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## **Revolutionizing Library Services through Artificial Intelligence in Nigerian Polytechnics**

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### **Abstract**

*The paper focused on how AI could change the way polytechnic services in libraries are handled in Nigeria and how users access learning materials. Libraries remain one of the most important centers for accessing information, knowledge dissemination, and academic support within higher institutions of learning. In Nigerian polytechnics, the effectiveness of libraries is undermined by persistent challenges such as outdated cataloguing techniques, and restricted resource availability. The emergence of Artificial Intelligence is becoming one of the most useful tools that help to solve some challenges faced in the polytechnic libraries in Nigeria. It can take over simple, everyday tasks, make it easier to find information, and give users a better experience. However, bringing AI into these libraries is not easy. There are challenges such as inadequate funds, poor digital equipment, and library staff who do not have the skills to use new technologies. There are also worries about keeping users' information private and safe. Recommendations were made to ease the use of AI in the polytechnic libraries in Nigeria.*

**Keywords:** Artificial Intelligence, Library services, Polytechnics, Digital transformation, Information retrieval

### **Introduction**

Technology these days is evolving and artificial intelligence is helping many areas including education (Alam, 2021). Libraries which used to be places where only books were kept are now trying to use technology to give better services and make it easier for people to get information (Brophy, 2007). In Nigeria polytechnics, libraries are very important because they help students and lecturers with learning and research. However, many of these libraries have problems like old cataloguing systems and this means, the way they arrange and find books is not modern. Some libraries will use manual methods or poor computer system, so it is hard for people to find what

they need. Also, there are no enough materials and the services are often slow and stressful. AI can help solve these problems and make library work better and faster.

Libraries are very important in schools because they give students access to information and help with learning. However, many polytechnic libraries in Nigeria are not adequately functioning. They have old books, poor ways of managing things and students do not really enjoy using them (Yusuf & Ibrahim, 2024). Since the world is now using more digital tools in education using AI in libraries can really help. It can make it easier to find information and also make library work more organized and smoother. Libraries have always been important in schools because they help students and lecturers get the information they need for learning and research. However, the polytechnics in Nigeria are facing a lot of problems. They do not have enough fund, not well managed and cannot keep up with how fast information and technology are growing. As a result of this, many students and lecturers find it hard to get the books and materials they need which makes learning and research more difficult.

Artificial intelligence means using machines to do things that normally need human thinking like learning, solving problems, and making decisions. It includes things like machines learning from data, understanding language and doing tasks automatically. AI is now being used in many areas including library work. It can help libraries by doing tasks automatically, suggesting useful books or articles to users and helping staff work more easily and quickly (Oyetola, et. al., 2023).

Around the world, libraries are changing with the help of new technologies like AI. In richer countries, AI is already helping libraries work better by taking over simple tasks, giving people better results and organizing and organizing books and information more efficiently. But in the polytechnics in Nigeria, libraries are still behind in using AI. Even so, AI could really help these libraries solve some of their big problems like places where there are not enough resources. If libraries in polytechnics in Nigeria start using AI, it could really change how they work. It would make it easier for students to get information, help staff do their jobs better and reduce the stress of managing things manually. AI can also fix problems like old cataloguing systems and poor technology. In using AI, libraries in Nigeria can catch up with what is happening in other countries and become better learning centers.

This study examine how artificial intelligence can help change and improve library services in polytechnics in Nigeria. It examines what is happening now, the problems libraries are facing and how AI can be used in simple ways to solve those problems. The aim is to show how polytechnic libraries can use AI to make it easier for students and lecturers to get information, help the library work faster and better and give users a more personal and helping learning experience.

## **Literature Review**

Most research about artificial intelligence in education in Nigeria has talked more about online learning and virtual classrooms but not much has been said about how AI can help libraries. For example, Olu and Adeyemi (2020) studied how AI helps with online learning in Nigerian universities. They found that AI made learning more interesting and gave students better access to materials. However, when it comes to using AI in polytechnics libraries, there are not many studies. This shows that more research is needed to understand how AI can help solve problems in these libraries and make them better.

AI has really changed many parts of education as it has helped with things like giving students learning based on their needs, making classrooms smarter and using data to plan better. AI is used in many ways and libraries are one area where it is starting to make a big difference. Around the world, libraries now use AI tools like machine learning, language understanding and automation to manage resources better, help users find what they need and automatically do simple tasks.

Libraries around the world are now using Artificial intelligence to work better and help users more. According to Smith and Patel (2022), many libraries use AI chatbots that help anytime even when the library is closed. These chatbots can help people find books, answer simple questions and explain the library rules to the people. This makes the work easier for the library staff because as this makes them focus more on important tasks. In the United States, the use of AI chatbots has helped reduce to 40% the time people wait for services to be rendered to library users.

Another way, libraries use AI is called predictive analysis which means review what books people borrow the most and use. This review helps the librarians to decide which books are to be kept and which ones are to be removed or move online. This helps the library work better and use its money wisely (Miller, 2020).



Some big libraries like that of California Library Services and the National Library of Sweden have also started using AI in their services (Harisanty & Noor Azizi, 2024). They use AI to help with organizing books, giving research help and understanding what users like or need. These tools help users find books faster and get services that are more useful to them. In some polytechnic libraries in Nigeria, putting books and materials in the right order is still mostly done by hand which takes time and can lead to mistakes. However, the introduction of AI can help with solving some of these problems arising in the libraries. This is because AI can assist in organizing books and digital files automatically which makes service delivery easier for the library staff and the library users to find what they need faster. For example, an AI system can read a new book and figure out exactly where it should go in the library. This saves time and assists make sure students and lecturers find the right materials when they need them.

