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# User awareness study on library automation: A case study of Edo state polytechnic and the national library of Nigeria

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**Abstract**

This study investigates essential demographic and perception indicators among library users through a thorough analysis of survey data. The outcome indicate that youngsters make up the majority of those who use library, specifically in the age group of 16-25. This highlights the importance of providing customised library services to meet the needs of this specific demographic. Nevertheless, the presence of a conspicuous gender disparity, characterised by a greater percentage of male users, underscores the significance of implementing measures to promote inclusivity. The distribution of educational levels reveals a significant number of users at the ND 2 level, suggesting that the library can customise its resources and services to cater to users at different academic stages. The extensive familiarity of users with barcodes provides a favourable basis for the implementation of technology-driven services. In addition, the prevailing favourable perception of a recent advancement underscores user contentment, although it is important to address the concerns of the minority who hold an opposing perspective. These findings collectively enhance our understanding of the library's user dynamics, providing valuable insights for strategic planning. The study highlights the significance of addressing demographic disparities, fostering inclusiveness, and utilising favourable perceptions to improve library services and user experiences.

**Keywords:** Cataloguing, automated library, national library of Nigeria, Edo state polytechnic Usen, library automation, information management

**Introduction**

Libraries employ Information and Communication Technology (ICT) to automate their routine tasks and provide those that use it with search services. There is an increasing use of computers in the libraries, for facilitating tasks within and access to library resources. The use of computers eradicates tedious tasks and preserves both human effort and time for both users and library staff. Computers function as a medium for processing data and also for the tasks of storing, accessing, and retrieving information. Library automation entails the utilisation of information and communication technology (ICT) techniques and approaches to substitute manual systems in libraries. An "integrated library system" refers to a system that utilises a shared database to carry out essential functions of a library, including document and patron management (Librarianship Studies and Information Technology, 2020, Esther, 2014) [9].

Automation can be said to be the use of machinery in making tasks more efficient with the view to saving time by reducing the need for human labour. The main goal of the automation of libraries is to empower staff working in them, allowing them greater and increase their contributions significantly to the distribution of information and knowledge generally. In Library Science domain, automation pertains to the utilisation of technology to develop and enhance procedures and frameworks, with the aim of minimising the requirement for human intervention in their functioning (Levine-Clark, 2013; Hussaini *et al.*, 2017) [11, 10].

Manjunath (2004) [13] asserts that automation streamlines the process of printing cards, enhances concurrent access to a shared database, and enables swift and remote retrieval of network information. Adeyemi (2001) [2] asserted that librarians can now depend on the computer and its accessories to perform all the cataloguing functions and more.

Through the use of soft wares, cataloguers can use these

apps to enter data for each specific task onto pre-prepared work-sheets that are stored within the system. Furthermore, they have the ability to make alterations or revisions to these entries. Furthermore, it is a possibility now to expand far more than the conventional content found on the cataloguing cards by providing more access points based on alternative parameter such as author affiliations, keywords contained in the title, or thesaurus descriptions. Manual processes for cataloguing and categorisation in economics did not promote these additional access points (Chukwuemeka et al., 2015) [8].

The integration of automatic cataloguing systems and circulation has greatly changed the operations and usage of academic libraries. This ICT technology has greatly facilitated the access to essential materials and resources for the purposes of teaching, learning, and research. In fact, Libraries in Nigeria should prioritise the adoption of advanced technology to improve efficiency and enhance services. This research seeks to analyse the effect of automatic cataloguing systems and circulation operations on the delivery of efficient library delivery services in three (3) academic libraries in Nigeria.

## Literature Review
Throughout history, libraries have provided information services to help not only the educational sector but economic, recreational, technological and cultural sectorial activities (Afolabi and Abidoye, 2011; Anunoci & Edoka, 2010) [3]. The National Policy on Education (2004) acknowledged the library as an essential element of educational support services. The medium functions as a means of disseminating information and enhancing the process of literature retrieval. Additionally, it serves as a means to promote intellectual harmony and enhance cultural and social assimilation (Ajidahun, 2005) [4].

