CHAPTER THREE

PRIMARY SCHOOL LIBRARY AS A FUNDAMENTAL TOOL FOR EDUCATIONAL DEVELOPMENT IN BASIC SCIENCE AND TECHNOLOGY

Essien Edem UDO, *Ph.D*
Science Education Department
Faculty of Education
University of Uyo, Uyo

AND

Arit Okonobong ATAKPA, *Ph.D*
Department of Early Childhood Education,
Akwa Ibom State College of Education,
Afaha Nsit

ABSTRACT

This study assessed the primary school library as a fundamental tool for educational development in basic science and technology. Primary school libraries have been appraised as a predictable segment of the educational system. It is the backbone of fundamental tools for educational development without which academic excellence cannot be achieved in basic science and technology. Education can only be achieved through a well-equipped library, and students must be educated on how to retrieve and use the available library resources to meet their information needs in basic science and technology. Thus, school library services are considered to be the cornerstone of nursery and primary education, but unfortunately, less attention is given to their needs and provision. If the World Declaration on Education was hinged on basic learning which includes both tools and content and the tools here include literacy, numeracy, and problem-solving while content includes knowledge and values, then library services at this level deserve better attention. It is on this bias that the paper recommended out of many others that the government provide each primary school with a befitting library that is well equipped with current primary school collections.

KEYWORDS: **Primary School, Library, Educational, Development, Basic Science and Technology**

INTRODUCTION

A primary school library is a type of library that supports school programs as well as the teaching and learning process. The primary school library complements the school by encouraging private study, which is required by students and teachers who want to attain an academic height. The primary school library stands as a symbol of the truthful expression of man's knowledge and experiences (Busayo, 2011). Primary school libraries have been appraised by different scholars as a predictable segment of the educational system. Thus, it is an integral part of the educational system that cannot be ignored without jeopardizing the quality of education in schools. The school library,

therefore, is an important part of elementary, middle and high school programmes, without which students would not thrive academically and would find it most difficult to do research before they reach the college level. Keith (2004) stated that the mission of education can only be achieved through a well-equipped library, and students must be educated on how to retrieve and use the available library resources to meet their information needs. Children and teachers need library resources and the expertise of a librarian to succeed.

Cummins (2001), as cited by Adeniji (2006), sees the primary school library as the heart and soul of the educational system. Daniel (2004) observes that the library remains the power house of educational institutions and that an education without a library is like a motor car without an engine and a body without a soul. Smith (2002) stated that the primary school library is the backbone of functional education without which academic excellence cannot be achieved. Obviously speaking, both the library and primary school are inseparable twins that one ceases to function well without each other. The school library is the one found in primary and post-primary institutions where educational services are offered to patrons of the library.

THE CONCEPT OF BASIC SCIENCE AND TECHNOLOGY

All over the world, attention has been focused on science and technology so that there can be social, economic and even political development. The 21st century world is driven by science and technology. Okebukola (2005) describes science and technology as the engine for national growth and development. It is therefore understandable that nations across the globe place emphasis on science education. And Nigeria is no exception to this drive. In Nigeria, emphasis has been laid on science and technology education because of the domineering power it has on national development (Edward, 2011). Holbrook (2011) sees science education as education through science, while Ogunniyi (1982), cited in Okorie (2012), describes science education as "education in science". Simply put, science education is a field of study that concerns itself with the production and promotion of a scientifically literate society in which citizens should be able to apply basic science principles in dealing with real world issues and concerns. According to Ewesor and Itie (2015), basic science and technology is the way in which children and learners in primary schools try to learn and understand their environment and observe and explore the world around them. Afuwape and Oriola (2017) noted that basic science and technology are to provide background knowledge on manpower training in applied science, technology and commerce, to provide preliminary knowledge and acquisition of skills necessary for physical, agricultural, industrial, commercial, and economic development, to provide students with early basic scientific knowledge to contribute to the improvement and convenience of many, and to give an introduction to students who want to be professionals in the field of science and technology.

