

## **Emerging Intelligent Technologies for Smart School Libraries**

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### **ABSTRACT**

*The paper discusses emerging intelligent technologies for smart school libraries. Emerging intelligent technologies are innovations in technologies, software, or applications that enable librarians to adequately prepare and present information content in an enticing way to users or learners, resulting in effective information service delivery. It pictured a smart school library as a smart center in the school library that makes learning and other educational activities interactive. Speed reading software, Plotagon, and mathematics problem-solving software amongst others were identified as emerging intelligent technologies that can be used for smart school libraries. The paper acknowledged the absence of technological literacy, poor attitude of library personnel, and poor funding as factors militating against the use of emerging intelligent technologies in school libraries. Therefore, it was recommended amongst others, that school librarians regard emerging intelligent technologies as agents of library transformation since this will help them accept and employ such technologies.*

**Keywords:** Emerging Intelligent Technologies, Libraries, Smart School Libraries

### **1. INTRODUCTION**

Emerging intelligent technologies have invaded every sphere of human society, establishments, and institutions. Today, the old styles of carrying out tasks are enhanced by digital systems. The integration of these technologies in library activities at the primary and secondary school level is paramount because it will bring about the achievement of library objectives and the successful teaching-learning process. The sole aim of emerging intelligent technologies in the library is to bring about effectiveness in information processing and dissemination. Remarkably, there is a need for school librarians to embrace and appropriately utilise these technologies for proper information processing and dissemination. These technologies have changed organizational operations of which the library is not an omission. It is essential that school librarians abandon the old mode of processing and disseminating information and embrace creative methods to harness the endless possibilities of technology to deliver their services effectively.

It remains interestingly true that emerging intelligent technologies have a significant impact on library operations. Its application in the library accelerates the maximum achievement of library goals. According to Mishra and Joseph (2012), there is an increasing demand to integrate intelligent technologies in libraries as the output of these technologies is visible in the library. Nevertheless, young users show more interest in using school libraries with assorted technological tools. Fokides (2018) opines that young pupils acquire information better when presented or disseminated with intelligent technologies than in conventional ways, as new intelligent technologies are very appealing. There is a need to expose school librarians to these technologies as these technologies will help them perform their tasks commendably.

The integration of emerging intelligent technologies in the library is no longer a choice but a need for librarians considering the level of infusion of technology in the library particularly as it relates to the methods of rendering services and the need to enhance creativity and innovations in service delivery. The application of emerging intelligent technology has become so irresistible in the library process as it is changing the way library services are rendered. The adoption and usage of emerging intelligent technologies assist librarians in discharging favorable services to users and making learning very interactive. These technologies not only simplify the learning process, but also improve the quality of teaching content, interactions, and teaching methods. Corinne (2018) opined that these technologies have become a critical resource because their absence can result in a lack of adequate information delivery and ultimately a high

failure rate on the part of users or learners. Technology has significantly changed school library services and has also increased learners' satisfaction with the use of the library. Dauda and Akingbade (2011) stated that emerging intelligent technologies, when properly applied enhance the learners' level of patronage because of their appealing nature. The usage of emerging intelligent technologies by school librarians is vital to the improvement of the effectiveness of the teaching and learning process, visa-avis the quality of education.

Emerging intelligent technologies are constantly transforming school library services thereby accommodating different kinds of users and improving the academic performance of learners. These technologies have brought several modifications to the library, they facilitate a more concrete and flexible learning approach which enhances understanding of concepts and accommodation of different kinds of learners. The integration of these technologies in school libraries enhances learning motivation which is critical for the achievement of set educational objectives. Also, it increases the performance of teachers in the teaching and learning process and improves learners' academic performances. To successfully expose school librarians to emerging intelligent technologies required for smart school libraries which is the sole idea of this paper discusses the concept of emerging intelligent technologies, smart School Libraries, emerging intelligent technologies for smart school libraries, factors militating against the use of emerging intelligent technologies in school libraries, and conclusion and suggestions.

