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Book Tracking Methods In Libraries Using Online Public Access Catalog

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Abstract— Advances in information technology have encouraged libraries to transform from conventional service systems to digital-based services to improve the quality of information access for users. One problem still frequently encountered in libraries is the limited access for users to quickly and accurately search for books, especially in libraries with growing collections. This study examines the implementation of a book tracking method in libraries using the Online Public Access Catalog (OPAC) as the primary means of searching collections. The purpose of this study is to analyze the effectiveness of OPAC use in helping users find bibliographic information and book locations independently and efficiently. The research methods used included literature review, user needs analysis, digital catalog system design, and implementation of a web-based OPAC integrated with the library's collection database. The OPAC system is designed to support book searches based on various parameters, such as title, author, subject, and keywords, thus facilitating user access to relevant information. System testing was conducted through functional testing and usability evaluation to assess the accuracy of search results and user-friendliness of the interface. The results indicate that the implementation of OPAC can improve the speed and accuracy of the book tracking process, reduce search errors, and increase user satisfaction with library services. Furthermore, this system contributes to improving librarians' work efficiency and supporting more structured collection management. Therefore, the OPAC book tracking method can be a strategic solution to support the modernization of library services and the sustainable optimization of information access.
Keywords: OPAC; book tracking; library; information system; information retrieval.

1. INTRODUCTION

The rapid advancement of information technology has brought fundamental changes to various sectors, including library management and information services. In the digital era, libraries are no longer perceived merely as physical spaces for storing printed collections, but as dynamic information centers that support education, research, and knowledge dissemination. Consequently, libraries are required to provide fast, accurate, and easily accessible information services to meet the increasingly diverse and complex needs of users [1]. The integration of information technology into library services has become a strategic necessity to enhance service quality, operational efficiency, and user satisfaction. One of the most significant applications of information technology in libraries is the implementation of the Online Public Access Catalog (OPAC). OPAC is a computer-based catalog system that allows users to search, identify, and access information about library collections electronically. Unlike traditional card catalogs, OPAC enables users to search bibliographic information such as book titles, authors, subjects, publication years, and collection availability through digital devices [2]. This transformation has improved the efficiency of information retrieval by reducing manual processes and minimizing the time required to locate relevant materials.

The accessibility of OPAC further enhances its role in modern library services. OPAC systems can be accessed via computers, tablets, or smartphones, both within and outside the library environment, providing users with greater flexibility and convenience [3]. This capability allows users to search for library materials anytime and anywhere, enabling better planning of library visits and more effective utilization of library resources. As a result, OPAC supports user-centered services by aligning information access with modern digital lifestyles. In addition to benefiting library users, OPAC plays an important role in supporting librarians and library administrators. OPAC facilitates systematic and integrated collection management by centralizing bibliographic records and synchronizing them with circulation data [4]. This integration helps librarians maintain accurate and up-to-date information regarding book availability, loan status, and shelf location. Moreover, OPAC reduces data redundancy and human error, thereby improving the reliability of library catalog information. Efficient data management through OPAC contributes to smoother library operations and better decision-making in collection development and maintenance.

Another key advantage of OPAC is its function as a book tracking system. Through OPAC, users can independently track the availability and physical location of library collections. The system provides real-time information indicating whether a book is available or currently borrowed, as well as its classification number and shelf location [5]. This feature addresses the limitations of traditional catalog systems, which often fail to reflect real-time changes in book status and require users to seek assistance from library staff. By enabling independent tracking, OPAC enhances user autonomy and reduces reliance on librarians for routine information searches. Libraries play a vital role as information centers that support academic activities, research processes, and the development of scientific knowledge. Therefore, libraries must continuously adapt to technological innovations to remain relevant and responsive to user needs. The adoption of OPAC reflects the transformation of libraries into technology-based institutions that emphasize efficiency, accessibility, and service quality [6]. OPAC not only improves the information retrieval process but also contributes to a

