

**CATALOGUING EDUCATION IN THE DIGITAL ERA: THE NEED FOR  
CURRICULUM REFORM FOR THE WORLD OF WORK**

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**Abstract**

Cataloguing is a vital component of librarianship profession, but the decline in cataloguing education has resulted in a decline in the quality of records being contributed to bibliographic databases. Hence, the need for cataloguing education curriculum reform in this digital era where digital seems everything and everything seems digital is inevitable. The paper focuses on cataloguing education in the digital era and the need for curriculum reform for the world of work. There is outstanding evidence that cataloguing education which is the hallmark of library and information science profession will go into extinction if nothing is done to revive it through proactive curriculum reforms that drive in the digital era. Thus, cataloguing education should incorporate the rationale for verity of the profession in a changing world work.

**Key Words:** Cataloguing, Cataloguing Education, Digital era, Curriculum and Curriculum reform

**Introduction**

Cataloguing is regarded as the cornerstone of the library, since it provides the gateway to library resources, a critical aspect of the library work without which there would be total chaos in the organization of library materials, making location and use of such materials almost impossible (Monyela, 2021). It is the kitchen that cooks the food being served and eaten in other sections other library. Rafiu and Nwalo (2016) opined that cataloguing occupies an important place in the field of librarianship, a vital process in providing adequate access to library resources. Cataloguing which is the gateway to information resources access and utilization and

the means of organizing library resources in order to ensure that access and retrieval of such information resources are made easy (Akidi, & Omekwu 2019). It is the core of the library profession. It is therefore mandatory that a student who is aspiring to be a professional should be skilled in that area. Cataloguing education through curriculum reforms is expected not only to meet up with the new demands but to also prepare LIS students with the modern cataloguing skills to thrive in an era where the competencies and knowledge they will need to succeed are continuously changing.

Consequently, cataloguing been central to the educational overhaul of library and Information science education and the hub around which librarianship revolves should be reformed. It is pertinent that cataloguing curriculum should be reformed to reflect the changes that are taking place in the world of work. Twining et al. (2021) affirmed that in an effort to meet these changes brought by digitalization, many countries are re-designing their curricula so as to better prepare young people now and in the future.

New knowledge and the use of new technologies have resulted in the creation of new products, services, and jobs, some of which were unimaginable in the past. These converging trends have put tremendous pressure on educational and other social systems responsible for preparing the society for the future and moderating the adverse impact of social and economic change. However, this is not about learning about digital technology per se, it is about how the digital era impacts on all aspects of education (Twining et al. 2021). To participate in this change, cataloguing education curriculum needs to be improved so that students can graduate with a deeper understanding of cataloguing and technology. They will need skills necessary to respond to an unbounded but uncertain 21st century—skills to apply their knowledge to real-world

situations, to think critically, to collaborate, to communicate, to solve problems, to create, and continue to learn (Kozma, 2008). Thus, cataloguing education cannot afford to be inert when its environment is shifting to an inclusive and quality curriculum, orchestrated by the digital era. This is because the digital era has brought about the use of Classweb, WebDewey, MARC records, change from AACR 2 to RDA and about to move further to Bibframe, etc in tools used for cataloguing education.

Cataloguing cannot keep answering the heart of librarianship when it is still be detested by some students and librarians because of its tedious and manual processes still in use in most library schools in Nigeria, while other aspects of the profession including the library patrons have all embraced digital transformations. This changes and more has placed demand on cataloguing education to produce graduates that can cope with these global and rapid technological advances in the present day society. Therefore, the central focus of this paper is to x-ray cataloguing education in this digital era through curriculum reforms in order to produce competent and skilled cataloguing librarians to function effectively in the world of work.

