

Library Cataloguing and Classification:
A Study Text for Beginners

First Edition

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Foreword

I have great pleasure in writing out this Foreword to the maiden publication of the two young staff members of Mzumbe University Library, namely, Mr George Bea, Librarian and Mr Goodluck Mosha, Librarian. I wish to explain first how I came to know these two persons and how my interest in Library Information Science is coequal to my love in the literature of Legal Science so as to be able to bless the authors with a Foreword to their work.

I have worked in the Faculty of Law of Mzumbe University as a part time lecturer and in that capacity visited number of times the University Library for six years. I found these two professionals always welcoming and engaged in attending to the work of the Library and improving their capacities in the traditional and strategic concepts of the profession. When I was of the same age as these two persons, I had studied the subject of Library Science at Osmania University, Hyderabad, India, and after doing post-graduation in this discipline I worked as a Library Assistant and attended to the work of the huge libraries of the University. The relevance of Library Science to the method of citation and referencing in Law enabled me to nurture the two disciplines of Law and Library Science. That is why when these young writers approached me to write a Foreword, I agreed to do so without any hesitation.

I find that despite their busy schedules in the Library, the two have found time to publish a treatise and have done great justice to the subject by presenting what is needed by readers of this discipline. I am happy to note that they have nicely depicted the essential features of cataloguing and classification of Library materials. They have been accurate in presenting the technical features of the work, such as DDC, UDC and LCC. They have devoted the last chapter of their book to Automation which is a relatively new aspect of Library Science, and have also written on the system of acquisition of materials, the access system, the system of CD-ROM data bases on local area network (LAN) and the Internet the fastest way of searching reading materials.

The approach of the writers in presenting their work is quite good and the language in which the subject has been written is quite suitable to introduce students in levels of Certificate, Diploma and Degree in Library Science. In view of the niceties displayed in the work, I recommend it to everyone who is interested in studying Library Science, and hope that the writers will make up the deficiency, if any, in the future.

Prof. Mohammed Saheb, Hussain.
University of Dar es Salaam

Acknowledgement

This textbook is a product of two authors. However, many people have contributed directly or indirectly to its completion. Some of them have been cited individually in the references. To them and their respective publishers, we express our sincere gratitude and appreciation.

Special thanks should go to the Almighty God for giving us strength, wisdom and vision to write this book. Mr Julian Massawe who read the whole manuscript offered most valuable suggestions and criticisms that have been very helpful in the improvement of this textbook. Lastly, we thank the Director of Mzumbe University Library by then Mrs Kuzilwa for allowing us to look for materials on library classification and cataloguing and letting us borrow the said tools for as long as we needed them.

Since the book has benefited from suggestions and comments from innumerable sources, the errors, shortcomings and patches of ignorance remain the responsibility of the authors.

Preface

Library cataloguing and classification is a core activity in any library that needs to be known by both practitioners and students pursuing programmes in library and information science. This book on library cataloguing and classification: a study text for beginners was written specifically to cater for various courses in librarianship and information science that are being established in Tanzania. So far (10) academic institutions in Tanzania have established programmes in library and information sciences, these include: Moshi University of Cooperative and Business Studies (MUCoBS), Sokoine University of Agriculture (SUA), School of Library Archives and Documentation Studies (SLADS), Ruaha University College (RUKO), Tumaini University Dar es Salaam College (TUDARCo, Jordan University College (JUC), University of Dar es Salaam (UDSM), Teofilo Kisanji University (TEKU), Open University of Tanzania (OUT) and Mzumbe University (MU) which is expecting to launch certificate and degree courses in Library and Information Management in the academic year 2013/2014.

The fundamental goal that prompted authors to write this book is that currently there *are* few books on cataloguing and classification written by Tanzanian scholars. This book written by indigenous Tanzanian scholars will undoubtedly provide readers with experiences of African scholars in cataloguing and classification of library materials. It will therefore, provide students pursuing programmes in library and information sciences with basic competencies necessary to: understand different classification schemes and their origins, role of library classification with its elements in the organisation of knowledge, principles and theories of cataloguing, cataloguing of print materials and automation of library materials.