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positive library image by demonstrating technological readiness and user orientation. Despite the widespread adoption of OPAC in many libraries, the effectiveness of OPAC as a book tracking method requires further examination. Differences in system design, data accuracy, and user interaction may influence the overall performance of OPAC systems. Understanding how OPAC supports book tracking and information retrieval is essential for optimizing its implementation and maximizing its benefits for both users and library management. Based on these considerations, this study focuses on examining book tracking methods in libraries using the Online Public Access Catalog (OPAC). The study aims to analyze the role of OPAC in supporting the information retrieval process, particularly in terms of search efficiency, availability information, and location tracking. Furthermore, this research seeks to evaluate the effectiveness of OPAC in improving library services and enhancing user satisfaction[7]. The findings of this study are expected to provide valuable insights for library managers and serve as a reference for the development and optimization of technology-based library information systems in the digital.

2. RESEARCH METHODOLOGY

2.1 Research Stages

Research methodology is a process of collecting data to obtain valid and accurate data that can be used to achieve the objectives or targets planned in the research. One approach used to collect the necessary data is to conduct direct field research[8]. To obtain the data or information needed to determine book tracking in libraries using the OPAC method, several steps were taken in this research, including:

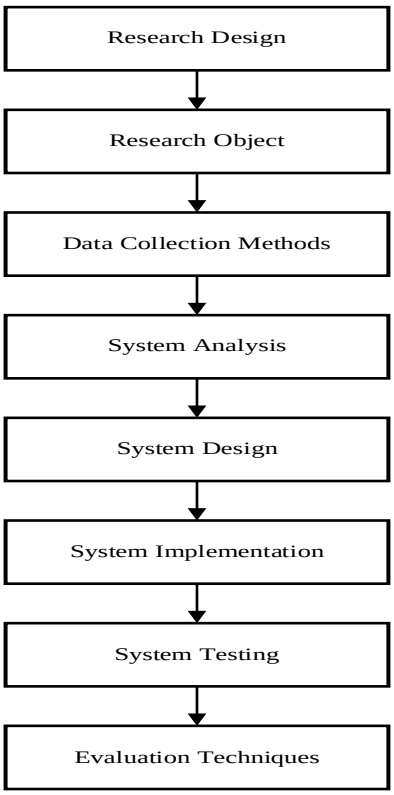

Fig 1. research stages

a. Research Design

This research adopts a descriptive and system development approach to analyze and implement book tracking methods in libraries using the Online Public Access Catalog (OPAC). The study focuses on examining the effectiveness of OPAC in improving book search and tracking processes within a library environment.

b. Research Object

The object of this research is the library book collection management system, particularly the OPAC used for tracking book availability, location, and bibliographic information.

c. Data Collection Methods

Data in this research are collected using the following methods:

a) Observation
   Direct observation is conducted to understand the existing book tracking and cataloging processes in the library.
b) Interviews

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Interviews are carried out with librarians and library staff to obtain information regarding system usage, challenges, and user requirements.

c) Literature Review
A literature review is conducted by studying books, academic journals, and previous research related to OPAC, book tracking methods, and library information systems.

d. System analysis
System analysis is performed to identify weaknesses and limitations of the existing OPAC system, particularly in terms of book search accuracy, data updates, and user accessibility[8]. The analysis results are used as the basis for designing an improved book tracking method.

e. System Design
The system design phase focuses on developing an OPAC-based book tracking method, including:

a) Book search workflow
b) Bibliographic data structure
c) Shelf location identification
d) Book availability status

f. System Implementation
The designed method is implemented into the OPAC system through system configuration, data integration, and functional development. This stage ensures that the tracking method operates according to the designed specifications.

g. System Testing
System testing is conducted to verify the functionality and performance of the OPAC-based book tracking method. Testing criteria include:

a) Accuracy of book information
b) Search efficiency
c) Ease of use for library users

h. Evaluation Techniques
Evaluation is performed by analyzing system testing results and collecting user feedback. Performance metrics and user satisfaction levels are used to assess the effectiveness of the implemented book tracking method.

