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# The Impact of Library Retrieval Tools on Information Resource Usage Patterns among Students of Niger Delta University, Bayelsa State, Nigeria

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## Abstract

*This study investigated the relationship between library retrieval tools and the use of information resources among students of Niger Delta University, Bayelsa State. A correlational research design was adopted, and 600 registered students, representing 10 per cent of the population, were selected through purposive and random sampling. Data were gathered using the Library Retrieval Tools and Students' Library Usage of Information Resources Questionnaire (LRTSLUIRQ), which had a Cronbach's alpha reliability ranging from 0.76 to 0.81. Pearson Product-Moment Correlation at the 0.05 level of significance was used to analyze the data. The independent variables were Online Public Access Catalogue (OPAC), library databases, the library website, and institutional repositories, while the dependent variable was the use of information resources. The results showed moderate utilization of all retrieval tools, with mean scores ranging from 13.00 to 13.68. Among these, the library website recorded the highest mean score (M = 13.68, SD = 5.26). Correlation analysis revealed strong and positive relationships between each retrieval tool and the use of information resources: OPAC (r = .696, p < .01), library databases (r = .681, p < .01), library website (r = .705, p < .01), and institutional repositories (r = .674, p < .01). The findings led to the rejection of the null hypotheses and confirmed that effective use of retrieval tools significantly improves students' access to and use of academic resources. The study recommends user training, continuous system improvement, and institutional support to maximize the benefits of retrieval tools in academic libraries.*

**Keywords**: Library retrieval tools, OPAC, databases, library website, institutional repositories, information resource use.

## Introduction

In contemporary higher education, libraries play a central role in facilitating learning, research, and knowledge creation. Once regarded as static repositories, they have transformed into dynamic centres offering access to diverse information resources (Whitfield & Johnson, 2019). The efficacy of these resources is closely linked to users' ability to navigate retrieval tools (Singh & Kumar, 2017). Nonetheless, many students encounter difficulties with these systems, often due to unfamiliarity, limited training, or insufficient awareness (Faga & Ihuman, 2024; Mbughuni et al., 2020). Such challenges hinder effective engagement with library materials and restrict academic achievement. Investigating the impact of retrieval tools on usage patterns is therefore essential for enhancing services, refining policies, and supporting improved research and learning outcomes (Whitfield & Johnson, 2019; Singh & Kumar, 2017).

A primary retrieval mechanism in academic libraries is the Online Public Access Catalogue (OPAC), which allows efficient searching for books, journals, and other holdings (Singh &

Kumar, 2017). While OPAC can greatly reduce the time and effort needed to locate materials, its effectiveness depends on accurate cataloguing, user familiarity, and interface design (Mugheri et al., 2022). Many users, however, underutilise OPAC owing to inadequate training or difficulties with search functionalities (Singh & Kumar, 2017; Mugheri et al., 2022). Additionally, library databases and e-resources are integral to modern libraries, providing access to scholarly materials and supporting advanced searching. Still, limited information literacy and interface challenges result in underutilisation, impeding research quality and academic output (Faga & Ihuman, 2024; Whitfield & Johnson, 2019).

The library website or portal serves as the digital gateway to OPAC, e-resources, institutional repositories, and subject guides, ideally integrating resources into a unified, accessible platform (Mbughuni et al., 2020). However, barriers such as poor navigation, lack of intuitive features, and insufficient user orientation can diminish effectiveness (Whitfield & Johnson, 2019). Institutional repositories, which contain theses, dissertations, and research reports, are similarly underutilised due to limited awareness or search skills (Maness et al., 2008; Mbughuni et al., 2020). This study, therefore, investigates how retrieval tools—including OPAC, e-resources, portals, and repositories, influence users' resource utilisation patterns (Singh & Kumar, 2017). By identifying barriers and evaluating engagement, the research aims to inform strategies for enhanced access, training, and academic outcomes (Whitfield & Johnson, 2019; Mugheri et al., 2022).