In the past, libraries employed the use of catalogue cards, manual and electric typewriters, and manually established target dates. Automation of Libraries automation is a modern concept that uses computers and software to improve the efficiency of libraries and help library users access resources more effectively. The use of machinery to make tasks more efficient and reduce the need for human labour, resulting in time savings is called automation (Panda, 2013) [17].

The passage elucidates that in the era of computerization and digitization, both traditional and digital libraries serve as repositories of information. The significance of cataloguing as a fundamental element of library services is underscored, highlighting its crucial role in the achievement of library success (Adedibu et al., 2009) [1]. Cataloguing and categorisation helps in facilitating the organisation of library collections/data to ensure convenient retrieval. Consequently, it is imperative to arrange library collections in a manner that facilitates user accessibility, as failure to do so renders them futile. Librarians advocate for the implementation of cataloguing and classification methods to effectively organise collections. According to Harrods (1990), cataloguing is the process of creating a document lists of printed / non-book materials using specific rules. This allows the users to know what things that are available, how and where they can be found based on their categorisation, classification or other means of

identification. Classification arranges books based on their subject matter. Hence, cataloguing and classification serve to index all collections within a library. Library access is streamlined through the processes of cataloguing and classification. Adedibu et al. (2009) [1], stated that the essence of library organisation includes facilitating convenient access to library materials, optimising time and space usage, enhancing effective utilisation, and attracting users.

The process of manually cataloguing and classifying was arduous and required a significant amount of time. In recent times, Nigerian university libraries have embraced the use of computers to manage their library collections, following the trend set by advanced nations. Computerised cataloguing and classification enhance the accuracy, efficiency, and speed of library collection processing. The process of cataloguing involves three essential steps: labelling access points, key headings, and categorisation of the numbers (Saffady, 1989; Sani & Tiamiyu, 2005) [19, 20].

Since the 1960s, automation has expanded to include important tasks such as transactions, cataloguing, authorisation, serialised content, circulating and management of inventory, interlibrary loan, and document delivery. This development began when machine-readable catalogue record (MARC) was introduced. At present, there is a limited group of systems vendors (Auto-Graphics, EOS International, Ex Libris, Follett, Innovative Interfaces, Polaris Library Systems, SirsiDynix, TLC, and VTLS) dominating the automation of library market, holding the largest share (Reitz, 2020; Arora & Shah, 2020) [18, 17].

The significance of "add-ons" in the context of digital content delivery is increasing, particularly in the shape of linkage resolvers, portal and metasearch interfaces, and e-resource management modules that are usually done by third party vendors. Additional developments in library automation involve enhanced incorporation with the online environment, such as transforming bulky Personal Computer clients into browser apps, presenting content using XML and style sheets, and creating XML import and export functionalities. Furthermore, libraries especially for academic purposes are striving for seamless integration between library administration and learning management systems (LMS) (Retz, 2020).

The term "automation" originated from 'Automose' a Greek word, which denotes the capacity for instinctive motion or self-activating. Automation in libraries means the mechanization or computerization of all tasks performed within a library. As per the Glossary of Library and Information Science by ALA, automated system refers to the implementation of an automatic operation system, or a process using self-activation, self-control. Automation or automatic is the use of automatic system for data processing, such as computers, or other systems that decrease the need for manual labour. The word "automation" was initially coined and used by D. S. Harder in 1936, and the term "library automation" has been profusely and generally utilised in literatures for the past fifty years.

According to the International Encyclopaedia of Information Technology and Library Science, technology is a development and enhancement of procedures and systems that minimise the requirement for human participation in

their operation. Library automation involves the implementation of integrated systems that computerise different conventional library tasks by utilising a shared record. Although, this statement is basically true; the fast rate of technological progress is prompting a re-evaluation of the idea of "library automation."

Panda (2013) [17] states that the utilisation of punched card technology was put into effect. The implementation of equipment for library circulation and acquisition in the 1930s signalled the initiation of the automation of libraries. The integration of computer technology into libraries took place in the later part 1960s, mainly through the adoption of custom-made software or commercially available apps aimed at optimising library processes. The development of library automation can be divided into four distinct eras, which have occurred from 1960 to the present.

