Transiting From Physical To Digital Librarianship in Nigerian Schools: The Place of Assistive Technologies

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Abstract
This paper investigated the place of Assistive Technology (AT) in the process of transiting from physical to digital librarianship in Nigerian schools. Survey method was used to carry out the research and total enumerative techniques in addition to interview were employed in eliciting information from the respondents. Sixty copies of questionnaire distributed for analysis were collected. The response rate was at 100.0%. The data collected was analysed using simple percentage and percentile rank. Majority of the respondents agreed that Assistive Technologies have place in the process of transiting from physical to digital librarianship in Nigerian schools. It was revealed that librarians have to be trained on the use of Assistive Technologies if positive transition from physical to digital librarianship is to be attained. The study also submitted that digital librarianship is all about making use of relevant information technology whose components consist of assistive technologies which the engine room for successful transition from physical to digital librarianship and the sustenance of its effective operation. The paper concluded that the use of assistive technologies would enhance the effective transition from physical to digital librarianship in Nigerian schools.

Keywords: *Digital librarianship, Assistive technologies, Transition, Information technology. Physical librarianship.*

Introduction

Transiting from physical to digital librarianship in Nigerian Schools is no more a means to an end, but rather an end to a means. The era of physical librarianship is gradually paving way for digital librarianship going by the rate at which technology is taking over information processing activities and the faster means of transmitting and accessing information so processed. A couple of years back, library automation was the common language among library practitioners but this gradually admitted the use of data bases and other form of technologies that are making librarianship easier and providing faster access to information. Librarians were custodians when information were kept in books for storage and retrieval following the five laws of librarianship as propounded by Ranganathan (1957). However, by providence, the fifth law says that library is a growing organism which transited to mean that librarians should be ready at all time to adapt to new technological developments and by implication, the need to transit from physical to digital librarianship is a necessity in the modern-day information utilisation while assistive technologies are emerging to assist this transition from physical to digital librarianship.

Physical library, sometimes called conventional or traditional manual libraries are based on physical container of information and this information is directly and also physically accessed. Sirgh, (2003). The purpose of traditional library otherwise known as physical library is to acquire

books and non-book materials and systematically arrange materials that are acquired and make them available for readers and researchers. In schools, most students use libraries for various purposes to read/study, borrow books, use reference books or search for after study materials that are related to their study area. Physical libraries provide the students the needed study environment, silent rooms study carrels to protect them from distractions and in some cases rooms for group studies or discussion. Physical libraries utilisation requires physical presence at all times before activities can take place.

Digital librarianship is the practice of managing collection of information, with associated services, where the information is stored in digital formats and accessible over a network. A key part of this practice is that the information is managed. A stream of data sent to earth from a satellite is not a library. The same data, when organized systematically, becomes a digital library collection. Most people would not consider a database containing financial records of one company to be a digital library, but would accept a collection of such information from many companies as part of a library. Digital libraries contain diverse collections of information for use by many different users. Digital libraries range in size from tiny to huge. They can use any type of computing equipment and any suitable software. The unifying theme is that information is organized on computers and available over a network, with procedures to select the material in the collections, to organize it, to make it available to users, and to archive it.

In some ways, digital libraries are very different from traditional libraries, yet in others they are remarkably similar. People do not change because new technology is invented. They still create information that has to be organized, stored, and distributed. They still need to find information that others have created, and use it for study, reference, or entertainment. However, the form in which the information is expressed and the methods that are used to manage it are greatly influenced by technology and this creates change. Year in and year out, digital libraries build up quality and variety of collections in digital forms in large quantity and make them available to the end users with the support of ICT facilities. This helps to stimulate how people create information they access and how they use it.

Information and communication technology (ICT) could change individuals' lifestyle within a short time. Librarianship is one of the professions that accepted large number of changes brought by the advent of ICT. ICT's role in librarianship is so important to both the practitioners and the library users. In physical form librarianship, students' study and carry out researches rigorously and the total flow of information availability is unilateral. By applying ICT in librarianship, in addition to basic library routine skills, individuals need ICT usage skills too. However, in this era, according to Abbas and Faiz (2013) every student is well aware of technology especially students of higher education due to electronic and social media. Unlike traditional or physical library, digital library is the combination of other libraries through networks, which users can access from home or work, and this makes it more accessible. Computers are better in searching, browsing and finding an information faster for reference work which involves repeated leaps from one source to another Lee et al (2005).