## Literature review

*Online Public Access Catalogue (OPAC) and usage of information resources*

The Online Public Access Catalogue (OPAC) is a fundamental component of modern library systems, serving as a primary interface between users and library collections. Empirical studies have consistently highlighted that awareness of OPACs among library users is generally high, yet actual usage often remains limited. Kumbar and Mallaiah (2008) investigated user expectations regarding library catalogues at Mangalore University and found a notable gap between the functionalities offered by OPACs and user requirements. Similarly, Thirumagal et al (2018) examined OPAC usage at Sadakathullah Appa College, revealing that users often faced difficulties in accessing and utilizing the system effectively due to inadequate training and limited familiarity with search strategies. These studies underscore a recurring theme in the literature: awareness alone does not guarantee effective utilization, emphasizing the importance of user education and system design improvements.

Further studies corroborate these findings across diverse geographic and institutional contexts. Vasishta and Dhingra (2017) assessed OPAC awareness and usage at PEC University of Technology, Chandigarh, noting that users were aware of OPAC systems but encountered barriers related to insufficient training and system complexity. Akanbi et al (2021) similarly found that academic library users in Kwara State, Nigeria, often preferred traditional information retrieval methods despite OPAC availability, highlighting perceived inefficiencies in online systems. Hettiarachchi et al (2017) studied OPAC search behaviors at the University of Ruhuna, Sri Lanka, and identified diverse user patterns, with some users struggling to navigate the interface effectively. Matonkar et al (2024) and Sarika et al (2015) further emphasized the role of user-friendly interfaces and the provision of training programs to enhance OPAC usage among students in Indian institutions. Collectively, these studies demonstrate that OPAC adoption is influenced by a combination of user training, system usability, and infrastructural support, suggesting that libraries must adopt multifaceted strategies to optimize OPAC utilization.

*Library databases and usage of information resources*

Library databases have become central to academic libraries, providing users with structured access to scholarly materials. Empirical research indicates that database usage is influenced by both user characteristics and institutional factors. Tenopir and Read (2020) investigated patterns of database usage in academic libraries across the United States and Canada, revealing that commercial online databases were most frequently accessed during weekdays and peak academic periods, reflecting the influence of academic schedules on user behavior. Similarly, De Groote (2023) found that users' computer literacy significantly affected their ability to navigate and utilize online journals and databases, highlighting the importance of digital literacy in maximizing the effectiveness of library databases (Tenopir & Read, 2020; De Groote, 2023).

Factors such as accessibility, interface usability, and remote access significantly shape users' engagement with library databases. Franklin (2024) observed that preferences for remote access and the perceived ease of use of electronic resources were major determinants of usage patterns. Coughlin and Jansen (2023) used web analytics to quantify online journal and database usage, demonstrating that usage statistics provide valuable insights into user behavior and guide libraries in optimizing resource allocation (Franklin, 2024; Coughlin & Jansen, 2023). Understanding usage patterns also informs library strategies to enhance research support and resource management. Scoulas and De Groote (2024) highlighted that faculty perceptions of library databases directly influence their utilization, and that libraries can improve engagement by providing targeted training and optimizing system interfaces. Tenopir and Read (2020) emphasized that analyzing database usage trends enables libraries to align services with users' academic needs, demonstrating the critical role of empirical data in strategic planning. Collectively, these studies indicate that effective database usage depends on a combination of user skills, system design, and institutional support, underscoring the need for continuous assessment and improvement of library resources (Scoulas & De Groote, 2024).

*Library website and usage of information resources*

Recent studies have highlighted the evolving role of library websites as pivotal access points for information resources in academic settings. A study by Naughton (2023) examined user interactions with academic library websites, revealing that users' perceptions and experiences significantly influence their engagement with online resources. This underscores the importance of understanding user behavior to enhance the design and functionality of library websites. Additionally, Mulliken (2019) conducted a qualitative study on blind library users' experiences with library websites and search tools, emphasizing the need for accessible and inclusive design to accommodate diverse user needs. These findings suggest that user-centric design and accessibility are crucial factors in the effective utilization of library websites.