The First Era: This time frame is characterised by the implementation of computer technology in library functions, achieved either through the adoption of commercially available automation packages or the creation of in-house software. An outstanding achievement during this phase was the development of a communal copy-cataloguing system, which employed computer and ICTs to enhance cooperation and collaboration among library users.

The Second Era, the automation of library is marked by the advent of public access, particularly the implementation of the Online Public Access Catalogue (OPAC) as a replacement for the conventional card catalogue. During this period, there were notable improvements in the availability of abstracting and indexing records, union catalogues, networks for resource sharing, and library consortia through online platforms.

The Third Era is depicted by the ability to retrieve comprehensive e-documents via high-speed communication channels. The rise in internet as a platform for publishing and the biggest repository of data information-bearing objects has fundamentally changed our methods and mechanisms for delivering library services.

The Fourth Era is commonly referred to as the age characterised by the 'networked information revolution'. Currently, there is a large array of web-based content and services available via the world Wide Web. These resources can be accessed remotely and at any given moment. Furthermore, these resources can be utilised, recycled, traversed, incorporated, and tailored to fulfil the distinct requirements and objectives of individual users. The latest technological advancements have resulted in notable achievements such as digital libraries, multimedia databases, and virtual libraries.

The efficacy of an automatic cataloguing system was assessed in institution libraries located in Oyo State of Nigeria, through studies conducted by Odunola et al. (2019) [15]. The results demonstrated that these institutions successfully accomplished their goals through the adoption of the automated cataloguing system, emphasising its substantial usefulness in the routine activities of academic libraries. The study suggests that in addition to computerising cataloguing, it is advisable to automate all other library operations, considering the benefits associated with such systems. It is advocated that public and special libraries give priority to implementing automation, with a focus on library administrators ensuring the provision of sufficient information technology tools. Furthermore, the study suggests that libraries should collaborate in order to maximise the advantages of automation through the exchange of information resources. The submission aligns with the conclusions drawn by Ogunmodede et al. (2014) [16] in their research on the effect of an Automatic Cataloguing System on the Manual Cataloguing System in libraries on selected academic libraries in the South-Western region of Nigeria.

A study conducted by Arinola et al. (2012) [6] sought to evaluate the impact of Information and Communication Technology (ICT) on the organisation and categorization of library resources in ten (10) randomly selected libraries located in universities, South-western Nigeria. The data analysis consisted of examining frequency tables and calculating percentages using a sample of 126 questionnaires sent to staff of libraries in the classification and cataloguing unit. The results suggested that although ICT has the capacity to mitigate the difficulties linked to manual classification and cataloguing, its efficient utilisation is impeded by factors such as expenses, technical proficiency, and administrative problems. The paper suggests implementing ICT-focused cataloguing and classification, emphasising its beneficial effects on availability, cost efficiency, sharing of resources, reduction in duplication of efforts, dependable storage, and accuracy. The work provides valuable insights into how ICT can improve classification and cataloguing processes these specific libraries in each university investigated.

Moustapha (2021) [14] conducted a study to investigate the difficulties and potential opportunities related to organising and categorising materials in academic institution libraries located in Kwara State. The research specifically focused on the state own university located in Kwara State. The study employed a survey design and included a sample of 50 active librarians who participated in the 2020 Nigerian Library Association Annual Workshop. Data collection involved the use of questionnaires that focused on the challenges and potential opportunities in cataloguing, as well as classification. The results uncovered various obstacles, including inadequate workforce, absence of contemporary equipment, challenges in handling cataloguing and classification backlogs, and insufficient drive within the sections of the examined academic institution library. Nevertheless, the work also revealed encouraging possibilities for the library's technical departments, such as heightened promotion of library automation, accessible training options overseas, implementation of a library information and management system, and a progressive shift from manual to computerised procedures. The findings guided the development of suggestions derived from the recognised difficulties and opportunities.