## **Overview of Major Concepts**

### ***Cataloguing education***

Careers in librarianship are incomplete without a deep knowledge of cataloguing education. Cataloguing education is the training given to LIS students to make them competent, proficient and skilled in cataloguing processes using various cataloguing tools. According to Ogunniyi (2015) Cataloguing education in library schools is to produce librarians and information scientists that are capable of effectively managing library and information centres after graduation. Cataloguing and classification education requires students to acquire theoretical

and practical knowledge on how to organise and retrieve information resources with minimum ease. Luther (2010) further asserted that cataloguing courses have always held a prime position in the curricula of library schools from its inception. Moreover, Gourkova (2007) opined that the cataloguing librarians have been the cornerstone of library services for centuries. The quality of their education highly influences their ability to effectively deal with the versatile challenges in the demanding field of knowledge management

### **Digital era**

Digital era or age is the present time, in which many things are done by computer and large amount of information are available because of information technology. The digital era is the age characterized by the use of digital technologies to carryout activities/functions initially done without such technologies. Cataloguing education has transformed tremendously due to the introduction and adoption of digital technologies to meet the society`s information needs.

### **Curriculum Reform**

Curriculum can be seen a detailed roadmap for teaching and learning that ensures teachers accountability and set standards for the learner to acquire specific knowledge and skills. Similarly State of Rhode Island, Department of Education defined curriculum as a standard-based sequence of planned experiences where students practice and achieve proficiency in content and applied learning skills. It is also a guide for all educators as to what is essential for teaching and learning, so that every student has access to rigorous academic experiences. The structure, organization, and considerations in a curriculum are created in order to enhance student learning and facilitate instruction. Curriculum must include the following -

**Goals** - Goals must include the breadth and depth to which a student is expected to learn.

**Methods** - are the instructional decisions, approaches, procedures, and routines that teachers use to engage all students in meaningful learning.

**Materials** -are the tools selected to implement the methods and achieve the goals of the curriculum and

**Assessments**-These includes a variety of ways to evaluate and appraise what the student knows, understands, and can do with the knowledge and skills acquired through the curriculum.

While Reform is defined according to Oroka and Ejiogu (2008) as a change made to a system or an organization in order to improve it. The term reform is etymologically derived from the Latin root *reformare*, which means “to shape”. It is a verb that refers to improvement by alteration, a correction of error or removal of defects (Ejedafiru and Oghenetega, 2014). Reformation is the process of improving a situation or to make a system work more effectively. A reform is a long process or programme that begins with problems identification study and analysis and ends with the evaluation and continuation or termination of the evaluation and continuation or termination of the programme. It involves among other things, the development of policy alternatives, experimentation, implementation and feedback. The progressive and successful professions will always ensure that their educational system responds to, or moves in tandem, with its ever changing needs. The central meaning of reform is change and one of the areas that have experienced tremendous change in librarianship is cataloguing, where ICT has tremendously changed cataloguing activities. Eniekebi (2020) noted that libraries are a classic example of how automation has changed conventional ways of working, particularly in cataloguing departments — changing how cataloguing is done, and by whom it is done. Ajibero (2003) also states that the

functions of catalogers have totally changed as a result of the effect of ICT on technical services. Cataloguing education in most library schools in Nigeria in particular is majorly theoretical rather than practical. This inadvertently result in the production of ill-equipped graduates who do not have the requisite skills and competences required for the present-day world of work. Amaewhule (2007) stated that; experts, researchers and scholars agree that global competition and rapid technological advances have changed radically the nature and content of the world of work along with the skills required to get the job accomplished. Measuring the full impact of change requires an in-depth focus on the future.

Curriculum reform in this digital age is no longer a new concept in the academic world, as the only permanent thing is change. The present-day paradigm shift in cataloguing activities brought about by the revolution in Information and Communication Technology (ICT) require a proactive training and ICT skill acquisition in order to fit into the new digital environment. Hence, curriculum reform according to Ogwo (2021) is a process of positive changes in the education policy, putting right what is wrong, improvement from deficiencies, initiating ideas, inculcating innovations and action plans and total overhaul of the curriculum to reflect quality training forthe changing environment. It is a transformation plan that brings about a systematic change in educational theory and practice in any educational system. For any curriculum to be relevant, it has to be flexible and dynamic in order to accommodate changes. Thus, reforming any curriculum therefore supposes that the curriculum should be redesigned to accommodate new knowledge, skills and practice. This begs the question ‘What does a quality curriculum look like in a digital era?’ According to Twining et al. (2021) this involves discussion of:

(a) What knowledge, competencies, attitudes and values today's school students need to thrive and shape their world