TEACHING BASIC SCIENCE AND TECHNOLOGY EDUCATION IN NIGERIA

The primary school teacher who is engaged in the teaching of basic science and technology needs to be very careful because this is the age or level where children come across science and technology for the first time in their lives. The teacher also needs to design ways of making children develop an interest in science and, thus, overcome any negative influence on their learning of science. And also strive to develop teaching materials that will be highly motivating to catch the interest of the children when they

are still young. The teacher should aim at developing the cognitive, affective and psychomotor abilities of the child because education is supposed to effect the development of the child. Ewesor and Itie (2015) noted the following reasons for teaching basic science and technology at primary level:

- helps pupils to develop social skills, e.g. establishing friendships while working co-operatively in groups.
- helps pupils to explain events in nature.
- It enables pupils to think and reason in a logical manner.
- teach pupils to solve simple problems they encounter on a daily basis.
- helps pupils to employ scientific knowledge and concepts to better their environment.
- helps pupils use their brains and hands simultaneously.
- It helps pupils satisfy their natural curiosity through opportunities to carry out scientific investigations.
- helps pupils to develop a positive attitude towards work and makes work easier and more productive.
- encourage critical thinking and creativity (National Teachers Institute 2007)

The basic science and technology education has its own peculiar nature and demands that while teaching it, the teacher should take note of the pupils' feelings, beliefs, attitudes, integrity, cleanness, punctuality and respect for elders. Science is the discovery of something, whereas technology is the doing or ways of doing something rather than just saying (i.e., active learning must occur). Without a doubt, science education in primary schools should include observing students' behaviour on tasks that are similar to those commonly required to function in the world outside of school (Ewesor and Itie, 2015).

THE SCHOOL LIBRARY AND THE EDUCATIONAL FOUNDATIONS OF PUPILS

Library instruction improves students' achievement of institutional core competencies and general education outcomes such as inquiry-based and problem-solving learning, including effective identification and use of information, critical thinking, ethical reasoning, and civic engagement. The school library's collections, services, and environment are all designed to help your school meet its targets and goals for raising pupils' achievement (National Library, 2020). The purpose of your school library is to help every member of your school community and pupils gain new knowledge, skills, and dispositions for learning and personal development that they will use throughout their lives. Other benefits to pupils are:

Supporting the literacy of pupils and reading: School libraries are places for learning and thinking. They play a key role in supporting and developing literacy and the enjoyment of reading. As Joy Cowley writes, 'A sanctuary, a mine of treasure, a house of maps to secret lives in secret worlds, and the library became my other home. Reading engagement contains strategies and ideas for creating a reader-friendly library.

School libraries improve pupils' horizons: The school library encourages curiosity, innovation, and problem-solving. It is integral to the cultural and social life of the school pupils. The school library is a central point for all kinds of reading, cultural activities, access to information, knowledge building, deep thinking and lively discussion. Research shows the significant difference well-resourced libraries can make to pupils' learning outcomes more proactive.

Enriching teaching and learning programmes among pupils: The school library is uniquely positioned to take a school and curriculum-wide view of resourcing and technology for learning. Library staff are valuable members of the curriculum planning and instruction teams within the school. They have a broad knowledge of inquiry models, information texts and tools, and literature to suit pupils at all levels. They also work with individual staff and pupils to understand their particular information or reading needs, then help them access the materials they need. The school library provides information and ideas that are fundamental to functioning successfully in today's information and knowledge-based society. The school library equips pupils with lifelong learning skills and develops the imagination, enabling them to live as responsible citizens."

FUNCTIONS OF THE CLASSROOM LIBRARY

If you think of a classroom library as a cozy, welcoming space where students can read quietly or browse through a rich collection of texts, you are only partially correct. The fact that classroom libraries are places for storage and quiet is only one small part of their purpose. They are, in the broadest sense, the backbone of classroom activity. Much of what goes on each day draws from or occurs in or around the resources and space within the classroom library. As we see it, there are at least five important functions of an effectively designed classroom library.