## Statement of Problem
The implementation of automated library systems, which involve activities such as cataloguing, classifying, and managing circulation, poses a major challenge for institutions like the National Library of Nigeria and Edo State Polytechnic Usen. The growing influence of technological advancements on traditional library functions has highlighted the need to assess the sufficiency of current

cataloguing practices, the efficacy of classification schemes, and the seamless functioning of circulation systems. Furthermore, the introduction of computerised cataloguing, specifically in regards to MARC format/records, presents complexities that require thorough examination. The objective of this study is to identify and address the challenges and potential shortcomings in the fundamental aspects of library management through the implementation of automation. Implementing these measures will bolster the efficiency and quality of service delivery and the overall effectiveness of these institutions.

**Scope of the Study**

The research focused on Edo State Polytechnic, Use, Edo State, Nigeria and National Library of Nigeria, Benin City, Edo State, Nigeria

**Methodology**

The research engaged the use of questionnaire research method and utilised a structured questionnaire to gather data. A total of 300 questionnaires were distributed, collected, and completed questionnaire was analysed using data frequency, percentage, and mean to address the research queries. Consequently, the questionnaire was administered using the random sampling technique.

**Results and Discussions**

**Table 1:** Respondents Age Distribution

| Age | No | % |
|---|---|---|
| 16-20yrs | 97 | 32 |
| 21-25yrs | 129 | 42 |
| 26-30yrs | 45 | 15 |
| 31-35yrs | 22 | 7 |
| 36-40yrs | 12 | 4 |
| Total | 305 | 100 |

Table 1 presents the age distribution of library users, providing a breakdown of the number of users in different age groups and their respective percentages. The table shows that:

**Age Groups:** The data is classified into five (5) age groups: 16-20yrs, 21-25yrs, 26-30yrs, 31-35yrs, and 36-40yrs.
Number of Users (No): The second column represents the actual count of library users within each age group. For example, there are 97 users in the 16-20 age group, 129 in the 21-25 age group, and so on.

**Percentage (%):** The third column displays the percentage distribution of users in each age group relative to the total number of users. For instance, 32% of the total users fall within the 16-20 age range, 42% in the 21-25 age range, and so forth.

**Analysis**

Dominant Age Group: The age group 21-25 has the highest percentage (42%), indicating that a significant portion of library users falls within this range.
Youth Dominance: Combining the age groups of 16-20 and 21-25, the majority (74%) of library users are relatively young, suggesting a strong presence of students or young

adults in the library.

**Decreasing Trend:** There is a general trend of decreasing percentages as the age groups progress. The percentages drop from 42% in the 21-25 age group to 4% in the 36-40 age group, indicating a decline in representation as age increases.

**Minority Age Groups:** Age groups 31-35 and 36-40 have the lowest percentages, suggesting a relatively smaller presence of users in these categories.

**Table 2:** Respondents Gender Distribution

| Gender | No | % |
|---|---|---|
| Male | 180 | 59 |
| Female | 125 | 41 |
| Total | 305 | 100 |

Table 2 presents Respondents Gender Distribution, providing a breakdown of the number of users for each gender and their respective percentages. The followings are information from the table.

**Gender Categories:** The data is divided into two categories: Male and Female.

**Number of Users (No):** The second column represents the actual count of library users for each gender. For example, there are 180 male users and 125 female users.

**Percentage (%):** The third column displays the percentage distribution of users for each gender with respect to the overall number of users. In this case, gender percentages are based on the total of 305 users.

**Analysis**

Gender Distribution: The majority of library users are male, constituting 59% of the total users, while females make up 41%.
Gender Imbalance: The data indicates a gender imbalance, with a larger representation of males compared to females among library users.
Total Users: The total number of users is 305, providing a context for understanding the distribution within the library's user base.

**Table 3:** Respondents Education Level

| Level | No | % |
|---|---|---|
| ND 2 | 193 | 63 |
| HND 1 | 65 | 21 |
| HND 2 | 47 | 15 |
| Total | 305 | 100 |

Table 3 outlines the education level distribution of library users, providing a breakdown of the number of users for each educational level and their respective percentages. The analysis shows the following:

**Education Levels:** The data is categorized into three educational levels: ND 2, HND 1, and HND 2. These likely represent different academic stages or qualifications (e.g., National Diploma and Higher National Diploma).