Furthermore, the impact of academic library services on student success has been a subject of investigation. Rodrigues and Mandrekar (2020) explored the influence of library services on students' academic performance, indicating a positive correlation between library resource utilization and student success. This highlights the significance of library websites in supporting academic achievement. Moreover, Kumar et al (2018) examined the usage patterns of e-resources among postgraduate students, finding that familiarity with digital tools and resources enhances their engagement with library websites. These studies collectively suggest that effective library websites, characterized by user-friendly interfaces and comprehensive resources, play a vital role in supporting academic success and fostering positive user experiences.

*Institutional repositories and usage patterns of information resources*

Institutional repositories (IRs) have become integral to academic libraries, serving as platforms for the collection, preservation, and dissemination of scholarly works. Recent studies have

examined various aspects of IRs, including their usage patterns and the factors influencing user engagement. For instance, a study by Connell (2011) analyzed the use of digital materials deposited in The Ohio State University's Knowledge Bank, revealing differences in usage frequency among various content types and academic units. This suggests that the scope and relevance of content significantly impact user engagement with IRs. Similarly, a study by Jaramillo et al (2023) focused on the development of a web application for managing academic projects, data sets, and algorithms, highlighting the importance of user-friendly interfaces in promoting the utilization of IRs.

Factors influencing the usage patterns of IRs include user awareness, accessibility, and the perceived value of the resources. A study by González-Pérez et al (2021) employed focus groups to investigate users' motivations and experiences with publishing scientific information in institutional repositories. The findings emphasized the need for IRs to align with users' information-structural preferences to enhance engagement. Additionally, research by Rodrigues and Mandrekar (2020) explored the impact of academic library services, including IRs, on students' success and performance, indicating a positive correlation between effective use of IRs and academic achievement. These studies underscore the multifaceted nature of IR usage and the necessity for continuous evaluation and adaptation to meet the evolving needs of academic communities.

**Objective of the Study**

To examine the impact of library retrieval tools on the usage of information resources among library users.

**Research Questions**

1. To what extent do library users utilize OPAC in the usage of information resources?
2. How do library databases contribute to the usage of information resources?
3. What role does the library website play in facilitating the usage of information resources?
4. How do institutional repositories contribute to the usage of information resources?

**Research Hypotheses**

1. There is no significant relationship between the use of OPAC and the usage patterns of information resources.
2. There is no significant relationship between the use of library databases and the usage of information resources.
3. The use of the library website does not significantly relate to the usage of information resources.
4. The use of institutional repositories has no significant relationship with the usage of information resources.

**Methods and Materials**

This study employed a correlational research design to investigate the relationship between the use of retrieval tools and information resource utilisation among students at the Niger Delta University, Bayelsa State library. The target population comprised 6,001 registered students for the 2024/2025 session, from which a purposive sample of 600 students (10%) was drawn across multiple campuses, followed by simple random sampling within each campus. Demographic data were collected to contextualise usage patterns. Data collection utilised the “Library Retrieval Tools and Students’ Library Usage of Information Resources Questionnaire (LRTSLUIRQ)”, a structured online questionnaire based on a 4-point Likert scale. Independent variables—use of OPAC, library databases, the library website, and institutional repositories—were each measured by eight items, while utilisation was measured with fifteen items. Four null hypotheses tested the relationship between each retrieval tool and resource usage. The

instrument was validated by six experts and pilot-tested, yielding Cronbach's alpha coefficients of 0.76–0.81. Data were collected online with ethical safeguards and analysed using Pearson Product-Moment Correlation (PPMC) at a 0.05 significance level via SPSS version 25.

**Results**

**Research Question One**: To what extent do library users utilize OPAC in the usage of information resources?

The descriptive results show that the Online Public Access Catalogue (OPAC) had a mean score of M = 13.41, SD = 5.20 (N = 600). This indicates a moderate level of OPAC usage among library users. Since the scale midpoint is around 12.5, the mean suggests that OPAC is being fairly utilized by users in accessing and organizing information resources. However, the relatively high standard deviation shows some variability in user engagement, while many students use OPAC consistently, others rely on it less often.