Supporting Literacy Instruction: The first function of a classroom library is to support reading and writing instruction in school and out. To this end, furnish your classroom library with books and other media materials to support student learning in the daily curriculum subjects. Include materials related to science, health, mathematics, history, economics, geography, music, art, drama, dance, languages, grammar, spelling, literature, computers, and other topics. Build an adequate collection of fiction and nonfiction materials at enough different levels to accommodate the many interests and abilities of students designed to check out books for take-home reading.

Helping Students Learn about Books: Next, an effective classroom library provides a place for teachers to teach and children to learn about books and book selection. Here, children can experience a variety of book genres and other reading materials in a smaller and more controlled environment than in school or the public library. You can also use the classroom library to teach students how to take care of books. You can set up a book repair area for instruction on repair, and display a poster with clear directions on how to mend torn pages, remove marks in the books, cover frayed edges, or fix broken bindings. The classroom library is also a great place to teach students effective strategies for selecting relevant, interesting, and appropriate reading materials. A good classroom library helps students locate books easily and gives them room to get comfortable.

Providing a Central Location for Classroom Resources: You can also use your classroom library as an organized central storage location for classroom instructional resources. Here is additional space for organizing science equipment, audio players, DVDs, computers, games, magazines, and other materials that support learning. In this respect, the classroom library mirrors the organization of media centers at the individual and district levels.

Providing Opportunities for Independent Reading and Curricular Extensions: The fourth important function of a classroom library is as a resource and location for independent reading, personal exploration, project research, and individual assessment. Every good comprehensive reading program provides students daily time to read independently. The classroom library is typically the resource that supports children's daily independent reading of self-selected books that meet their personal, recreational reading interests. The classroom library also provides students with readily accessible print materials, expository books, computer technology, and media for conducting research or completing curricular extension projects. Further, an in-class library offers a setting for students to quietly read aloud and discuss a book with a peer or the teacher. This provides an ideal opportunity for you to conduct an informal assessment of each student's reading, which will help you to plan individualized instruction.

Serving as a Place for Students to Talk About and Interact with Books: The effective classroom library also functions as a gathering spot where students and teachers can express their lives as readers. Think of it as a place that makes books exciting, that sells reading. It should be a place students can't wait to get to. Here they can talk about their reactions to books, write a critical review and share it with peers, or draw a poster to advertise a favorite book.

CHILDREN'S LIBRARY IDEAS

Useful children’s libraries can spur an increase in patronage among parents and other adults who accompany children to the library and find something delightful for themselves. However, making useful children’s library ideas takes some planning (Franz, 2015).

Challenge Kids with a Library Scavenger Hunt: This is a great familiarization exercise to help children find their way around their local library. Draw up a list of different types of book for children to find, for example, an information book, a picture book, a book by an author with the same initials as them and award points for each one they track down.

Summer Reading Challenge: The Summer Reading Challenge runs in the vast majority of libraries. Useful children are challenged to read six books over the summer holiday, with rewards such as certificates and stickers up for grabs.

Join a children's book club: Many libraries run book clubs just for children, with regular meetings to encourage young readers to make new friends and discover a range of books, from classics to the contemporary.

Enroll in the Children’s University: The Children’s University is an initiative for five-to 14-year-olds that encourages them to learn new skills. Children are issued with a passport and collect stamps for every hour spent on educational activities, culminating with a ceremony.

Listen to a story: Story time sessions are popular events in many public libraries, and while they're usually aimed at pre-scholars, younger school children can normally join in during the holidays. Often, there are activities such as colouring or singing to accompany the stories of the week.

Earn an Arts Award: The Arts Award is a scheme for young people, helping them explore their artistic side and develop their skills and knowledge.

Become a writer: Library-run creative writing workshops are a good place for them to discover their inner writer. There's often a book-inspired theme, along with lots of lively discussion and sharing of ideas, and support from authors or library staff. Some libraries also run writing contests to encourage children to explore their creative side.

