds in installing most resource discovery services	3.58	0.70	Agreed
2	Inability to consistently subscribe to available resource discovery services	3.15	0.96	Agreed
3	Slow internet speed	3.27	0.71	Agreed
4	Provision of tools requires highly technology platform	3.00	0.99	Agreed
5	Poor quality and fragmented metadata from multiple vendors	2.88	1.04	Agreed
6	Users unfamiliarity with new technologies	2.76	0.82	Agreed
7	Search engine algorithms may interpret meaning of search incorrectly based on past searches	2.55	0.90	Agreed
8	Deficiency in searching skills	2.64	0.85	Agreed
9	Lack of flexibility in selecting article sources	2.73	0.87	Agreed
10	Users impatience in accessing the tools especially catalogue	2.97	0.87	Agreed
11	Maintaining high quality metadata	3.00	0.89	Agreed
	Grand	2.96	0.62	Agreed

Table 3 presents the meaning and standard deviation of respondents' opinions on the

problems encountered in ensuring the availability and utilization of resource discovery services. The grand mean score of 2.96 (SD = 0.62) indicates that respondents agreed there are significant challenges hindering the availability and utilization of resource discovery services. The most critical problems identified include lack of funds to provide the technological platforms and subscribe to such services, slow internet connectivity, poor quality metadata from multiple vendors and inability to maintain high quality metadata. User-related issues such as poor searching skills and impatience, also contribute to low utilization. Addressing these challenges requires strategic funding, infrastructure development, and user training to fully realize the potential of resource discovery services in academic libraries.

#### **Research Question 4**

What are the necessary strategies to put in place to ensure the availability and effective utilization of resource discovery services?

**Table 4:** Mean and Standard deviation responds on Strategies in Ensuring the Availability and Utilization of Resources Discovery Services

S/N	Strategies	Mean	Std.	Remark
		Deviation		
1	Ensuring the provision of resource discovery tools/services in the library	3.73	0.51	Agreed
2	Frequent subscription of the fee-based discovery services	3.64	0.69	Agreed
3	Ensuring adequate internet services	3.64	0.54	Agreed
4	Ensuring that the required technological tools are provided	3.64	0.54	Agreed
5	Consistence in the use of quality vendors to ensure quality data and metadata	3.67	0.59	Agreed
6	Providing adequate information literacy programme that will educate researchers on accurate search strategies	3.67	0.59	Agreed
7	Ensuring that academic librarians are digitally competent	3.64	0.54	Agreed
8	Structuring discovery tools in a default setting so that it will led students to resources first with the search result	3.61	0.49	Agreed
9	Ensuring data harmonization to enable a unified search platform	3.42	0.66	Agreed
10	Creating an organizational entry recognized by Google for delivery of resources	3.52	0.66	Agreed
11	Increasing the granularity of metadata for books or journals to increase the discoverability of the resources	3.48	0.66	Agreed
12	To ensure the provision of a unified discovery platform called one search so that patrons would search resources in library collections separately	3.55	0.61	Agreed
13	Vendors building integrated tools that will support interoperability between their products and discovery tools from other vendors	3.39	0.65	Agreed
Grand		3.58	0.43	Agreed

Table 4 presents the mean and standard deviation of respondents' opinions on the strategies for ensuring the availability and utilization of resource discovery services in academic libraries. The grand mean score of 3.58 (SD = 0.43) shows that respondents strongly agreed with all the listed strategies. The most highly rated strategies include the provision of discovery tools, use of quality vendors to ensure quality data and metadata, reliable internet connectivity, metadata improvement and system interoperability, and user training programmes. To strengthen resource discovery systems in academic libraries, there is need to ensure a combined infrastructure provision, capacity building and technology optimization.

### **Discussion of Findings**

The discussion is done under the following headings.

#### **1. Availability of Resource Discovery Services.**

The result reveals that the traditional tools/ services are the most widely available resource discovery tools while the advanced or specialized discovery frameworks and metadata standards show low availability. There is a noticeable growing shift towards the availability of digital resource discovery platforms though mostly open sources like OPAC, KOHA and google scholar. The growing shift towards digital resources discovery platform is in line with Datta (2015) assessment of web-based library services of universities around the globe based on times higher education world university rankings 2014-2015 observed that the web-based library services in the library includes wed OPAC, online bibliographic database, union catalogs etc. This proves that though there might be a greater number of traditional discovery tools/services available in most libraries, there is low availability of advanced resources. The implication is that it affects institutions' academic life, research output and overall institutional effectiveness. Most libraries have started adopting digital resource discovery tools though mostly open source. However, academic libraries are encouraged to ensure the provision of commercial tools/services like EBSCO host, summon from pro Quest, Ex- libris etc.