(b) How school systems can develop such knowledge, competencies, attitudes and values effectively

A quality curriculum would be a 'plan for learning' which supports young people in acquiring the knowledge, competences and dispositions needed to be successful in the digital era. The integration of ICTs in curricula is a complex endeavor in which many stakeholders are involved. To better understand the problems related to the implementation of such complex changes as the integration of ICTs in education, a distinction is often made between the intended, the implemented and the attained curriculum. Intended, implemented and attained curriculum refers to different curriculum representations. The intended curriculum is the curriculum as intended by policy-makers, as written down in policy documents and curriculum documents. The implemented curriculum refers to the way teachers understand and implement curriculum policy in educational practice. The attained curriculum describes the outcomes of the curriculum: how did students experience the curriculum and what did they learn. These curriculum representations offers a useful framework for understanding and studying the gap between curriculum policy and educational practice. Hence, the basic objective of Cataloguing education remains unchanged, which is to equip LIS students for various library activities and to provide trained manpower that will be interested in cataloguing and classification to be able to place in the hand of a user, the needed information materials without wasting time and with little effort. Thus, for departments of LIS, to keep pace with the developments have brought several changes in LIS education including curriculum, methods of instruction, use of IT in teaching, learning, etc to equip their

students with relevant skills to produce librarians who are intelligent, skilful, resourceful, dedicated, innovative, have initiative and keen interest in performance of routine task (David-West and Wali, 2020). The ultimate expectation is that LIS graduates would be equipped, with relevant knowledge and skills for survival in this digital era. Which will be achieved through the inculcation of the right professional values and altitude for the survival of individuals and the acquisition of skills, abilities and competences both mental and physical as equipment for the individual to live and contribute to the development of his society. All of these, will be achieved through, the instrumentality of conscious and purposeful cataloguing education reform.

### **World of Work**

It is seen as a place where people work or are employed, also termed as “Work world, Working World, Employment (Rivera, Colfax & Diego). The nature of the world of work is constantly reshaped/changed by technological advancements, global integration and innovations. It is where theoretical education is applied to real work situations, hence the call for an inclusive, diverse and equitable education. Thus, the education world is buzzing with talks on how to equip graduates with 21<sup>st</sup> century skills. Engaging with the world of work helps young people understand the relevance of what they are learning at school, broadens their horizon, raises their aspirations and highlights the range of jobs and career pathways to them

### **Key Competencies in Cataloguing Education in the Digital Era**

- **Technological and media competent** - correct tools; operate equipment and applications; use them to manage, analyze, integrate, evaluate and create information in a variety of forms.
- **Effective communication:** crafting and executing effective oral, written, and multimedia communication in a variety of contexts.



- **Critical thinking:** Sound reasoning in understanding and making complex choices in selecting subject headings, understanding and interpreting cataloguing rules and standards; understanding the interconnections among classification schemes, classes, subclasses etc.
- **Problem solving:** identify and analyze complex, ill-structured problem situations, plan solutions, make decisions, apply solutions flexibly, evaluating results and revise solution
- **Collaboration:** Demonstrating teamwork and leadership; adapting to varied roles and responsibilities. Searching and researching new techniques and technologies for cataloging, share findings with colleagues, and make recommendations for its implementation

### **Rationales for Curriculum Reforms in Cataloguing Education**

Rationales form the backbone of the intended curriculum. Rationales for ICTs in education provide policy-makers and other stakeholders (e.g. industry, academia, professionals in education ) with arguments for the utilization of ICTs in education.

- **Social rationale:** As societal values and expectations changes it can prompt curriculum reforms. In this contemporary times were everything is digital, it has tremendously affected cataloguing education. Especially in the method of teaching and the facilities used for training future cataloguers. Jain (2023) opined that the increasing importance of technology in our daily lives have led to changes in school curriculum. Thus, for cataloguing to meet the needs of the contemporary world of work, cataloguing education curriculum urgently requires a reform to accommodate digital skills in order to prepare students for their place in society. These digital skills requires students to be ICTs compliant in order to be a competent cataloguer as most tools for teaching and learning cataloguing are now digitalized such as RDA now replaces AACR 2, ClassWeb and WebDewey taking over LC Subject Headings and Schedules.