Another objective of preparing this book is to enable institutions providing programmes in library and information sciences to get books for their courses within Tanzania. The authors believe it is only through writing books that Tanzanians can catch up with the world and break away from over dependency on imported text books from developed countries at such great expenses. The desire for achievement of academic recognition is another impetus that pushed the authors to complete this work.

The idea of writing this book evolved from the authors working experiences as cataloguers in the Department of Library and Technical Services before being appointed as heads in the same department in different periods between 2003-2013. Their experiences in dealing with cataloguing and classification of varied reading materials has prompted the need to consolidate knowledge gained into a book that can provide academic staff and students a better understanding of how to organise knowledge in both libraries and information centres within and beyond our country. A general attempt has been made by the authors to keep the language and style of writing clear, direct, and simple to readers.

The first two chapters provide historical development of catalogues and cataloguing that are useful in providing background information thereby enhancing understanding about attempts done by earlier librarians in organising knowledge in libraries.

Chapter Three and Four focus on cataloguing and associated rules used such as Anglo American Cataloguing Rules. Chapter Five to Nine dwell on classification and schemes used such as Library of Congress Classification (LCC), Dewey Decimal Classification (DCC), Universal Decimal Classification (UDC) and Colon Classification (CC). Included in these chapters is information on how to describe and classify documents unequivocally.

The final attempt has been made to introduce readers to automation of library materials. The aim of the authors is not to introduce and define every term used by cataloguers and classifiers, or to touch on every phenomenon that enters in the realm of classification, cataloguing, notation and automation. The authors have therefore, been selective in providing materials that enhance understanding of the most important facts and relationships by extending treatment of these topics that they feel are of paramount importance to readers. Some of these have not previously been explored in most textbooks on classification and cataloguing.

Since it is difficult to include all aspects of cataloguing and classification in a single book, this text book has attempted to provide basics of cataloguing and classification designed to suit students pursuing introductory courses and programmes in library and information sciences ranging from certificate, diploma and first degree levels.

Students will find a number of exercises provided in the text. Some of them can be tackled through reading but others require deeper thinking and integration of ideas. Readers are advised to attempt those questions to reinforce what they have learnt in each chapter. These exercises have, for the most part, been tried in actual classes and found to be effective in rounding out the students' grasp in classification, cataloguing and library automation. Students are advised to consult other sources such as the Anglo American Cataloguing Rules, Encyclopaedia of Library and Information Science, relevant online resources and many others for additional references in keeping their individual and collective needs and goals.

It is the authors' sincere hope that readers will find this textbook useful in organising library knowledge in a Tanzanian context and elsewhere.

Mosha, G.E. & Bea, G.K. © 2013
Mzumbe University Main Library
Morogoro Tanzania

CHAPTER ONE

ORIGIN, MEANING OF CATALOGUES AND THEIR HISTORICAL DEVELOPMENT

1.0 Introduction

Do you know why this book about cataloguing and classification has started with the word catalogue? The answer is simple. Almost everyone has passed through educational system either from primary, secondary or tertiary level. At primary and secondary schools in Tanzania, there are few or no libraries at all. However, at the tertiary level (higher education) libraries do exist where books and other reading materials are kept. When new students attend classes for the first time, lecturers do provide them with list of reading books to be searched by students. The main source of these books is the library.

To determine whether the books assigned for reading are available in the library, a reader is advised to consult a catalogue whether manual or electronic, as it contain list of books available in the library. In a nutshell, a catalogue shows list of books and other reading materials which are found in a particular library. As such, it is a key to a library collection (Dagupan, 2009). Section that follow focus on the concept of catalogue in detail.

1.1 Origin of Catalogue

The word catalogue originated from the Greek phrase *kata logos*. The word “*Kata*” means by or *according to*. But the puzzles lie in the word *logos*. A variety of meanings derived from historical and philosophical thoughts have been attached to the word *logos* since during the era of New Testament in which one of its writer began his discourse with the startling statement that; “In the beginning was “*logos*”....). Philologists and philosophers are still finding difficulty in arriving at a common agreeable definition, for *logos*. This is because at times the *logos* is used to mean simply “word”, sometimes “order” and at another time, “reason”. Therefore, is a catalogue, a work in which the content are arranged in a *reasonable* way, *according to* a set plan, or merely *word by word*? An answer for this question can be found in the sections that follow:

1.2 Meaning of Catalogue

Wynar (1976a) defined catalogue as a list, arranged by alphabet, by number or by subject, of books, maps, coins, stamps, recordings or any other medium that comprises a collection. It is a list that records, describes and indexes holding of a specific collection.