THE ROLE OF NIGERIAN PRIMARY SCHOOL LIBRARIES IN STUDENT LITERACY

Libraries are as important for children as education itself. A library service implies both the availability and accessibility of library facilities and services to the user and the willingness and ability of readers to use the facilities and services. Information is power and access to information is indispensable to individual advancement as well as corporate educational development. Children need the library for effective learning for lifelong education, in consonance with the National Policy on Education (2003), which states that the aim of basic education is to equip individuals with the knowledge, skills, and attitudes that will enable them to:

- Live meaningful and fulfilling lives.
- Contribute to the development of society.
- Derive maximum social, economic, and cultural benefits from society.
- Discharge their civil obligations.

Stressing the role the library plays in the environment of learning, Travaline (2007) maintains that today's libraries are like big playgrounds waiting to be explored, and the librarian is the best playmate: one who makes the playground worthwhile. Herbert (2002) agrees, saying that children's literacy develops and emerges as they explore and participate in a literacy-rich environment. At the center of such an environment are books and other resources with contents that are familiar and appealing to children. Despite changes to the educational system, changes which have also occurred in developing countries, the central importance of the library and its learning resources have not diminished. These resources facilitate the acquisition of physical and intellectual skills necessary to assist the individual to develop literacy for lifelong education as a useful member of his community and also to acquire an objective view of the local and external environments (Ekpenyong 2001). The Education for All (EFA) framework on action for meeting basic learning needs is to recognize libraries as invaluable information resources which must work in partnership with school and community workers. Obanya (2002) explains that the library curriculum should be part of basic education. He added that this will ensure the following:

- Developing interest in print and photographic materials, through (a) being read to (b) enacting scenes depicting what was heard (c) retelling the stories heard in

one's own words and (d) undertaking out-of-class assignments related to what was read in class.

- Extensive reading habits develop in the middle years, through systematic exposure to a variety of carefully graded reading materials.
- Intensive reading habits develop in the final years through (a) systematic exercises in reading for detail, (b) exposure to technical vocabulary in a variety of areas, (c) explorations with graphs, tables, and other forms of graphic materials, and (d) systematic training in the use of dictionaries, atlases, thesauri, and encylopedia.
- Self-collection training in collecting, storing, and retrieving whatever teaching-learning materials one can find at all levels of primary and secondary education.

In some parts of Nigeria, most children (especially those from rural areas or economically disadvantaged backgrounds) first meet books and reading materials in school, and have limited access to them in the home and in the community. The school library encourages its users to fully accept the responsibility for education and development. School libraries should give individualized service, making sure that every library user gets information that meets his or her particular needs. It should also serve as a laboratory for its users to practice the skills of using indexes, abstracts, bibliographies, and catalogues. Other tasks for the teacher librarian include:

- Inviting authors and subject specialists for lectures and informal talks.
- Organizing educational and recreational film screenings as well as radio book talks. Children and youths will be directed toward continuous and lifelong learning.
- Display of books and posters to reflect current events, fellow students' creative works, and children in other parts of the world. These types of activities will create awareness and curiosity.
- Friends of the library club: The activities of these clubs include reading together with children and helping them prepare library guides, simple teaching aids, and reading competitions. Excursions to other schools and libraries are also beneficial.
- School library magazines: Articles for the magazine should be from the school children, to help develop writing skills.
- Other activities include story hours, book talks, and the like. These activities, when well planned, provide much scope for advising and guiding children in their reading and for developing the habit of lifelong learning.

The role of libraries in Nigerian primary schools has been widely discussed in library and basic science and technology. It is established that the role of Nigerian primary school libraries is changing due to digital environments and the need to prepare independent learners. The role of the primary school's library has transformed now from developing reading habits among children to building information skills (searching, organizing, using) and critical skills (thinking, evaluating) (Easley and

Yelvington, 2015; O'Connell et al., 2015). School libraries have long had the challenge to provide a hybrid (print and electronic information sources) learning environment for children. Asselin (2004) asserted that the meaning of literacy has changed dramatically from reading and writing to learning new information and communication technologies. However, this development creates a digital divide, which is a gap between those who can use information and communication tools effectively and those who cannot. Multiple factors have caused the digital divide globally. It is a significant barrier in accessing and using information. Singh (2003) claimed that school libraries can play an important role by creating awareness, proving access to information, and building necessary information skills in the school community at an early stage.