Generally, libraries, both traditional and digital one have three roles in education: (1). place for sharing information, (2). maintaining ideas, and (3). give awareness to bring together individual with learning aims. Primary purpose of each library is supporting, facilitating, and expanding

formal education in mother organization. Next step is to support informal education. Resources in libraries are collected to support learning. Digital libraries provide immediate access to a wide range of sources that does not exist physically, in comparison with traditional libraries that are limited to place and time. Digital libraries without physical obstacles can provide resources via an internet connection each moment from each place. Because of these advantages in digital libraries, learning is independent. Digital libraries provide appropriate opportunities for learners, because of including up-to-date information. Collecting multimedia resources made it possible for remote learning.

While buttressing the usefulness of ICT in learning and its relationship with library activities, Abbasi (2012), noted that ICT could solve lots of flaws and shortcomings of educational systems and make essential transformation in educational system. This evolution according to Abbasi makes changes in the role of instructors and librarians better, easier and faster. In this manner, there is no obligation to face to face and physical presence in the library or attending classes, and this will make expected learning to become possible out of physical places in a way that learners can share and use information limitlessly. Abbasi developed five steps structural viewpoints of libraries which include; traditional libraries in which most resources are printed materials. Most of the library services such as cataloguing, classification, and reference services to clients are manually done by librarians; automated libraries in which resources did not change or differ from first generation but library services are done by automated and computational machines; electronic libraries which is a mixture of both electronic and printed resources but mostly contained electronically resources and services; digital libraries with distinctive feature of digital resources and services which provides quick access to information resources to users and virtual libraries which represents the modern day generation of libraries otherwise called "libraries without walls". This means that all resources, services, and access to library are provided through the web.

Essence of digital library

Abbasi (2012) also listed the essence of digital library claiming that the fundamental reasons for building digital libraries is a belief that they will provide better delivery of information than was possible in the past. Abbasi explained that traditional libraries are a fundamental part of society, but they are not perfect. Enthusiasts for digital libraries point out that computers and networks have already changed the ways in which people communicate with each other. In some disciplines, they argue, a professional or scholar is better served by sitting at a personal computer connected to a communications network than by making a visit to a library. Information that was previously available only to the professional is now directly available to all. From a personal computer, the user is able to consult materials that are stored on computers around the world. Conversely, all but the most diehard enthusiasts recognize that printed documents are so much part of civilization that their dominant role cannot change except gradually. While some important uses of printing may be replaced by electronic information, not everybody considers a large-scale movement to electronic information desirable, even if it is technically, economically, and legally feasible. Some of the potential benefits of digital libraries listed in Abassi (2012) include:

Bringing the library to the user

To use a library requires access. Traditional methods require that the user goes to the library. A digital library brings the information to the user's desk, either at work or at home, making it easier to use and hence increasing its usage. With a digital library on the desk top, a user need never visit a library building. The library is wherever there is a personal computer and a network connection.

Computer power is used for searching and browsing

Computing power can be used to find information. Paper documents are convenient to read, but finding information that is stored on paper can be difficult. Despite the myriad of secondary tools and the skill of reference librarians, using a large library can be a tough challenge. A claim that used to be made for traditional libraries is that they stimulate serendipity, because readers stumble across unexpected items of value. The truth is that libraries are full of useful materials that readers discover only by accident. In most aspects, computer systems are already better than manual methods for finding information. They are not as good as everybody would like, but they are good and improving steadily. Computers are particularly useful for reference work that involves repeated leaps from one source of information to another.

Information can be shared

Libraries and archives contain much information that is unique. Placing digital information on a network makes it available to everybody. Many digital libraries or electronic publications are maintained at a single central site, perhaps with a few duplicate copies strategically placed around the world. This is a vast improvement over expensive physical duplication of little used material, or the inconvenience of unique material that is inaccessible without traveling to the location where it is stored.