On the other hand, Kumar (1990) defined library catalogue as a *list of documents* in a library or in a collection forming a portion of it.

The term *list* as used by Kumar (1990) indicates some sort of arrangements according to a set plan, whereas documents are used in the definition to refer to printed, hand written and engraved materials, including books, serials, microfilms, photographs, gramophone records and tape records.

A catalogue is therefore a list of books in a library or collection whose entries are best arranged in some systematic order. This order or mode of arrangement, determines the inner form of the catalogue (Quigg, 1968), to be explained next.

1.3 Functions of Catalogues

A catalogue has a number of functions in libraries. According to Ranganathan (1972), a catalogue helps to provide readers with answers to various questions pertaining to quest for knowledge which include but not limited to:

- Is there a book in the library by a particular author?
- Is there an author who has written a book on a particular title?
- Can there be literature in the library on a particular topic?
- How many books are there on a particular class number?

From the above questions, some of the functions of a catalogue can be noted as follows:

- Provision of suitable arrangement of library materials in alphabetical sequence according authors, titles, subjects and class numbers.
- Provision of class or call numbers for retrieval of library materials
- Facilitate selection of library materials for acquisition
- Provision of bibliographic information by readers for referencing

It is therefore, important for users to be aware of using a catalogue to be able to locate information they want from the library for reading and referencing purpose. This is in line with the observation that “library catalogue is the most important reference tool of any library” (Lehnus, 1972).

1.4 Historical Development of Library Catalogues

Library catalogues have extensive history, and can be traced back to the libraries of Antiquity. In the 7th century B.C., important libraries in Mesopotamia had author and title catalogues that were posted on walls for user convenience. Callimachus, scholar and chief librarian of the Alexandrian Library in the 3rd century B.C. compiled a huge catalogue of the works contained there, called the Pinakes. This work later became the foundation for the analysis of Greek Literature. Since then catalogues have changed dramatically over the centuries, having appeared in many forms, from clay tablets, papyrus scrolls, printed books and cards, microform, to the online versions that are prevalent today.

Antiquity

<u>Date</u>	<u>Event</u>
2000 BC	Sumerian tablet, one of the oldest lists of books, found at Nippur. Sixty-two titles were recorded on this tablet out of which 24 were titles of currently known literary works.
1500 BC	The Hittites recorded bibliographic information of written works onto tablets. Their tablets included colophons, a set of data at the end of a "document" that traced kinds of bibliographic data, such as number of the tablet in a series, its title, and the name of the scribe.
650 BC	The citizens in the city of Nineveh developed a library that provided a collection that had a systematic means of order and authenticity. Greek civilization has contributed to the incarnation of the "main entry" concept, a western civilization manifestation. Early Far Eastern societies and even today designate a work's title as its main entry.

Middle Ages

In Europe, there were churches and monastery libraries. The demand for knowledge was not of great interest to the common man and woman.

Century	
	Catalogues of library holdings during this period were largely inventories of relatively small collections.
800 -1200	There was evidence of very broad subject arrangements. The categories were usually two: Biblical and Humanistic
1300	At the end of the 13 th century, a milestone in the organization of information was attempted. That is, the <i>The Registrum Librorum Angliae</i> , a union List of holdings of English Monastery Libraries

European Renaissance

1450	The printing press was invented - creating an explosion in publishing and duplicate copies of works. The vocation of "Bibliographer" became a by-product of the existence of the printing press.
1595	<i>St. Martins Priory at Dover</i> , the first list designated as a catalogue. The catalogue had 3 sections of arrangement. Part 1. Call number - located the exact location, where a volume could be found. Part 2. Also arranged by call number. Contain the contents of each volume, with paging and opening words. Part 3. Alphabetical listing by author and title and entries of each volume found within a published work, called an analytical entry.