### **Current State of Nigerian Polytechnic Libraries**

Research has shown that libraries in Nigerian polytechnics are facing numerous challenges. According to Agbor and Musa (2021), these libraries do not get adequate funds to buy new books or bring in digital tools. As a result of this, students do not have access to the current published scholar works and information, which puts the libraries behind in other countries. Studies also show that there are not enough trained staff in these libraries as Abdul and Kole (2022) found that only a few library staff know how to use digital tools or manage modern or digitalized library systems. Many of these library staff do not know much about the evolved technologies as this makes it difficult for libraries to start using AI tools. A recent survey from the Nigerian Library Association (2023) showed that 75% of polytechnic libraries in Nigeria are still using manual ways of to catalogue which often leads to mistakes and makes it hard for library users to find ad locate exactly what they need.

Unlink libraries in other parts of the world, many polytechnic libraries in Nigeria still face huge challenges. They do not have adequate funds, have obsolete library facilities and inadequate library staff members to help all the students that come to the library. Many of these libraries use paper-based systems to organize books which take time and are easy to muddle up the entire situation. More so, these libraries do not have enough fund for current research materials and as a result,



many students and lecturers have to look elsewhere for help. As a result of all these, AI has become necessary because it can help make these libraries function and deliver services effectively.

There are some AI tools that help improve library service delivery in Nigeria. These include:

- i. Chatbots and virtual assistants: AI-powered Chatbots and virtual assistants can provide users with 24/7 support, answering queries, directing users to resources and offering personalized research assistance. These AI systems use natural language processing (NLP) to understand what users are asking and giving the right answers.
- ii. Automated cataloguing systems: AI can help automatically organize books and research materials.
- iii. AI for research help: AI tools can help students and lecturers find useful books and information faster. These tools look at what the user is searching for and suggest more things they might like. They also help people ask better questions to get better results.
- iv. AI data analysis: AI can look at how people use the library and show what is working and what needs to improve. It can help the library choose the right books and services to offer.

While there are many studies from other countries on how AI is used in libraries, there is limited research about how it works in polytechnic libraries in Nigeria. Most studies talk about general technology in education but do not look closely at the problems in library services. As a result of this, it becomes important to help fill the gap by focusing on how AI can help libraries in polytechnics in Nigeria looking at both the good sides and the challenges.

### **Challenges Confronting the Application of AI in Polytechnic Libraries in Nigeria**

Polytechnic libraries in Nigeria are very important for learning, but they have many problems that make them hard to use. According to the study of Agbor and Olu (2021), more than 60% of students think their school libraries are old and do not have modern books, internet access or trained workers. Some of the main problems are:

#### **Poor Access and Enough Resources**

Many of these libraries do not have adequate funds to buy new books, journal or computers. As a result of this, students and lecturers find it hard to get the information they need. Also, many

libraries do not have digital tools, so students have to use printed books, which often too few for everyone.

### **Digital Tools for Modern Technology**

In other countries, libraries are now using computers and AI to make work easier and faster. However, most polytechnics in Nigeria still do things the old way. They do not have digital system which makes everything slower and less fun for students who are used to using digital tools in other parts of life. These problems show that libraries in polytechnics in Nigeria need serious change which AI can help solve many of these issues. It can make book arrangement faster, help use resources better, and even use Chatbots to answer questions. However, for this to work, librarians need to know how to bring AI into the library in a way that fits with the problems and limits these school face.

### **Opportunities of AI Use in Polytechnic Libraries in Nigeria**

Artificial intelligence can help improve library services in polytechnic libraries in Nigeria in many ways. It can make things work faster, help more people get what they need and bring in new ideas.

### **Improved Efficiency and Accessibility**

AI can help students and lecturers even in far places by making library work easier. It can take care of simple jobs like arranging books and helping people find what they are looking for.

### **Advancing Research and Innovation**

AI tools can make research easier by helping find useful information, checking for plagiarized works and understanding data better. This can help polytechnic libraries in Nigeria keep up with schools in other countries.

### **Strategic Partnership for Innovation**

Polytechnics can work with tech companies to get AI tools, training and funds as these partnerships can help schools bring in new systems and teach the library staff how to use them. Nigerian polytechnic libraries can become more modern, use digital tools better and give students and lecturers more support in today's world by using these opportunities AI brought.



## **Conclusion**

AI can really change how libraries work in Nigerian polytechnics which can help more people get information, manage books better and support research in smarter ways. Even though there are problems like poor internet, inadequate funding and lack of skills, the opportunities AI brings are more than the challenges. If schools invest in AI and make good plans, their libraries can give better services and help students learn more. Future students should look at how AI will help libraries in the long run and how it can also be used in other parts of education in Nigeria.

## **Recommendations**

Based on the discussions above, the following recommendations were made;

1. Polytechnic libraries in Nigeria should improve their facilities so that AI can work well in libraries. This means, having faster internet, better computers and more digital learning tools.
2. Library staff need regular training so they can use and take care of AI tools properly. They can learn through workshop, online courses and help from tech companies who know how these tools work.
3. There should be simple and clear rules on how AI should be used in the libraries. These rules should talk about things like keeping users' information safe and using AI in a responsible way.
4. Before using AI everywhere, polytechnic libraries can start with small projects. This will help them see if the tools work well and how they can improve things before doing more.

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