## **2. CONCEPTS OF EMERGING INTELLIGENT TECHNOLOGIES SMART SCHOOL LIBRARIES**

Emerging intelligent technologies are devices, innovations, and advancements utilised in libraries and educational settings to make information content appealing to different users and learners thereby achieving educational goals (Veletsianos, 2010). They are innovations in technologies, software, or applications that enable librarians to prepare and present information content in an enticing way to users or learners thereby resulting in effective information delivery. These technologies may or may not be new rather, are yet to be largely accepted by members of a particular discipline. It entails the use of automated systems such as software and applications to enable librarians to present information content in a desirable way which makes it more convenient for users. It is a computerized system used to collect, process, and present information content in the form of voice, animations, and texts for easy assimilation and effective teaching and learning activities. Emerging intelligent technologies are high-tech innovations that facilitate the creation and communication of information content to users. Libraries can react to this emerging technology by making the library's website easily accessible via web-enabled mobile devices (Horsfall et al., 2021).

A smart library is a library without a single physical lending item on the shelves, without books in print, a library without shelves, just large, ventilated servers, and whirring digital archives linked through digital networks with machines for copying and distribution (Nahak & Padhi, 2019). Orji and Anyira (2021) defined smart libraries as libraries where all documents are stored in digital format, processed in digital format, and accessed using an automated system. This library renders smart services using smart methods and smart resources to foster learning comprehension among users. Interestingly, in the authors' framework, smart libraries are libraries that render informative and educational services that are collaborative and innovative for the enhancement of knowledge. Hence, smart school libraries are libraries that make learning and other educational activities interactive with the sole aim of enhancing learners' comprehension which fosters the attainment of educational goals. It allows learners to flow with developmental trends in education as it uses advanced technological software and applications that make learning activities collaborative.

## **3. EMERGING INTELLIGENT TECHNOLOGIES FOR SMART SCHOOL LIBRARIES**

The different emerging intelligent technologies that can be used for smart school libraries include:

### **3.1 Speed Reading Software**

This software is designed to help learners develop or improve their reading culture. Reading is a strategic activity meant to improve the knowledge of learners not only in academic matters but in other areas of life. It helps children's minds develop faster as they learn to read. Reading breeds knowledge which in turn produces success. It allows learners to rub their minds with greater minds. Truly, reading culture is not without benefits, to the learners it brings about improved vocabulary, memory development, and creativity, and at the national level, it promotes educational growth and development of the country. The speed-reading software helps teach learners how to read faster and increases reading comprehension. Yet to Egbe (2020), most speed-reading software comes with a variety of exercises, tests, and eye-strengthening training designed to help reduce negative habits while working to improve learners' reading culture. 7-speed reading, Readers Edge, Rocket Readers, Ace Reader as well and Speed Reader X are examples of speed-reading software.

### **3.2 The Plotagon Software**

This is a three-dimensional information content maker that allows librarians to produce informative and educational content that is very useful to learners. Essential information contents can be presented to users in digital and smart form with the help of this tool. For instance, the history or culture of a certain group of people or tribe may be presented or displayed in the smart library with the help of a Plotagon. This clarifies complicated situations and occurrences, reducing the learners' stress throughout the learning process. Plotagon has pre-made templates that suit or describe a variety of information content (Plotagon, n.d). The librarian is only expected to act as a director and designer to set up scenes in line with his information content. The Plotagon is easy to use because of its simplicity.

### **3.3 Mathematics Problem Solving Software**

This is an informative and educational software that teaches and strengthens the problem-solving skills of young learners around mathematics. They are designed to enable young learners with math anxiety to learn mathematics with ease. This software with the guidance of the school librarians presents mathematical problems in comprehensible form using pictures and objects in the form of realia which also aid the subtraction, addition, multiplication, and division of numbers. This software includes Mathguru, Crocodile Mathematics, Maths Solver, and iMathematics. They help reduce the feeling of tension and apprehension that interferes with performance ability in mathematics and increase the skill of manipulation of numbers among learners. They are user-friendly mathematical modeling software for learners (Crocodile Mathematics, 2022).

### **3.4 Spelling Software**

It helps learners learn how to spell words and improve their spelling skills. The spelling software uses spell checkers to simplify spelling issues and assist users in building adequate spelling skills by correcting misspelled words. Working with the spell check option is a good practice to ensure high-quality spelling skills among young learners. Egbe (2020) avers that spelling software also exposes beginners/learners to word pronunciation and meaning. Examples of spelling software include School Zone Spelling, Spelling Blaster, and Spell Track.