- 1596 Andrew Maunsell, an English bookseller, compiled his *Catalogue of English Printed Books* that was prefaced with rules of entry. Maunsell introduced the entry of personal names listed under surnames rather than forenames. This concept helped to promote the early developments of bibliographic control.

College libraries were just developing with very small collections that were arranged in an inventory fashion.

From Inventories to Codifying Devices

- 1697 Konrad Gesner published an author bibliography. Included was a preface that offered cross-references and variations of names.
- 1698 Konrad Gesner published a subject index.
- 1791 Frederic Rostgaard published a discourse on cataloguing in which he called for subject arrangement subdivided chronologically and by size of volume. Rostgaard also promoted a supplementary author index.
- 1792 Following the French Revolution, the French government sent out instructions for cataloguing the collections of the libraries that had been confiscated throughout France. This marks the first instance of a national code. Libraries were directed to make cards and holders (cabinets) for storage of cards. The reverse sides of playing cards were used as the source for recording the information.

Period of Codification

- 1831 Anthony Panizzi, a lawyer and political refugee from Italy and an assistant librarian at the British Museum was a strong advocate of cataloguing and subject analysis. Panizzi authored a cataloguing code known as the "91 rules". Panizzi is credited with the start of developing the "modern" theories of cataloguing.
- 1850 Charles C. Jewett marked the introduction of the American influence to cataloguing and arrangement. Jewett builds on Panizzi's earlier efforts. Jewett is credited with developing rules for entry as they relate corporate authors.
- 1876 Charles Cutter published his *Rules for a Printed Dictionary Catalogue*. Cutter's efforts placed emphasis on establishing rules on filing entries. Cutter was also the first to establish rules for subject headings.

1876 Melvyn Dewey issued anonymously the first edition of his classification. Dewey divided all knowledge into ten main classes, with each of those divided again into ten divisions, and each of those divided into ten sections. Dewey is a landmark in the area of classification. Now (2013) in its 23rd edition (DDC23).

Description

- In the twentieth century, the emphasis on description was rooted in codes.
- 1908 The British and the Americans collaborated on a code in 1908. This collaboration was significant, because it served as the first international cataloguing code to be established.
- 1931 Americans and Italians collaborated to publish the Vatican Code. It was quickly accepted by cataloguers in many countries as the best and most complete code in existence, but because it was written in Italian, most Americans could not apply it.
- 1935 Henry Sharp wrote about the card catalogues and said. In its more modern form, it began to make its appearance in British and American libraries around about 1876. In which year the well-known firm of Library Bureau was established, with Melvil Dewey as its head.” (Sharp, 1935). In fact, it was Melvil Dewey and Thomas Edison who studied, developed and approved it to be taught in library schools and used in all libraries.
- 1941 The British and the Americans cooperated on publishing a second edition to the volume that was written in 1908. This code was written in two parts: one for entry and heading, and one for description.
- 1941 The Library of Congress (LC) *Rules for Descriptive cataloguing*, served as a substitute to the second part of the British and the American effort.
- 1949 The revisions, *A.L.A Cataloguing rules for Author and Title Entries*, written after great criticism by Andrew Osborn in an article that he authored entitled "The Crisis in Cataloguing."
The Americans and the British collaborated to establish the Anglo-American Cataloguing Rules. Because there was disagreement on a few points, this work was published in two separate versions: North American and British.
- 1967 The presidents of the colleges and universities in the state of Ohio founded the Ohio College Library Centre (OCLC) to develop a

computerized system in which the libraries of Ohio Academic Institutions could share resources and reduce costs.

- 1974 The International Federation of Library Associations (IFLA) issued the International Standard Bibliographic Description (ISBD), produced as a means for the international communication of bibliographic information. The ISBD's objectives were to make records from different sources interchangeable, to facilitate their interpretation against language barriers, and to facilitate the conversion of such records to machine-readable form.