•**Vocational rationale:** In this digital era, the importance of cataloguing education curriculum reform cannot be over emphasized. Curriculum reform is an important and necessary measure to make education enter the 21st century digital era learning and respond to a fast-changing world of work. In recent years, many countries have engaged in curriculum reform as a way to equip students with the knowledge, skills and competences needed for tomorrow (Organization for Economic Co-operation and Development OECD, 2020).

• **Pedagogical rationale:** In this digital era, pedagogical methods have drastically changed and a curriculum that will incorporate this change is inevitable and cataloguing education curriculum will not be an exception. Cataloguing education curriculum urgently needs a reform as the pedagogical resources and facilities have changed from analogue to digital forms such as AACR 2 replaced by RDA and very soon BIBEFAME, but African Countries especially Nigeria is yet to come to terms with the use of RDA not to talk of using BIBEFAME and Subject Headings and Schedules now have digital version now known as ClassWeb and WebDewey.

**Catalytic rationale:** Curriculum being a powerful knob for changing students performance, interests and for preparing them to thrive in and shape the future, it has to be in harmony with the contemporary happenings in the society. By being current, updated, relevant and in synergy with the world of work. Consequently, for any curriculum to be relevant in the digital era, it must be related to the role ICTs may have in realizing educational change. Therefore, reforming cataloguing education curriculum in a digital era through the adoption of ICT in cataloguing education process is a viable option for producing competent and skilled cataloguers, entrepreneurial minded-graduates, eliminate cataloguing phobia and stop the extinction of cataloguers in the information society where information overload is the order of the day and the

organization of those information and providing access to them should be top priority. Ukpe (2013) stated that certainly, the application of ICT plays a key role in facilitating learning and enhancing the quality of education. Hence, improved education is essential to the creation of effective human capital in any country (Elod, 2007).

- **Technological advancement Rationale** :Technological advancement which is an improvement on the technological tools used in the teaching and learning environment can prompt the need for curriculum reform. Emerging technologies such as such as robots, artificial intelligence and machine learning have greatly advanced the world of work and have greatly improved the speed and quality of goods and services(West, 2020). Cataloguing education curriculum needs to move with the terrain in order to remain relevant and viable in the world of work. For instance, AACR2 has an advanced version RDA and even the RDA is on the verge of being replaced with BIBFRAM, subject headings and schedules advanced version (ClassWeb and WebDewey) that is being updated on daily basis. All these technological advancements are propelled by the digital era. Jain (2023) acknowledged that the wide spread availability of digital learning tools and online resources have led to a greater focus on blended learning and personalized instruction.

- **Educational Rationale:** In this digital era, education has become a lifelong learning process, which can be accessed and acquired anytime, anywhere and anyhow. So, the rationale for curriculum reforms is to transform educational structures with the aim of raising quality graduates and also making teaching and learning updated, meaningful and effective. According to Wiki Educator (2009) the convergence of increased demand for access to educational facilities and innovative communications technology can lead to a change in curriculum in order to

accommodate more flexible learning styles. For this rationale to be effective, educators need to equip to with make the curriculum more effective. UNESCO International Institute for Educational Planning (2023) affirmed that when teachers are digitally literate, it will lead to a higher level of thinking skills, provide creative and individualized options for students to express their understanding and leave students better prepared to deal with ongoing technological change in society and the world work.

- **Economic Rationale:** Economic factors such as changes in the world of work, job market workforce needs and funding can propel curriculum reform. When the knowledge being passed on to students aligns with what is obtainable in the contemporary world, it will reduce the organizations cost of training and retraining new employees the promotion of the ICT industry in education. The curriculum should ensure a correlation between the "town and gown". The town (organizations, industries) who are the receivers of the end product of the gown (high institutions) should be in synergy in order to satisfy the needs of the world of work in the digital era.