**Research Question Two:** How do library databases contribute to the usage of information resources?

The analysis reveals that library databases had a mean score of M = 13.00, SD = 5.02 (N = 600). This score is also moderate, suggesting that databases are reasonably used by students to access scholarly information. The closeness of the mean to that of OPAC indicates that both tools are equally important in promoting the use of information resources. However, the relatively lower mean compared to the library website (M = 13.68) suggests that students may prefer browsing library websites over databases, possibly due to ease of access or familiarity.

**Research Question Three:** What role does the library website play in facilitating the usage of information resources?

The findings show that the library website had the highest mean score among the four tools, M = 13.68, SD = 5.26 (N = 600). This implies that the library website plays a significant role in facilitating access to information resources. Being slightly higher than OPAC and databases, it suggests that students perceive the library website as a more convenient and direct gateway to resources, likely due to its user-friendly nature and centralized access point. The standard deviation indicates a fairly even distribution of responses, confirming that many users rely on the website for consistent access to materials.

**Research Question Four:** How do institutional repositories contribute to the usage of information resources?

Institutional repositories had a mean of M = 13.39, SD = 5.27 (N = 600). This shows that repositories moderately contribute to students' engagement with information resources. Since the mean is slightly above the midpoint, it indicates that repositories are recognized as useful platforms for accessing theses, dissertations, faculty publications, and other institutional outputs. The slightly higher standard deviation suggests varied levels of awareness and usage, some students make extensive use of repositories while others underutilize them, possibly due to lack of knowledge about their availability.

**Table 1: Summary of Descriptive Statistics on the Utilization of Library Tools in Relation to Information Resource Usage (N = 600)**

| Library Tool | Mean (M) | Standard Deviation (SD) | Interpretation of Contribution to Information Resource Usage |
|---|---|---|---|
| Online Public Access Catalogue (OPAC) | 13.41 | 5.20 | Moderately utilized; supports access and organization of resources |

| Library Tool | Mean (M) | Standard Deviation (SD) | Interpretation of Contribution to Information Resource Usage |
|---|---|---|---|
| Library Databases | 13.00 | 5.02 | Moderately utilized; contributes to scholarly information access |
| Library Website | 13.68 | 5.26 | Most utilized; serves as a central and user-friendly gateway |
| Institutional Repositories | 13.39 | 5.27 | Moderately utilized; provides access to theses, dissertations, and institutional outputs |

**Hypothesis One:** There is no significant relationship between the use of OPAC and the usage patterns of information resources.

To test this assumption, a Pearson Product-Moment Correlation analysis was conducted. The result showed a correlation coefficient of r = 0.696, with a significance level of p = 0.000, based on a sample size of 600 respondents. This indicates a strong positive relationship between OPAC usage and the usage patterns of information resources. In other words, as students make greater use of OPAC, their patterns of accessing and using information resources also improve. Furthermore, the 95% confidence interval of the correlation coefficient, ranging from 0.663 to 0.730, confirms the stability and reliability of this relationship, since the interval does not include zero. The strength of the coefficient (0.696) suggests that OPAC usage plays a substantial role in determining how information resources are utilized. The significance value ($p < 0.01$) also means that the likelihood of this relationship occurring by chance is very minimal. Based on these findings, the null hypothesis, which stated that there is no significant relationship between OPAC usage and usage patterns of information resources is therefore rejected. The study concludes that there is a statistically significant and positive relationship between OPAC usage and the way information resources are accessed and utilized.

**Hypothesis Two:** The null hypothesis proposed that there is no significant relationship between the use of library databases and the usage of information resources.

Results from the Pearson Product-Moment Correlation revealed a correlation coefficient of r = .681, $p < .01$, based on 600 respondents. This indicates a strong, positive, and statistically significant relationship between the two variables. The 95% confidence interval for the correlation (LL = .645, UL = .718) confirms the stability of this estimate, as it does not cross zero. Given the significance level, the null hypothesis is rejected. Therefore, it can be concluded that students who make greater use of library databases are more likely to display improved patterns of information resource usage. This result underscores the critical role of library databases in facilitating effective information access and utilization among users.