The situation of primary school library services is disappointing (Haider, 2008). Non-availability of children's literature, lack of professional librarians and no regular provision of budget are the major issues of school libraries. (UNESCO-IBE, 2007 & Khan, 2013) confirmed the missing facilities in primary schools library, specifically non-availability of libraries and librarians in public (state) schools. The researchers identified limited research based studies on the role of school libraries in Nigerian. Therefore, it was highly desirable to study the role of the school libraries and what school children understand about libraries. The present study included investigation of the role of primary school libraries and the children's conceptions of the library. The reason to select primary schools library rests on the statistics reported by Lynd (2007); he claimed that the education system specifically focuses on primary schools and more children are attending this level of education than middle (6-8 grades), secondary (9-10 grades), high secondary (11-12 grades) and higher (13 grade or above) educational levels (i.e. many children do not attend school beyond the primary level).

NEED OF LIBRARY STUDY FOR NURSERY AND PRIMARY SCHOOLS

School library services are considered to be the cornerstone of nursery and primary education, but unfortunately, less attention is given to its needs and provision. Dike (2003) opined that for education to be learner-centred, resource-based, and skills-oriented, the school library must be brought from the periphery to the centre of education. Primary schools with a strong school library program and a certified school librarian ensure their students have the best chance to succeed in life. More than 60 education and library research studies have produced clear evidence that school library programs staffed by qualified school librarians have a positive impact on student academic achievement (ALA 2019). These studies clearly demonstrate that strong school library programs help all students do better academically, even when other school variables are considered:

- Nursery and primary school libraries need a safe and nurturing climate during the day, as well as before and after school. They are often the only place open to all pupils, where a school librarian can support them across grade levels and subject matter.
- Nursery and primary school librarians need to connect other educators to current trends and resources for teaching and learning. They are essential partners for all teachers, providing print and digital materials that meet diverse needs and offering opportunities to deepen student learning.

- Nursery and primary school libraries need programs to foster critical thinking, providing pupils with the skills they need to analyze, form, and communicate ideas in compelling ways.

- Nursery and primary school libraries are learning hubs and homework help centers where pupils can use technology to find the best information resources. Strong school library programs instill confidence in reading, which is fundamental to learning, personal growth, and enjoyment.

The effective delivery or need for a library for nursery and primary schools is contingent on the facilities that support library needs such as book materials, personnel, space, and new information and communication technologies. For nursery and primary schools to provide an enabling environment for teaching and learning, the factor of qualified personnel must be considered (Gbadamosi, 2011). If the World Declaration on Education was hinged on basic learning which includes both tools and content and the tools here include literacy, numeracy, and problem-solving while content includes knowledge and values, then library services at this level deserve better attention. Nursery and primary school libraries need adequate manpower, children's fiction and non-fiction collections, teacher collections, audio-visual equipment, and information and communication technologies (ICT).

CHILDREN NEED BASIC SCIENCE AND TECHNOLOGY SKILLS

Science helps children develop key life skills, including an ability to communicate, remain organized and focus and even form their own opinions based on observation. Science also helps children develop their senses and overall awareness. Basic technology skills also promote higher-order thinking skills that lead to independent learning and social responsibility, and foster conceptual skills such as the ability to think holistically, synthesize information, and create meaning for children (Terborg, 2008) Basic science and technology literacy is provided primarily in subjects such as Mathematics, Computer Science, Physics, Chemistry, Biology, as well as in manual skills subjects (at vocational schools). Subjects such as Civics, Sociology, and Economics are affected indirectly, since they help to understand the importance science and technology have in our society. Large areas of knowledge can no longer be taught comprehensively without basic education in science and technology. The role that basic science and technology have played in improving living conditions across the globe is vivid, but the benefits have yet to be harvested to their maximum by all countries. Basic science and technology has made life a lot easier.