### **3.5 The Collaborative Board**

The collaborative board is one of the most stimulating intelligent developments that can be used by school librarians to display or disseminate information contents to a given group of users/learners in an interactive form. Omieibi-Davids (2014) submits that the collaborative board has unique features for library instructions that are astonishing. It allows the school librarian to create, organize, store, and manipulate information or lesson content, draw, color increase, and decrease the sizes of objects to make learning delightful. The collaborative board could be described as a large computer tablet that can be used in the smart library to interact with the learners. It helps enrich educational activities and increase collaboration

between the teachers and the learners. With the collaborative board, the librarian can scroll through pages perform zoom functions, and rotate objects where necessary during information display or presentation.

#### **4. FACTORS MILITATING AGAINST THE USE OF EMERGING INTELLIGENT TECHNOLOGIES IN SCHOOL LIBRARIES**

There are several factors militating against the use of emerging intelligent technologies in school libraries, these include.

##### **4.1 Absence of Technological Literacy**

Technological literacy entails the ability of the librarian to reliably use appropriate technological tools to resolve problems, manage, evaluate, and create or provide information capable of satisfying or answering users' queries. A good number of school librarians lack the technical know-how to excellently utilize these technological tools. Okwu and Oporum (2020) affirmed that most librarians lack the required technological skills needed for the effective utilization of emerging technologies in the 21st century. This poses a boundless threat to the integration and proper utilisation of these technologies in school libraries.

##### **4.2 Poor Attitude of Library Personnel**

The library personnel are a vital instrument in the library. Hence, the success or failure of the library depends largely on the library personnel. The library as a service-oriented organisation cannot use these technologies if the attitude of librarians towards these technologies is negative. Today, technophobia has become the other of the day among librarians, they do not see the use of emerging intelligent technologies in the library as an option. This is an internal de-motivator that has hindered librarians from equipping themselves with technological knowledge to fascinate the use of these technological tools. They still prefer the manual way of rendering services which is time-consuming and could affect the time of users/learners. The attitude and acceptance of the new technologies by librarians are worrisome (Idoniboye-Obu & Oporum, 2022).

##### **4.3 Poor Funding**

The cost of procurement and installation of emerging technological tools in school libraries spells impossibilities to school owners and school managers because of funds. Funding is a key factor for the effective and smooth running of any organization, of which the school library is not an omission. Lack of adequate funds is a major problem confronting the use of emerging intelligent technologies in school libraries today. It is important to note that the quality of technological tools provided in school libraries is partly a function of the quantum of funds available. The fund is required for the acquisition and maintenance of technological infrastructures. School libraries are often starved of vital funds that should be used for the acquisition of these technological tools.

##### **4.4 Power Outage**

This has to do with the momentary interruption of power, especially electric supply. Lack of suitable power supply is one of the problems facing the utilisation of emerging intelligent technologies in school libraries in Nigeria. Facilities installed in smart libraries require a power supply to function effectively. The absence or irregularities in the supply of power pose a great challenge to the use of these technologies.

#### **5. CONCLUSION AND RECOMMENDATIONS**

The technological revolution has steadily permeated every aspect of society, including the school library system. The effectiveness and consequent realization of corporate goals are heavily reliant on emerging intelligent technologies. The growth of emerging intelligent technologies is transforming many aspects of the library including library design, information quality, and mode of service delivery. The incorporation of emerging technologies into school libraries increases learners' interest and the quality of outcomes in the educational process. It introduces innovations, creativity, and flexibility into learning, providing both educators and learners with the problem-solving and survival abilities required in a digital society. Smart

school libraries are still a possibility at the elementary and secondary school levels if these technologies are properly adopted.

The following recommendations were made to facilitate the incorporation and use of emerging intelligent technologies in school libraries:

- i. School librarians should urgently acquire the appropriate technical skills required for the correct use of emerging intelligent technology.
- ii. School librarians should regard emerging intelligent technologies as agents of library transformation since this will help them accept and employ such technologies.
- iii. The Universal Basic Education Board (UBEB) and the National Association of Proprietors of Private Schools (NAPPS) should embark on regular training and retraining of school librarians on how to use these technologies as this will improve learning activities; and
- iv. There should be an improvement in the supply of electricity in the country by the Government. Where this is not achievable, schools should provide an alternative means of power to avoid power interruption and its resultant consequences on the use of emerging intelligent technologies in school libraries.

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