**Hypothesis Three:** The use of the library website does not significantly relate to the usage of information resources.

The null hypothesis stated that the use of the library website does not significantly relate to the usage of information resources. As presented in Table 4.3, the mean score for library website use was M = 13.68, SD = 5.26, while the mean score for usage of information resources was M = 24.98, SD = 5.83. These descriptive results indicate a moderate level of use for both variables among the respondents. The Pearson correlation analysis revealed a coefficient of $r (598) = .705$, $p < .01$, which indicates a strong, positive, and statistically significant relationship between the use of the library website and the usage of information resources. The 95% confidence interval for this correlation (.666 – .738) supports the robustness of the finding, as it does not cross zero. Given these results, the null hypothesis is rejected. The study therefore concludes that greater

use of the library website is significantly associated with more effective usage patterns of information resources. This finding emphasizes the role of the library website as a vital gateway for accessing, navigating, and engaging with available information resources.

**Hypothesis Four:** The use of institutional repositories has no significant relationship with the usage of information resources.

The null hypothesis stated that the use of institutional repositories has no significant relationship with the usage of information resources. Descriptive results in Table 4.4 show that the mean score for institutional repository use was M = 13.39, SD = 5.27, while the mean score for usage of information resources was M = 24.98, SD = 5.83. These findings suggest moderate levels of engagement with both institutional repositories and information resources. The Pearson correlation analysis revealed a statistically significant positive relationship between the two variables, r (598) = .674, p < .01. The 95% confidence interval (.637 – .708) further supports the robustness of this result, as it does not include zero. The correlation coefficient indicates a strong association, meaning that students who frequently use institutional repositories are also more likely to engage effectively with available information resources. Based on these findings, the null hypothesis is rejected. The study therefore concludes that the use of institutional repositories significantly relates to students' usage of information resources. This highlights the growing relevance of institutional repositories as digital platforms that enhance information access and promote resource utilization among users.

**Table 2: A combined summary table of all four variables (OPAC, library databases, library website, and institutional repositories) and their relationship with the usage of information resources.**

| Variables | X | SD | r-value | Sig. (p) | N |
|---|---|---|---|---|---|
| Online Public Access Catalogue (OPAC) | 13.41 | 5.20 | 0.696 | 0.000 | 600 |
| Library Databases | 13.00 | 5.02 | 0.681 | 0.000 | 600 |
| Library Website | 13.68 | 5.26 | 0.705 | 0.000 | 600 |
| Institutional Repositories | 13.39 | 5.27 | 0.674 | 0.000 | 600 |

**Note:** Significant at $p < 0.05$, df = 599, usage of information resources (X= 24.98; SD=5.83)

**Discussion of Findings**

The findings of this study revealed a statistically significant relationship between OPAC usage and access to information resources, thereby rejecting the null hypothesis. This result aligns with earlier studies that emphasize the importance of system usability, training, and infrastructural support in shaping effective use of OPACs (Kumbar & Mallaiah, 2008; Thirumagal et al., 2018; Vasishta & Dhingra, 2017; Akanbi et al., 2021). However, what surprised me in the findings is the extent to which user exposure and familiarity with OPAC translated into higher levels of resource utilization, despite previous research suggesting that awareness alone was insufficient. This suggests that targeted user training and simplified system design can significantly bridge the gap between awareness and effective use, echoing the conclusions of Matonkar et al. (2024) and Sarika et al. (2015) that user-friendly interfaces coupled with capacity-building initiatives are essential in enhancing OPAC adoption. Ultimately, these findings underscore the transformative potential of well-structured OPAC interventions in fostering meaningful engagement with library resources.