#### **2. Utilization of Resource Discovery Services:**

The result presents a high rate of utilization of traditional cataloguing methods, though there is a noticeable growth in the extent of utilization of OPAC, Google scholar. However, the majority of the modern resource discovery tools/ services were utilized at a low extent. This aligns with previous research; Aharony and Preborg (2015) study on the librarians and information professional current usage of discovery tools in Israel which revealed that the implementation of discovery tools in Israel is still in its infancy stage. The researchers further reveal a form of plurality in the use of discovery tools as some librarians and library users begin their search using discovery tools followed by the traditional catalog. Thompson, Sull, Abate Heselden and Lyo (2018) reveal that their library staff preferred traditional library catalog for their work, while their library users prefer unified discovery experience. Adeyemi & Omopupa (2020) further added that the persistent usage of traditional tools is because of Nigeria librarians not being ready to move from OPAC to library discovery systems. They further emphasises that librarians have no knowledge of moving from OPAC to library discovery systems. This could be detrimental to effective utilization of these services. However, Wang (2020) has a contrary view in his study at J. Paul Leonard library at San

Francisco state University Lannchet, according to the researcher, a study was carried out on the data usage of a web scale discovery services branded as one search and google scholar from the library open link resolve from 2011 – 2017. The findings demonstrated that one search had become an essential library search tool, especially among students. Data revealed fewer patrons used google scholar after the discovery of the library resource digital services. This result reveals that one search being a part of web scale discovery services has become mostly used search tools even more than google. This indicates that availability of resources discovery tools enhances utilization. Dulle and Alphone (2016) attest to this in their study which surveys 200 undergraduates on their use of Libhub discovery tools. They observed that 60% of the students use the tools and a good number of them were referred to by their instructor. This proves the need to also create awareness of the available discovery services in the library. To the librarians the implication of users not utilizing the discovery services leads to under valuing the library and will eventually lead to decreased patronage and support.

### **3. Challenges hindering the availability and utilization of resource discovery services.**

The result revealed the major challenges on the availability and utilization of resource discovery services to include lack of funds to provide technological platform, poor quality of metadata, poor searching skills and users unfamiliarity with new technology. This aligns with previous research that attributes the underutilization of digital library technologies in developing regions to inadequate training, lack of awareness, inaccurate metadata and funding limitations. Ashikuzzam (2025) submits that inaccurate, incomplete and inconsistent metadata can result in irrelevant or missed result while searching for materials. Also, Rahman, Zakaria and Ahmad (2021) attest to this in their study on challenges of resource discovery from the contents of digital library in Bangladesh. The challenges they observed were inaccurate bibliographic metadata, lack of accurate holdings of data, and lack of synchronized bibliographic metadata. Kalu et al (2023) in their study on the challenges in using information resources; a case study of Michael Okpara University of Agriculture Library also attests that unavailability of resources, poor internet connectivity and limited proficiency in information literacy affects discovery services. Dulle and Alphone (2016) in their study added that barriers to using discovery services include insufficient number of computers in the library, deficient search skills, lack of wireless access and slow internet speed. These challenges have significant implications as they could lead to operational inefficiencies, diminished productivity and morale.

### **4. Strategies in Ensuring the Availability and Utilization of Resources Discovery Services**

The study revealed that provision of discovery tools, reliable internet connectivity, metadata improvement and system interoperability and user training programmes are the strategies to ensure the availability and utilization of resource discovery services. This aligns with previous research; Rahman, Zakaria and Ahmand (2021) suggest providing high quality data, preserving complete bibliographic metadata. Amankwa (2014) stated that users should acquire and practice the skills necessary to exploit varieties of online databases. The implications of providing these strategies will eventually lead to better resource allocation and

discovery, improved user experience. However, the negative implication for the library is that it requires maintenance issues.

## Conclusion

This study observed that the most widely available resource discovery tools are the traditional cataloguing tools, though there is a gradual integration of digital and open-source discovery systems, however, advanced discovery frameworks and metadata standards show low availability. The use of resource discovery services in the libraries is still at an early or transitional stage. The challenges affecting the availability and utilization of these resources include lack of fund to provide technological platforms, poor quality of metadata, poor searching skills and users unfamiliarity with new technology. The results underscore the need for capacity building, infrastructure improvement, and policy-driven digital adoption to enhance the utilization of modern discovery tools and improve access to information resources.

## Recommendations

Based on the findings, the following recommendations were made.

1. Academic libraries should ensure the adequate provision of resources discovery services.
2. They should also ensure that the librarians are digital competent, and work towards providing of information literacy programme to users to ensure adequate utilization of resources. Also, qualified vendors should be used for information provision to ensure accuracy of data and metadata.
3. There is need for the institutions to fund the library in providing discovery tools, reliable internet connectivity, metadata improvement and system interoperability to ensure high quality research and academic performance.

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