2.2 Application of the OPAC Method

OPAC (Online Public Access Catalogue) is a computer-based library catalogue system designed to enable library users to search for book collections and various information resources online. Through OPAC, users can retrieve bibliographic information using multiple access points such as title, author, subject, classification number, keywords, and other metadata [9],[10]. This flexibility allows users to conduct more accurate and efficient searches according to their information needs. As an integral part of the library's information retrieval system, OPAC plays a crucial role in connecting users with available library collections. The system not only displays bibliographic details but also provides additional information such as the availability status of materials, shelf location, and loan status. In some libraries, OPAC is also integrated with digital collections, enabling users to directly access electronic resources. The implementation of OPAC significantly improves the effectiveness and efficiency of library services[11],[12]. Compared to traditional manual catalogues, OPAC offers faster search processes, greater accuracy, and broader accessibility, as it can be accessed anytime and anywhere through the internet. Furthermore, OPAC supports independent information searching, reducing users' dependence on librarians and encouraging information literacy[13]. Overall, OPAC contributes to enhancing the quality of library information services by simplifying the search process, improving user satisfaction, and supporting libraries in managing and organizing their collections systematically. Its presence is essential for modern libraries in meeting the demands of the digital era and providing user-oriented information services.

2.3 Library Information System.

A library information system is a system specifically designed to support the management of data, services, and operational processes in libraries in a structured, integrated, and computerised manner. This system serves as a technological solution to improve efficiency, accuracy, and consistency in library management, especially in handling large volumes of data and daily service activities [14]. The library information system accommodates various core functions, including daily data processing, collection circulation activities such as borrowing, returning, and renewing materials, as well as book cataloguing and classification. In addition, the system manages member data, staff data, and transaction records, ensuring that all information is stored securely and can be accessed easily when needed. These functions help libraries maintain accurate records and minimize errors that commonly occur in manual systems. Furthermore, a library information system supports the generation of reports required for library operations and decision-making. Reports such as circulation statistics, collection usage, member activity, and inventory status provide valuable insights for library management in evaluating service performance and planning future developments. Many modern library information systems are also integrated with OPAC, enabling users to access catalogue information online while librarians manage backend processes efficiently. Overall, the implementation of a library information system enhances the quality of library services by streamlining workflows, improving data management, and supporting

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user-oriented services. It plays a vital role in helping libraries adapt to technological advancements and meet the information needs of users in an increasingly digital environment.

2.4 Stages of the OPAC Method

The following are the stages commonly carried out in the use or application of the OPAC (Online Public Access Catalogue) method for tracking and searching for books in a library from start to search results. Stages of the OPAC Method[9].

1. Access to the OPAC System Library.
   Users open the OPAC system via the library website or a special computer terminal in the library.
2. Entering Search Keywords.
   Users type search keywords such as book titles, author names, subjects, or other relevant keywords in the OPAC search field.
3. Search Execution by the System.
   The OPAC system performs a search in the library's collection database based on the keywords entered. This is a retrieval process of indexed information.
4. Displaying Search Results.
   OPAC displays a list of results that match the keywords. These results usually include bibliographic data such as title, author, publisher, year of publication, and call number.
5. Viewing Collection Details.
   Users can click on one of the search results to view detailed information about the selected book, including its availability status (available/on loan).
   Identifying the Location of the Book.
   After finding out the details of the book and its call number, the user notes down the number to find the book on the library shelf.

3. RESULT AND DISCUSSION

This section presents the results and discussion of the research on book tracking methods in libraries using the Online Public Access Catalog (OPAC). The discussion is developed based on the research methodology described in the previous section and is supported by system testing results, observations, and user feedback. The section explains the implementation of the OPAC system, evaluates its performance, and discusses its effectiveness in improving information retrieval and library services.