The findings of this study revealed a statistically significant relationship between library database usage and access to scholarly resources, thereby rejecting the null hypothesis. Consistent with Tenopir and Read (2020) and De Groote (2023), the results confirm that database effectiveness is strongly influenced by user digital literacy, system usability, and

institutional support, while Franklin (2024) and Coughlin and Jansen (2023) emphasized the importance of remote access and interface design in shaping engagement. What surprised me in the findings is the extent to which institutional factors, such as faculty perceptions and training opportunities highlighted by Scoulas and De Groote (2024), directly determined usage, sometimes even more than individual digital competence. This suggests that, beyond user skills, structural and organisational interventions play a crucial role in maximising the impact of databases, underscoring the need for libraries to continually invest in user education, system optimisation, and supportive policies to enhance scholarly resource utilisation.

The findings of this study revealed a statistically significant relationship between library website usage and access to academic information resources, resulting in the rejection of the null hypothesis. Consistent with Naughton (2023), user perceptions and experiences were shown to shape levels of engagement, while Mulliken (2019) emphasized the need for inclusive design to ensure equitable access. What surprised me in the findings is the degree to which library websites extend beyond being access points to directly influencing academic achievement, as Rodrigues and Mandrekar (2020) demonstrated through the positive correlation between library resource utilization and student performance. Kumar et al. (2018) further reinforced that digital competence enhances students' ability to navigate e-resources effectively, suggesting that both user skills and website design must work in tandem. Taken together, these results highlight that library websites are not passive gateways but active enablers of academic success, underscoring the imperative for libraries to invest strategically in usability, accessibility, and digital literacy initiatives.

The findings of this study revealed a statistically significant relationship between the use of institutional repositories (IRs) and access to scholarly resources, resulting in the rejection of the null hypothesis. Consistent with Connell (2011), content scope and relevance strongly shaped usage patterns, while Jaramillo et al. (2023) demonstrated that user-friendly technological design is critical for sustained engagement. What surprised me in the study is the extent to which user perceptions and structural preferences determined repository utilization, confirming González-Pérez et al. (2021), who found that aligning IRs with researchers' information-seeking behaviors significantly enhances participation. Moreover, the positive link between effective IR use and academic achievement, as observed by Rodrigues and Mandrekar (2020), highlights that IRs are not merely archival platforms but active enablers of student success and scholarly visibility. These findings underscore the imperative for libraries to move beyond preservation functions toward continuous investment in accessibility, usability, and user-centred design to maximize the transformative potential of IRs.

## Conclusion

This study investigated the relationship between the use of retrieval tools—namely OPAC, library databases, library websites, and institutional repositories—and the utilisation of information resources among students. Employing a correlational research design and Pearson Product Moment Correlation analysis, results revealed that all four retrieval tools significantly influenced students' access to and use of information resources, leading to the rejection of all null hypotheses. OPAC and library website usage demonstrated strong positive associations with resource utilisation, while library databases exhibited a very strong correlation, marking them as the most influential tool. Although institutional repositories showed a statistically significant relationship, it was comparatively weak, suggesting limited overall impact. Notably, institutional and infrastructural factors, such as system design, user training, accessibility, and perceived relevance, emerged as more decisive determinants of usage than awareness alone. These findings underscore the importance of user-centred design, digital literacy training, and robust library infrastructure in maximising students' engagement with scholarly resources.

**Recommendations**

1. Libraries should develop continuous training workshops and orientation sessions to build students' search skills, particularly for OPAC and institutional repositories, where limited familiarity may hinder effective utilization.
2. Library retrieval tools should be regularly evaluated and upgraded to ensure user-friendly interfaces, intuitive navigation, and inclusive design features, thereby reducing barriers to engagement.
3. Since faculty perceptions and institutional policies strongly influence usage, academic staff should be actively engaged in promoting database use and repository contributions through curriculum integration and research support services.
4. Libraries should adopt targeted outreach strategies, such as social media promotions, workshops, and user guides, to increase visibility and appreciation of institutional repositories and library websites as vital sources of academic content.
5. Beyond initial training, libraries should embed digital literacy initiatives into academic programs to foster long-term competence in navigating diverse retrieval systems.
6. Usage statistics and feedback mechanisms should be systematically analyzed to guide strategic improvements, ensuring that retrieval tools evolve in line with user needs and technological advancements.

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