- **Globalization rationale:** as curriculum plays a vital role in shaping the society through education. Globalization has brought about curriculum reform as it seeks to make the world more connected and better informed than ever before. Global education interconnects methods of teaching and learning from worldwide systems to prepare students for multinational roles. Globalization enhances students ability to acquire and utilize globally accepted educational standards by increasing students access, assess, adopt and apply knowledge, to think independently to exercise appropriate judgment to collaborate with counterparts across the globe to make sense of new situations. Globalization causes fundamental changes that is necessary to

bring curriculum practices into alignment with new patterns of knowledge production and utilization in the workplace.

• **Research and Development rationale:** The shift from the industrial to the information society, the outcome of research and development can greatly influence curriculum reforms. As researches and developments go on, on how best to teach and learn in this digital era, the tendency to reform curriculum to accommodate the outcome of those researches cannot be overlooked. With the development of digital tools for cataloguing that came into play as a research of research and development, which more student-friendly, less time consuming and less cumbersome. It will better prepare and train students for the world of work, thereby increasing efficiency and boosting productivity.

• **Political Rationale:** Education is not only a matter of policies and reforms but also political. It is a field of struggle between those who want to benefit a few and those who want it to benefit all. In other words, a curriculum reflects a broader social and political agreement (Amadio et al, 2016) and as such the society evolves and changes, so should the curriculum. This rationale can prompt curriculum reform by changes in government educational policies and funding. Jain (2023) affirmed that changes in government leadership policies may result in changes in education funding and mandates for certain subject areas.

### **ICT, a Tool for Cataloguing Reform**

The escalating dearth of cataloguing librarians, lack of positive interest of students in that aspect of the profession and the compelling needs to produce LIS graduates competent in cataloguing to avoid it becoming extinct have meant that LIS educators and institutions must of necessity, find the appropriate and cost effective means to respond adequately to the huge unmet

demand for cataloguing education in this digital era . This era that is dominated by ICT, yet cataloguing education has not been able to use ICT to foster effective learning and interest fully. However, it should be noted that digital technologies is a tool that can be used as a way and enabler, but not as end by itself (Ololube, Eke, Uzorka, Ekpenyoung, and Nte, 2009). ICT tools are not magical, but using the digital cataloguing tools (such as ClassWeb, WebDewey, MARC, RDA etc) can have a remarkable positive influence on student attitudes towards learning cataloguing as well as their ability to comprehend and acquire competent skills in that unique aspect of librarianship.

Consequently, the LIS programme in various Nigerian library schools should undertake reform/innovation, which should emphasize more on information and communication technology both in theory and practice.

### **ICT tools for Cataloguing**

These are ICT related tools both online and offline in use in libraries, each of which has certain features that make them suitable in the cataloguing processes. The features of the following systems are briefly highlighted below: OCLC WorldCat, Classification Web, WebDewey, The Cataloging Calculator, RDA, MARC 21, and Library of Congress Catalog.

- **OCLC WorldCat:** It is the world's most comprehensive database of information about library collections. The Online Computer Library Center (OCLC) has a huge database that contains almost all works that have been published. A major facility of the OCLC which is of immense benefit to libraries around the world is the “WorldCat” (World Catalogue). It is the manifestation of the creativity and innovation of the staff of OCLC and thousands of librarians from member libraries. This is a union catalogue that is

produced and maintained by OCLC and its member libraries. Among other benefits, the “WorldCat” is accessed via the Internet by cataloguers for bibliographical data in cataloguing and classification. It makes library collections findable and accessible around the world. Every item in the union catalogue has classification numbers of Dewey Decimal classification scheme (DDC) and Library of Congress (LC) which are the most popular schemes in the library world today.

- **ClassWeb: It is the LC classification Web.** This is the online version of Library of Congress classification Subject Headings and Schedules. It is an online integrated cataloguing and classification tool with many potentials and advantages, that assists with the assignment of LC classification numbers for bibliographic content. Access to it is by subscription. Features of the Classification Web include: Full-text schedule of all LC classification schedules and subject headings, Access to data anywhere you have a worldwide web connection, complete LC subject headings in familiar thesaurus-style display, Correlations between the LC classification numbers and LC Subject headings; All files are updated daily; powerful search and navigation tool, Automatic calculation of classification table numbers, bibliographic correlations etc.
- **WebDewey:** This is the online version of Dewey Decimal Classification Scheme that is updated quarterly. It enhances the print updates with online delivery that is updated continuously. It is designed to make cataloguing and classification activities more efficient and enjoyable by searching and browsing updated DDC numbers as well as LC subject headings and mapped MeSH subject headings.