3.1 OPAC-Based Book Tracking System

This subsection discusses the implementation results of the book tracking method using the Online Public Access Catalog (OPAC). The OPAC system was developed to improve the efficiency, accuracy, and accessibility of book searching and tracking processes in the library. The system integrates bibliographic data, availability information, and physical location details into a single digital platform that can be accessed by users independently. The implementation of OPAC represents a significant transition from traditional manual catalog systems to a digital information retrieval system. Through OPAC, users are no longer required to search for information using printed or card-based catalogs, which are time-consuming and limited in accessibility. Instead, OPAC enables users to search library collections quickly through electronic devices, both within and outside the library environment. The OPAC-based book tracking system consists of several main features, including the book search function, book availability information, and book location tracking. Each feature was evaluated to determine its effectiveness in supporting user information needs and improving overall library service quality.

a. Book Search Function

The system allows users to search for books based on title, author, and subject. This feature helps users retrieve book information quickly and accurately.

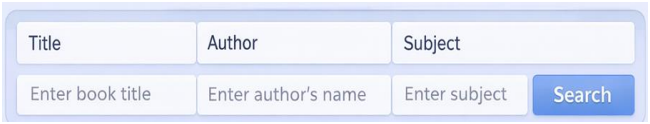

Fig 2. Book Search Function

The book search function is the core feature of the OPAC system. The system allows users to search for books based on several access points, including title, author, and subject. This feature enables users to retrieve bibliographic information efficiently and accurately without requiring assistance from library staff. Based on the testing results, the book search function operates effectively and provides relevant search results according to user queries. Users can input complete or partial keywords, and the system is able to retrieve matching records from the database. This flexibility is particularly important for users who may not have complete information about the materials they are searching for.

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Compared to traditional catalog systems, the OPAC search function significantly reduces the time required to locate books. In manual catalog systems, users must browse catalog cards sequentially, which can be inefficient and prone to error. The OPAC search function eliminates these limitations by providing instant search results and structured bibliographic information. The effectiveness of the book search function demonstrates that OPAC supports modern information-seeking behavior, where users expect fast and accurate access to information. This feature enhances user satisfaction and encourages more frequent use of library services.

b. Book Availability Information

The system displays real-time information regarding book availability, indicating whether a book is available or currently borrowed.

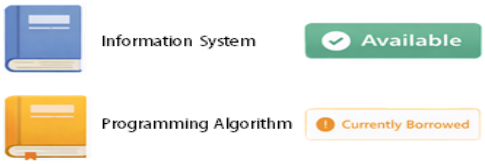

Fig 3. Book Availability information

The testing results show that the availability status displayed in OPAC accurately reflects the actual condition of the library collections. When a book is borrowed, the system automatically updates its status to indicate that the book is currently borrowed. Similarly, when a book is returned, the status is updated to show that the book is available. This feature provides significant benefits to library users by preventing unnecessary searches for unavailable books. Users are able to determine the availability of a book before attempting to locate it physically, which reduces frustration and saves time. In addition, availability information supports better planning for library visits and borrowing activities. From an operational perspective, book availability information reduces repetitive inquiries to library staff regarding book status. As a result, librarians can focus on more complex tasks, such as user assistance, collection development, and information literacy activities.

c. Book Location Tracking

The OPAC system provides shelf location information, enabling users to locate physical books easily within the library.

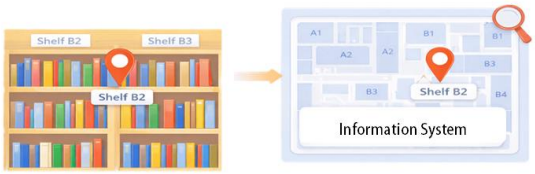

Fig 4. Book Location Testing

Based on the evaluation results, book location tracking significantly improves users' ability to locate physical books independently. Users reported that clear and consistent location information reduced confusion and minimized the need to ask for assistance from library staff. This improvement is particularly valuable in libraries with large collections or complex layouts. By integrating digital catalog data with physical library space, OPAC bridges the gap between electronic information retrieval and physical access to materials. This integration enhances the overall efficiency of the library service process and contributes to a more user-friendly library environment.