IMPACT OF LIBRARY AND INFORMATION SCIENCE ON BASIC SCIENCE AND TECHNOLOGY

Libraries and information centres play an essential role in meeting society's information needs. Omekwu (2004) observes that "Information Technology has brought about various forms of libraries and modes of disseminating information." Information Technology (IT) in libraries is having a remarkable impact worldwide. It has become a phenomenon that is so pervasive that nearly all academic libraries in Nigeria have begun applying IT. Nwalo (2000) also observed that the application of IT to library services has brought about tremendous improvement and makes possible more services. Libraries are important indicators of growth and development. They provide scientific services, fulfill social needs, and help individuals flourish. Library and

information science is recognized as a special need to change in order to strengthen development. According to Mohammed (2004), electronic and computer technology have come to remove most of the limitations on access and use of information resources and services. Instead of "written words", we now have "electronic words" existing as bits and bytes of computer memory. Accepting basic science and technology students into library and information science programs is another prospective scheme. LIS programs have responded to the expectations of the profession of basic science and technology. It is a necessary reform for academic institutions to incorporate library and information science training apparatus, and instructors for basic science and technology preparation.

THE PLACE OF THE LIBRARY IN BASIC SCIENCE WITH CASE STUDIES

Many programs have been formulated in favour of library formation to promote basic science. For instance, in fall 2005, Dana Medical Library at the University of Vermont (UVM) established a formal liaison program to serve patrons in the college of medicine (COM), college of nursing and health sciences, and its primary teaching hospital, Fletcher Allen Health Care (FAHC). The program involved assigning academic departments and programs to specific librarians to provide instruction, conduct literature searches, advocate for collection needs, and serve as a conduit for communication between the library and its patrons (Haines, O'Malley and Delwiche, 2010). After two years, distinct differences in the level of response to the liaisons' efforts among the various departments in the COM became apparent. From the first year to the second year of the liaison program, interactions between the library and the clinical departments increased by over 50%, whereas the number of interactions between the library and basic science departments remained the same. Seeking an explanation for the different responses, the librarians realized that their knowledge of the information needs and behaviors of researchers in the basic science departments was minimal at best (Case, 2002).

As stated by Haines, et. al. (2010), because the library already had ample data about use of its resources through journal use studies and circulation statistics, a decision was made to focus instead on the information-seeking behavior of this population and how it applies to library services. A team of four librarians was formed to study the unique information-seeking habits of basic science researchers in the UVM College of Medicine, with the ultimate goal of designing a suite of library services that would better meet their needs. In particular, the team sought to determine how faculty researchers in the basic sciences find the information they need and what library services are useful to them. In his 2002 survey of research on information-seeking behavior, Case reported that “Information seeking is a topic that has been written about in over 10,000 documents from several distinct disciplines” (Haines, et. al, 2010). Examining the literature since 2000, the team discovered several behavior studies of academic researchers, including physical scientists, life scientists, social scientists, and humanists (Research Information Network, 2006).

Many other studies have been published that focus on the information-seeking behavior of health care practitioners in a wide range of occupations and settings (Andrews, Pearce, Ireson and Love, 2005). However, “Researchers and clinicians, even those in the same college, often have very different information needs,” with clinicians requiring quick, concise information and researchers requiring more in-depth