Information is easier to keep current

Much important information needs to be brought up to date continually. Printed materials are awkward to update, since the entire document must be reprinted; all copies of the old version must be tracked down and replaced. Keeping information current is much less of a problem when the definitive version is in digital format and stored on a central computer. Many libraries provide online the text of reference works, such as directories or encyclopedias. Whenever revisions are received from the publisher, they are installed on the library's computer. The new versions are available immediately.

The information is always available

The doors of the digital library is never close; about half the usage of a library's digital collections was at hours when the library buildings were closed. Materials are never checked out to other readers, miss-shelved or stolen; they are never in an off-campus warehouse. The scope of the collections expands beyond the walls of the library. Private papers in an office or the collections of a library on the other side of the world are as easy to use as materials in the local library. Digital libraries are not perfect. Computer systems can fail and networks may be slow or unreliable, but, compared with a traditional library, information is much more likely to be available when and where the user wants it.

New forms of information become possible

Most of what is stored in a conventional library is printed on paper, yet print is not always the best way to record and disseminate information. A data base may be the best way to store census data, so that it can be analyzed by computer; satellite data can be rendered in many different ways; a mathematics library can store mathematical expressions, not as ink marks on paper but as computer symbols to be manipulated by programs such as Mathematica or Maple. Even when the formats are similar, materials that are created explicitly for the digital world are not the same as materials originally designed for paper or other media. Words that are spoken have a different impact from words that are written, and online textual materials are subtly different from either the spoken or printed word. Good authors use words differently when they write for different media and users find new ways to use the information. Materials created for the digital world can have a vitality that is lacking in material that has been mechanically converted to digital formats, just as a feature film never looks quite right when shown on television.

The concept of assistive technology

Ahmad (2015) explains that Assistive Technology' broadly spells out a continuum of tools, strategies, and services that match a person's needs, abilities and tasks, and includes evaluation of the needs of an individual with a disability, a functional evaluation of the individual in the individual's customary environment, and the selection, designing, setting, customization, adaption, application, maintenance, repair, and replacement of assistive technology services, and their coordination with the existing education and rehabilitation plans and programs for inclusive development. Akpan and Beard (2013) also define Assistive Technology as special tool designed to enhance academic outcomes, performance, and longevity of all individuals, not just students with special needs in the general classroom. As defined by the Individuals with Disabilities Education Act Amendments (IDEA) of 2004, Assistive Technology is “any item, piece of equipment, or product system that is used to increase, maintain, or improve functional capabilities of individuals with special need” {Part A, Sec. 602 (1)}. It enables all students to be successful in the general education classroom (Moore 2012).

IDEA (2004) equally defines AT as an item or piece of equipment or product system either acquired commercially, off the shelf, modified or customized and used to increase, maintain or improve an individual’s functional capability for an individual with disabilities. The U.S. Congress according to Ahmad (2015) supported the effective use of AT in the classrooms on two fronts. First, AT can be used to reduce cost and eliminate potential barriers that may block instruction and improve teachers’ ability to better address the needs of all students. Mobile technologies, such as smartphones and tablet computers are profoundly impacting the way students send and receive information, thus revolutionizing the education of all students. They provide new channels for social mobility outside the limits of space and time. Students can communicate, collaborate, and share all sorts of information and files nationwide with friends and family members. They can interact and socialize crossing geographical boundaries and bridging many obstacles between individuals. This revolution opened new ways of communication such as email, online forums, blogs, and social networking.

Assistive products are essential tools to compensate for impairment or loss of intrinsic capacity; reduce the consequences of gradual functional decline; reduce the need for careers, for primary and secondary prevention; and to help rationalize health and welfare costs (WHO 2017).

Assistive products are also used to prevent impairments and secondary health conditions. Assistive products include devices, equipment and instruments, such as wheelchairs, hearing aids, spectacles, pill organizers and artificial limbs, as well as information and communication technology, such as memory aids, specialized computer hardware and software and customized telephones. Priority assistive products are the products that are essential to "maintain or improve an individual's functioning *(WHO 2016)*.