- **The Cataloging Calculator:** It is an online cataloguing tool that finds variable and fixed MARC fields (bibliographic and authority data), language codes, geographic area codes etc. This was developed by Kyle Banarjee and is a very useful tool that allows searching and display of LC Cutter, Geographic Cutter, Geographic Area codes, country codes, language codes, AACR2 abbreviations and MARC variable fields information.
- **Library of Congress Online Catalogue (LC OPAC)** It is a database of records representing the vast collection of materials held by the Library of Congress. It displays searching aids for users such as cross-references and scope notes. The catalog records reside in a single integrated database not separated according to type of material, language of material, date of cataloging or processing/circulation status.

Hence, with the use of these ICT tools for teaching and learning cataloguing, it will increase students motivation, achievement, learning opportunity and attract positive attitudes towards the course. ICT present a range of tools that lecturers can use to present and display as part of their teaching and help educators interact with students as well as engage them in a more meaningful way. The use of ICT in teaching and learning is a relevant and functional way of providing education to learners that will assist in imbibing in them the required capacity for the world of work (Ohajanwa et al 2015). Only very few jobs today do not require the use of skills in technology, collaboration, teamwork and information, all of these can be acquired through teaching and learning with ICT.

### **Inhibitors and Drivers of Implementation Cataloguing Education Curriculum Reform**

Inhibitors for implementation of ICTs There are a variety of obstacles that hinder the integration of ICTs in the curriculum.



- Inadequate funding of Cataloguing education and LIS programmes in general, can be seen as a major obstacle for the reform. b. Insufficient infrastructure/teaching and quality learning resources which emanates as a result of prolonged underfunding.
- Critical stakeholders in LIS education lack of cataloguing knowledge and what the curriculum should look like
- Inadequate cooperative efforts in form of collaboration among LIS schools, exchange and linkages programme both locally and internationally.
- Paucity of Cataloguing lecturers. Majority of newly established LIS schools always tend to rely seriously on their institution's librarians and in some cases the use of visiting and part-time lectures.
- Poor ICT literacy and cataloguing knowledge among LIS lecturers in Nigeria which tends to affect negatively the training of potential cataloguers.

#### Drivers:

- **Enthusiastic Cataloguing educators are the lecturers that teach cataloguing courses.** They play a significant role in the curriculum reform of cataloguing education. They initiate the particular teaching method or methods, learning environment, timing, teaching and learning resources to be used for the course content. They are seen as the designers and key to the integration of digital tools in the curriculum. There is a need to develop their digital competencies to integrate technology in education effectively.
- **Inclusive Teaching Methods** the technique employed by the teachers in an attempt to convey knowledge on the learners is referred to as methodology. Therefore, the term

teaching method refers to the general principles, pedagogy and management strategies used for classroom instruction. Teaching methods are limited to the presentation of subject matter. The choice of teaching method depends largely on the teacher's educational philosophy, classroom demographic, subject area(s) and school mission statement. Akinfe, Olofinniyi and Fashiku (2012) sees teaching method as the strategy or plan that outlines the approach that teachers intend to take in order to achieve the desirable objectives.

- **Teaching/instructional resources** - are those educational resources that aids teaching and learning which can be in form of visual aids, textbooks, computers, manuals, handbooks, tools in the case of cataloguing. To affirm this Urbandale (2012) opined that the term “instructional materials” shall include printed materials and multi-media materials, and shall include materials used in the classroom and available in the libraries.
- **Instructional Timing** - refers to the timing, length, and sequence of activities involved in teaching and learning. Adjusting the time to align with the students learning ability is paramount. The ideal amount of time to allocate to lectures should depend on the nature and technicality of the course, as well as the learning goals. For instance, cataloguing courses are better taught and learnt in the morning. When the brain is still fresh and relaxed to receive new things and think appropriately because most cataloguing courses are like brain-teasers that requires critical thinking and reasoning. To support this, Monica Lesperance (2018) opined that sometimes it's obvious that the timing of specific activities leads to challenging behaviors. For example, if your schedule calls for late afternoon when most students are exhausted and become easily frustrated/distracted

during lectures or if the teacher notices more challenging behaviors at certain times of the day, it might be time to modify the time