information. Only a few studies were found that focused on the information-seeking behavior of basic science researchers (Grefsheim and Rankin, 2007). A majority of these user behavior studies employed surveys and questionnaires to gather descriptive data on the information-seeking behaviors of various groups, with many of them focusing on the library resources used, but not necessarily the library services needed (Guo, Bain and Willer, 2008; Tannery, Wessel, Epstein and Gadd, 2007). Although such studies might indicate how often various resources or services are used, they do not explain why patrons choose a particular resource or service or why basic science researchers do not use the library in general. In a similar manner, information from studies using surveys is limited by the number of questions that can be reasonably asked, structure of the questions, and choices provided (Detlefsen, 1998). Similarly, in a study conducted by Haines, et. al. (2010) on information-seeking behavior of basic science researchers to inform the development of customized library services. They noted that the basic science researchers used a variety of information resources ranging from popular internet search engines to highly technical databases. They generally relied on basic keyword searching, using the simplest interface of a database or search engine. They were highly collegial, interacting primarily with coworkers in their laboratories and colleagues employed at other institutions. They made little use of traditional library services and instead performed many traditional library functions internally.

SUMMARY

In summary the primary school library is a central point for all kinds of reading, cultural activities, access to information, knowledge building, deep thinking, and lively discussion among primary school students. The lack of basic science and technology library facilities such as current books and technology equipment has discouraged some primary school students from using the library for studying basic science and technology. However, the primary school library has transformed now from developing reading habits among children to building information skills (searching, organizing, using) and critical skills (thinking, evaluating) among children to improve their academic performance in school.

RECOMMENDATIONS

1. The government should provide each primary school with a befitting library that is well equipped with current primary school collections.

2. The government and educational boards should encourage primary school students with poor study habits to test basic science and technology libraries to develop appropriate and effective study habits that will go a long way with them to the university level.

REFERENCES

Adeniji, M. A. (2006). Use of School libraries by teachers in Ogun State. *Nigerian School Library Journal.* 5(2).

Afuwape, M. O. and Oriola, B. O. (2017). Skills in Basic Science and Technology for Local Technology and Entrepreneurship in Nigeria. *International Journal of Engineering and Advanced Technology Studies*, 5(1), 80-89.

American Library Association {ALA} (2019). School Libraries. Available at: https://www.ala.org/news/state-americas-libraries-report-2019/school-libraries

Andrews, J. E., Pearce, K. A., Ireson, C. and Love, M. M. (2005). Information-seeking behaviors of practitioners in a primary care practice-based research network (PBRN). *J. Med. Libr. Assoc*. 93(2):206-12.

Asselin, M. (2004). New literacies: Towards a renewed role of school libraries. *Teacher Librarian*, 31(5), 52-53.

Busayo, I. O. (2011). The School Library as a Foundational Step to Children's Effective Reading Habits. *Library Philosophy and Practice (e-journal).* 665

Case, D. O. (2002). *Looking for information*: a survey of research on information seeking, needs, and behavior. Boston, MA: Academic Press.

Daniel, C. I. (2004). Efforts/Activities at schools' level by Principals, Headmasters, PTA to support provision of library services in school: the case of Abuja Federal Capital Territory. *Nigerian School Library Journal* 5(1).

Detlefsen, E. G. (1998). The information behaviors of life and health scientists and health care providers: characteristics of the research literature. *Bull Med Libr Assoc*., 86(3):385-90.

Dike, V. W. (2003). *Library Resource in Education Enugu*: ABIC, P. 21.

Easley, M. & Yelvington, M. (2015). What's in a name: Reimagining the school library program. *Teacher Librarian*, 42(5), 21-23.

Edward B. (2011). *Basic Education*: Building Blocks for Global Development, Academy for Educational Development, 16.

Ekpenyong, S. (2001). *The book as an instrument for national integration and development*. Education Today.

Ewesor, S. E. and Itie, B. (2015). Basic Science and Technology Education and Development in Nigeria Beyond 2020. *Knowledge Review*, 33(3), 15-21

Federal Republic of Nigeria (2003). *National policy on education*. Lagos: Government Printers.

Franz, R. (2015). *Make your Children's Library a Destination*. Available at: https://ideas.demco.com/blog/make-your-childrens-library-a-destination/

Gbadamosi, B. O. (2011). *Developing Library Services for Universal Basic Education*: A Case Study of Library Services for Universal Basic Primary Education in Oyo State, Nigeria.