Migration from physical to digital librarianship. The place of Assistive Technology

The word transition according to Longman dictionary of contemporary English (2017), is described as 'change to a new start or start using something new. It went further to qualify it to be when something changes from one form or state to another. The exposure of students nowadays has shown the necessity for digital librarianship. There is an urgent need to change the way we have traditionally perceived, designed, produced, manufactured, distributed, serviced and financed assistive products, drawing on a people-centred approach, with the ultimate aim of inclusive information accessibility – leaving no one behind, and realizing the aspirations of the schools to provide qualitative teaching and learning with the academic support provided by the library. Librarians in schools need to act urgently to migrate from physical to digital librarianship and fast track access to assistive technology.

Assistive technologies are in various categories and have different areas of functionality as presented in table 1.

Table 1: Use and Application of Assistive Technology in Education

Category Area of Function	Assistive Technology Applications
Reading	Electronic books, Book adapted for page turning, Single word scanners, Predictable texts, Tabs, Talking electronic devices/software, Speech Software
Writing	Pen/Pencil grips, Templates, Word processors, Word card/book/wall, software, Spelling/Grammar checker, Adapted papers
Math	Calculators, Talking Clocks, Enlarged Worksheets, Voice Output Measuring Devices, Scientific Calculators
Vision	Eye glasses, Magnifier, Screen Magnification, Screen Reader, Braille Large Print Books, CCTV, Audio Lesson Tapes
Hearing	Hearing Aids, Pen and paper, Signaling Devices, Closed Captioning
Computer Access	Word prediction, Alternative Keyboards, Pointing Option, Switches, Voice recognition software
Augmentative/ Alternative Communication	Communication Board, Device with speech synthesis for typing, Eye gaze board/frame, Voice output device

Adapted from Ahmad (2015).

Research questions

1. Is migration from physical to digital librarianship in Nigerian schools a necessity?
2. Are you familiar with the concepts of assistive technologies?
3. Are assistive technologies an agent of necessity in the migration from physical to digital librarianship in Nigerian Schools?
4. Are you knowledgeable in the use of ICT for information retrieval and utilisation in school libraries?

Research Methodology

This study adopts descriptive survey research design to gather information. The population of the study consists of students and staff of Osun State College of Education, Ilesa Osun State, Nigeria. A sample size of 60 respondents were randomly selected from library users comprising of 40 students and 20 staff members. The research instrument adopted for the study was the questionnaire titled: Migrating from Physical to Digital Librarianship Questionnaire (MPDLQ) consisting of 20 items needed to elicit information for the study. The instrument was subjected to reliability and validity test. The instrument was administered to the respondents with the help of Library Assistants. The retrieved data were collected, collated and analysed using frequency counts and percentages.

Findings and discussion of results

Research question 1: Is migration from physical to digital librarianship in Nigerian schools a necessity?

Table 2: Respondents View on Migration From Physical To Digital Librarianship

Items	F	SA %	D %	A %	SD %
My school library should be automated.	60	52 87.0	0 0.0	8 13	0 0.0
Migration from physical to digital librarianship is a welcome development.	60	50 83.0	1 2.0	8 13.0	1 2.0
AT will facilitate seamless migration from physical to digital librarianship.	60	50 83.0	1 2.0	8 13.0	1 2.0
Digital library will enhance my research potentials more.	60	52 87.0	1 2.0	6 9.0	1 2.0
Migration from physical to digital librarianship is rather unnecessary.	60	2 3.0	4 7.0	0 0.0	54 90.0

Table 2 shows that those who agreed that migrating from physical to digital librarianship in Nigerian schools is a necessity in the present digital information age ranked high cumulatively with automation and enhancement of research potentials taking 100.0 and 100.0% respectively. The finding was in agreement with Secker (2005) that digital library's concept have been known as best tool for providing services and delivering educational materials to learners.

Research question 2: Are you familiar with the concepts of assistive technologies?

Table 3: **Respondents View on Familiarity With The Concepts of Assistive Technologies**

Items	F	SA %	D %	A %	SD %
I have good knowledge of assistive technologies	60	40 67.0	4 7.0	10 17.0	6 10.0
AT in school libraries will provide access to computer utilisation	60	40 67.0	3 5.0	9 15.0	8 13.0
AT would serve as gateway for linkage between the school library and the global world.	60	39 65.0	7 12.0	6 10.0	8 13.0
AT will enable time management in study activities	60	40 67.0	3 5.0	9 15.0	8 13.0
AT will enhance faster information gathering and Processing	60	40 67.0	4 7.0	12 20.0	4 7.0

Table 3 reveals that a vast majority of the respondents are familiar with the concept of assistive technologies with 67.0% and strongly agreed on all the variables regarding their levels of awareness. This is in tandem with the submission of Edyburn (2009) that librarians and information seekers are becoming well informed on the usefulness of assistive technologies in performing research and academic activities.