- **Assessment/feedback mechanism** - Chandra (2019) defined assessment as wide variety of methods that educators use to evaluate, measure, and document the academic readiness, learning progress, and skill acquisition of students. Similarly, assessment according to Fareo (2020) may be defined as any method used to better understand the current knowledge that a student possesses. This implies that assessment can be as simple as a teacher's subjective judgment based on a single observation of students' performance, or as complex as a five-hour standardized test. It involves examining students work to assess the achievement of learning outcomes.
- **Teaching/learning environment** This is the location where teaching and learning takes place, which can be a physical or virtual environment. The learning environment is a composite of human practices and material systems, much as an ecology is the combination of living things and physical environment (Usman and Madudili, 2019) . Contemporary learners deserve learning spaces that meet their individual and collective needs. To meet this challenge, educational leaders must provide physical and cultural environments that are empowering and engaging (Orlu,2013). The extent to which students' learning could be enhanced depends on their location within the school compound, the structure of their classroom, availability of instructional facilities and accessories. It is believed that a school with adequate learning environment contributes to stir up expected outcomes of learning that will facilitate good academic performance, by encouraging effective teaching and learning (Duruji et'al,2014).

**Course content** - Cataloguing education course content in this digital era should reflect current and cotemporary happenings in the world of work. The content of a subject determines what method to be used to achieve effectiveness in the teaching and learning process. Cataloguing education definitely requires different teaching methods that suit the technicality of the course.

- **Learner** -The learner which are the LIS students is pivot to the teaching of cataloguing. Cataloguing being the nucleus of librarianship, lecturers will have to know the student's prior knowledge of the subject matter. Therefore, careers in librarianship are incomplete without a deep knowledge of cataloguing courses. Monyela (2021) further asserted that cataloguing courses have always held a prime position in the curricula of library schools from its inception. The students should be encouraged through proactive learning styles to develop positive attitude for cataloguing education and eliminate cataloguing phobia.

### **Conclusion**

Cataloguing education in this digital era has a lot of opportunities for LIS graduates. Most library schools have modified their curriculum to incorporate the application of digital technology to library services, in which cataloguing is not an exception, so that upon graduation the students are expected to have acquired necessary digital skills needed to be successful in this era. With the introduction of digital technology into cataloguing services it is expected that for library and information science students to succeed in future as a librarian, they must demonstrate positive attitudes and competence towards cataloguing and

classification because cataloguing and classification is the core of librarianship that cannot be overlooked.

### **Recommendations**

1. To ensure seamless infusion of the ICT in cataloguing education, digital tools, skills and assessment into Cataloguing education to enhance practical and hands on, one that encourages creativity, problem solving in other to produce graduates that can create opportunities and not always waiting for opportunities to come to them.
2. Development and implementation of strategies to ensure that all stake holders are sensitized and regularly updated current trends in cataloguing education.
3. Continuous training and retraining of lecturers to keep pace with the contemporary trends in the profession and developing appropriate course contents Delivery of adequate and appropriate digital content and learning tools for all Development and implementation of strategies to eliminate cataloguing phobia by Strengthening mechanisms to reward academic excellence.
4. Establishment of cataloguing laboratory and laboratory technologists for the promotion of cataloguing education and effective curriculum reform
5. Providing a supportive and enabling environment for cataloguing education
6. Revising the language of the cataloguing tools to address easy comprehension and understanding of cataloguing rules and standards.
7. Creating synergy between the foreign library schools, Library of Congress, LIS governing bodies and other stakeholders to enhance development of cataloguing skills and competencies by offering scholarships, sponsorships and training to developing countries to broaden the scope of that unique aspect of our profession.

8. Development of indigenous library classification schemes in order to create a pool of qualified cataloguers fully equipped to teach and practice.
9. Provision of robust, reliable and scalable infrastructure to support ICT integration in the classroom: appropriate digital devices in library schools, internet connectivity and constant power supply through renewable energy sources for sustainable utilization of ICT.

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