Grefsheim, S. F. and Rankin, J. A. (2007). Information needs and information seeking in a biomedical research setting: a study of scientists and science administrators. *J. Med. Libr. Assoc*. 95(4):426-34.

Guo, R., Bain, B. A. and Willer, J. (2008). Results of an assessment of information needs among speech-language pathologists and audiologists in Idaho. *J. Med. Libr. Assoc*. 96(2):138-44.

Haider, S. J. (2008). Fate of school libraries. *Pakistan Library & Information Science Journal*, 39(3), 2-5

Haines, L. L., O'Malley, D. and Delwiche, F. A. (2010). Information-seeking behavior of basic science researchers: implications for library services. *J. Med. Libr. Assoc*. 98(1): 73–81.

Herbert, E. H. (2002). Kindergarten works programme Guide N.

Holbrook, J. (2011). Enhancing scientific and technological literacy (STL): A major focus for science teaching at school. *Journal of the Science Teachers Association of Nigeria*, 46 (1), 9-34.

Keith, C. L. (2004). *The impact of school media centers on academic achievements*. Available at: http://www.news.66c.co.uk/2/hi/uk-news/educational/249463.stm.

Khan, A-Q. (2013). School main libraries ki kami, talba main kutabbeni ka sauq madom ho gya. [Lack of libraries in schools: students lack reading habits]. Roznama Dunya Lahore.

Lynd, D. (2007). *The education system in Pakistan*. Retrieved from http://unesco.org.pk/education/teachereducation/files/sa4.pdf

Mohammed, H., (2004) *The Relevance of Information and communication Technology to Information Professionals of the Digital Age*: Challenges for Library and Information Centres.

National Library (2021). *Purpose of the school library*. Available at https://natlib.govt.nz/schools/school-libraries/understanding-school-libraries/

National Teachers' Institute (2007). *Manual for the Re-Training of Primary School Teachers*. Basic Science and Technology. A Millennium Development Goals Project Kaduna. National Teachers' Institute.

Nwalo K.I.N (2000) *Collaboration in the Provision and Utilization of IT Facilities for Library and Information Science Education in Nigeria*. In Papers Presented at the 10th Biennial Conference of Nalise.

Obanya, P. (2002). *Revitalising education in Africa*. Ibadan: Stirling Horden

O'Connell, J., Bales, J. & Mitchell, P. (2015). Evolution in reading cultures: 2020 vision for school libraries. *The Australian Library Journal*, 6464(3), 194-208

Okebukola, P. (2005). *The race against obsolescence: Enhancing the relevance of STAN to national development*. Memorial Lecture of the August 2005 Annual conference of Science Teachers Association of Nigeria. STAN memorial lecturer series No 17.

Okorie, E. U. (2012). Basic Science and Technology Teacher Capacity Development: Beyond Pedagogy. *International Journal of Educational Research*, 12(1), 136-143

Omekwu, C.O., (2004), Analysis of the Current Challenges in Accessing Legal Information.

Research Information Network (2006). *Researchers and discovery services*: behaviour, perceptions and needs. London, UK: The Network.

Singh, D. (2003). *Reducing the Digital Divide*? The Role of School Libraries. International Association of School Librarianship. Selected Papers from the Annual Conference. (pp. 323-330)

Smith, D. (2001). Massachusetts reaches out and spreads the word about library media centres. *Book Report* (19) 14,10-11.

Tannery, N. H., Wessel, C. B., Epstein, B. A. and Gadd, C. S. (2007). Hospital nurses' use of knowledge-based information resources. *Nurs. Outlook*, 55(1):15-9.

Terborg (2008) *Basic education in science and technology.* Available at https://assembly.coe.

Travaline, K. A. (2007). *Explore the playground of books*: Tips for the parents of beginning readers. Newark, DE: International Reading Association.

UNESCO-IBE. (2007). *World data on education*. 6th ed. Retrieved from http://www.ibe.unesco.org/