**Number of Users (No):** The second column represents the actual count of library users for each education level. For instance, there are 193 users at the ND 2 level, 65 at the HND 1 level, and 47 at the HND 2 level.

**Percentage (%):** The third column displays the percentage distribution of users for each education level relative to the total number of users (305).

**Analysis**
Dominant Education Level: The highest percentage is in the ND 2 category, constituting 63% of the total. This shows that a significant majority users are at the ND 2 level.
Progressive Decrease: As the education level progresses from ND 2 to HND 1 and HND 2, there is a decrease in percentages. HND 1 represents 21%, and HND 2 represents 15% of the total users.
Total Users: The total number of users is 305, offering context to the distribution across different education levels.

**Table 4:** Awareness of barcode in the Library?

|  | No | % |
|---|---|---|
| Yes | 290 | 95 |
| No | 15 | 5 |

Table 4 presents data on the awareness of barcodes in the library, indicating the number of respondents who are aware of barcodes and those who are not. The analysis of the data is presented below:

**Awareness Categories:** The data is divided into two categories: Yes (those who are aware of barcodes) and No (those who are not aware).

**Number of people (No):** The second column represents the real count of respondents for each awareness category. For instance, there are 290 respondents who are aware of barcodes, and 15 respondents who are not.

**Percentage (%):** The third column displays the percentage distribution of respondents for each awareness category relative to the total number of respondents (305).

**Analysis**
**High Awareness:** The majority of respondents, 95%, are aware of barcodes in library. This awareness level is quite high among surveyed user population.

**Low Awareness:** A small percentage, 5%, are not aware of barcodes in the library. While this is a relatively low proportion, it still highlights the presence of individuals who may not be familiar with this technology.

**Total Respondents:** The total number of respondents is 305, providing context for understanding the distribution of awareness regarding barcodes.

**Table 5:** Is a welcome development

|  | No | % |
|---|---|---|
| Yes | 300 | 98 |
| No | 5 | 2 |
| Total | 305 | 100 |

Table 5 presents data on the perception of whether a certain development is welcome. Let's analyse the data:

**Perception Categories:** The data is divided into two categories: Yes (those who find the development welcome) and No (those who do not find it welcome).

**Number of users (No):** The second column represents the real count of respondents for each perception category. For instance, there are 300 respondents who find the development welcome, and 5 respondents who do not.

**Percentage (%):** The third column displays the percentage distribution of respondents for each perception category relative to the total number of respondents (305).

**Analysis**
**Positive Perception:** The majority of respondents, 98%, find the development to be a welcome one. This indicates a highly positive perception among the surveyed population.

**Negative Perception:** A very small percentage, 2%, do not find the development welcome. While this is a minority, it suggests the presence of a few individuals who may have reservations or concerns about the development.

**Total Respondents:** The total number of respondents is 305, providing context for understanding the distribution of perceptions regarding the development.

**Conclusion**
Based on the results presented in the analysed tables:
1. The library has a predominantly young user base, with a significant majority falling within the 16-25 age range. This highlights the importance of tailoring services to meet the needs and preferences of this demographic.
2. There is a gender imbalance among library users, with a higher proportion of males compared to females. The library may need to explore strategies to attract a more diverse user base and ensure inclusivity.
3. Education level distribution indicates a concentration of users at the ND 2 level, with a decline in percentages for higher education levels. Understanding this distribution can guide the library in providing resources and services suitable for users at different academic stages.
4. The awareness of barcodes in the library is high, with 95% of respondents being aware. This suggests a positive level of familiarity with this technology, which could be leveraged for implementing related services.
5. The perception of a certain development being a welcome one is overwhelmingly positive, with 98% of respondents expressing approval. While this indicates a generally positive reception, it's essential to consider the concerns or opinions of the minority who do not find it welcome.

Finally, the library appears to be well-received among its user base, particularly among the young population. However, attention should be given to gender balance, educational diversity, and addressing the needs of those with different perceptions. The high awareness of technology, such as barcodes, provides an opportunity for the library to

enhance services. Overall, these findings offer valuable insights for the library to refine its strategies, improve inclusivity, and build on positive aspects to better serve its users.

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