Research question 3: Are assistive technologies an agent of necessity in the migration from physical to digital librarianship in Nigerian Schools?

Table 4: Respondents View on Assistive Technologies as Agent of Necessity in the Migration From Physical to Digital Librarianship in Nigerian Schools

Items	F	SA %	D %	A %	SD%
AT plays an important role in migrating from physical to digital librarianship	60	40 67.0	6 10.0	10 17.0	4 7.0
AT will encourage use of library.	60	40 67.0	8 13.0	10 17.0	2 3.0
AT will distract students from making effective use of the library.	60	8 13.0	5 8.0	2 3.0	45 75.0
AT for visual activities is a necessity for library users	60	46 77.0	6 10.0	4 7.0	4 7.0
AT will enable faster communication between the library and library users.	60	46 77.0	5 8.0	4 7.0	5 8.0

Table 4 discusses AT as agent of necessity in the migration process from physical to digital librarianship. The results revealed that AT is a necessary agent in transiting from physical to digital librarianship with 84.0% respondents affirming that it plays an important role while 10.0% disagreed and 4% Strongly disagree. The total summation of the percentage of agreement is higher than those of disagreement. This agrees with W.H.O. (2011) that without assistive products, people who need them are at risk of exclusion, isolation and poverty, and may become a burden on their family and society. This implies that AT is an agent of necessity in the migration process.

Research Question 4: Are you skilled in the use of ICT for information retrieval and utilisation in school libraries?

Table 5: **Respondents View on Possession of ICT Skill for Information Retrieval and Utilisation in School Libraries**

Items	F	SA %	D %	A %	SD%
I can use ICT for reading purposes only	60	40 67.0	6 10.0	10 17.0	4 7.0
ICT is useful for writing purposes	60	40 67.0	5 8.0	10 17.0	5 8.0
ICT is useful for both reading and writing	60	40 67.0	5 8.0	10 17.0	5 8.0
AT will facilitate training of staff and students on the use of ICT in Nigerian schools	60	40 67.0	4 7.0	10 17.0	6 10.0
ICT will reduce stress and tension associated with research activities in school libraries.	60	44 73.0	3 5.0	6 10.0	7 12.0

Table 5 deals with skills of using ICT for information retrieval and utilisation in Nigerian school libraries. This concept came into being as a result of the importance of ICT in digital information activities. Sixty seven percent of the respondents, in each case, affirmed their knowledge in the utilisation ICT for reading, writing and both combined respectively while 73.0% affirmed that ICT will reduce stress and tension associated with research activities in school libraries. This agrees with the submission of Amusa and Adesoye (2018) that ICT skills influence the use of electronic resources by law lectures.

Summary and conclusion

Digital librarianship is all about making use of modern-day information technology whose components consist of assistive technologies which has been affirmed as the backbone for successful transition from physical to digital librarianship and the sustenance of its effective operation. Therefore, the use of assistive technology would enhance the transition from physical to digital librarianship in Nigerian schools. Consequently, training and retraining of library personnel is highly essential for the attainment of successful transition from physical to digital librarianship. Nigerian schools should invest in the deployment of assistive technologies and migrate from physical to digital librarianship as this this will facilitate the provision of qualitative and quantitative information products and services to staff, students and researchers and also enhance the effectiveness of librarians in the discharge of their duties.

Recommendations

1. To ensure access to assistive technologies in Nigerian school libraries, government should follow up with a more in-depth assessment of the need for and supply of assistive technologies in each library and develop a plan for the provision of assistive technology accordingly.
2. School librarians should fashion out the modus operandis for the adoption of assistive technologies in library development.

3. Librarians should explore digital tools (including assistive technology) that can be used to present core content and provide the needed academic supports so that all students can access the library resources.

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