3.1.1 System Performance Analysis

This subsection presents the analysis of the system performance based on testing results. The evaluation focuses on search accuracy, response time, and usability.

a. Search Accuracy

The testing results show that the OPAC system accurately displays bibliographic data and book status according to the database records. Search accuracy refers to the ability of the OPAC system to retrieve correct and relevant information in response to user queries. The testing results indicate that the OPAC system accurately displays bibliographic data and book status according to the database records The search results were compared with actual database entries and physical collections, and no significant discrepancies were found. Titles, author names, publication years, classification numbers, and availability status were consistent with the stored records. This high level of accuracy demonstrates that the indexing and retrieval mechanisms of the OPAC system function effectively. Accurate search results are essential for maintaining user trust in the system. When users consistently receive correct information, they are more likely to rely on OPAC as their primary tool for information retrieval. This trust contributes to increased system usage and supports the role of OPAC in modern library services.

b. Search Response Time

Search response time was evaluated to assess the speed at which the OPAC system processes user queries and displays results. The testing results show that the system demonstrates fast response times during search operations. Users were able to retrieve search results almost immediately after submitting queries, indicating that the system performs

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efficiently under normal usage conditions. Fast response time is an important factor in user satisfaction, as delays in information retrieval can negatively affect user experience. The efficient response time observed in this study suggests that the OPAC system is capable of supporting routine library operations and moderate levels of user access. This performance is essential for ensuring the sustainability and scalability of the system in the long term.

c. System Usability

System usability refers to the ease with which users can interact with the OPAC system. User feedback indicates that the OPAC interface is easy to use and supports efficient book tracking without requiring extensive assistance from library staff. The interface design is simple and intuitive, with clear navigation menus, search fields, and result displays. Users with varying levels of technological proficiency were able to use the system effectively, which demonstrates the inclusiveness of the OPAC design. High usability enhances system adoption and encourages repeated use. When users find a system easy to use, they are more likely to integrate it into their regular information-seeking activities, thereby maximizing the benefits of OPAC implementation.

3.2 Discussion

This subsection discusses the results obtained from the implementation and evaluation of the OPAC-based book tracking system. The discussion focuses on the effectiveness of OPAC in improving information retrieval, enhancing library service efficiency, and supporting user-centered services. The results indicate that the implementation of an OPAC-based book tracking method significantly enhances library services. By providing accurate and up-to-date information on bibliographic data, availability status, and book location, OPAC reduces search time and improves user experience. These findings support previous studies that emphasize the importance of digital catalog systems in modern libraries. Compared to traditional manual catalogs, OPAC offers greater accessibility and convenience. Users can access the system electronically and perform searches independently, which aligns with the expectations of users in the digital era. This capability contributes to higher user satisfaction and increased utilization of library resources. However, the effectiveness of the OPAC system depends on consistent data updates and proper system maintenance. Inaccurate or outdated catalog records may reduce search accuracy and user trust. Therefore, libraries must implement regular data management procedures and ensure that librarians are trained in maintaining and updating OPAC records. Overall, the findings of this study demonstrate that OPAC is an effective tool for supporting book tracking and information retrieval in libraries. The system enhances service quality, improves operational efficiency, and strengthens the role of libraries as modern, technology-oriented information centers.

4. CONCLUSION

In the digital era, libraries must continuously adapt to technological advancements to remain relevant and effective as information service institutions. The implementation of an Online Public Access Catalog (OPAC) represents a strategic transformation from traditional, manual catalog systems into modern, web based information platforms that support efficient information retrieval. Through OPAC, users are able to search, identify, and locate library collections independently using multiple access points such as title, author, subject, and keywords. In contrast to traditional catalogs that require physical presence and time consuming manual searches, OPAC provides real time access to bibliographic data, book availability, shelf location, and loan status from any location with internet connectivity. The availability of accurate and up to date information significantly improves search accuracy and reduces user dependence on library staff. Furthermore, OPAC enhances operational efficiency by supporting consistent data management and faster service delivery. The findings of this study indicate that the implementation of OPAC contributes positively to user satisfaction by improving accessibility, speed, and accuracy of information services. Ultimately, the adoption of OPAC strengthens the role of libraries as modern, responsive, and user oriented information centers that effectively support learning, research, and knowledge dissemination in an increasingly digital environment for future sustainable library development and continuous technological innovation worldwide initiatives globally.

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