- | | |
|------|--|
| 1975 | The Research Libraries Information Network (RLIN) was established particularly to serve research libraries. |
| 1978 | The AACR2 was published to accommodate the developments established by the ISBD, to address non-book materials, to take into account machine processing of bibliographic records, and to reconcile with the British and American texts. |
| 1988 | A revised edition of the AACR2 was published. |
| 1998 | The latest revised edition of the AACR2R was published. |

As one looks back over the development of cataloguing codes, beginning with the rules of Trefler 1560, one becomes impressed with the fact that throughout history codes seem always to have envisaged catalogues which were far better than their contemporary catalogue. They were more complete, more progressive, and better organized. Examined from the perspective of history, codes have never been a statement of the usage of their day but rather the very means through which progress have come.

1.5 Application of the Five Laws of Library Science on Library Catalogues

The five laws of library science were developed in the early 1930's by a man named Sirkali Ramamrita Ranganathan, an Indian mathematician and librarian. He is often referred to as the father of library science for his contributions to the field: the five laws of library science, the colon classification system and faceted classification system.

The five (5) Laws of Library Science are listed below:

1. Books are for use.
2. Every reader his [or her] book.
3. Every book its reader.
4. Save the time of the reader.
5. The library is a growing organism.

The Five Laws of Library Science are a set of basic guiding principles for designing and operating a library or a library system. In fact, each one of the activities of a library may be deduced from these Five Laws. For the preparation and production of a library catalogue, a number of useful guidelines are implied in these Five Laws.

The first law 'Books are for use' indicates the necessity of organizing the collections of a library for maximum use, by providing a number of physical facilities and introducing readers' services. One such facility is the provision of library catalogue, which throws open to the users the entire collections of a library. According to this law

the physical form of the library catalogue should be such that it is flexible, can be kept up-to-date by adding entries for new document added to the library from time to time. Similarly, information about the document in the entry should be adequate to identify a document. The annotation and various notes are given to help the readers to make a choice among documents possessed by the library. Obviously without this essential and indispensable tool, users would find it difficult to use the collection. Therefore, a library catalogue is a must.

The Second and Third Laws: ‘Every reader his book’; ‘Every book its reader’ ‘imply the way a library catalogue should provide access to the collections of a library, to meet the requirements of users as children, specialist users, physically handicapped persons. Special kinds of analytical entries of documents are to be prepared to reveal the basic contents of documents. For instance, an excellent chapter on information storage and retrieval, forming part of Handbook in Special Librarianship is likely to be missed by a student of library science, if there are no analytical entries for the document.

The Forth Law: ‘Save the time of the reader’ places great emphasis on time. A catalogue should not only be simple in its design and construction but also should save the time of a reader. Every approach to a document, that is author, title, subject, series, etc. must be provided in a catalogue. Cross-reference entries, (i.e., see and see also entries) should be provided by organizing orientation courses for newcomers in the library.

The Fifth Law: ‘a library is growing organism’ enjoins a library to view the catalogue in its widest perspective, keeping in view changes and growth in the nature and variety of publications, other forms of documents, needs of users, and such other environmental factors. The advent of the computer and communication technologies has introduced far-reaching changes both the physical forms of library catalogues and in their internal structure.

Terminals of computers are located at distant parts of the library. Only one main entry is adequate to access the documents and added entries are replaced by access points. Library networks also provide access to resources of other libraries. Change is inevitable and a library should always remain alive to changes.

1.6 Types of Catalogues and Views of their Roles in Libraries

There are various types of library catalogues which can be grouped according to their forms that is, physical/outer form and inner form as explained below:

1.6.1 Physical/Outer Form of a Library Catalogue

This refers to external shape, size and appearance of a catalogue (Wijoyo, 2009). Types of physical forms of catalogues include: a sheaf form, book form, card form, microform and electronic form as explained below:

1.6.1.1 Sheaf Form: This form consists of separate sheets of papers on which entries are printed. The sheets mostly used are manila sheets which are punched on one side and loosely bound with a spiral thread. This form resembles a book form as it shares most of the advantages of the book form. It is a bit superior to the book form in the sense that it partly overcomes the non-flexibility problem faced by the former. However, it becomes much more voluminous. This form of catalogue is becoming out of date (Wijoyo, 2009) and they can rarely be seen in most libraries.

1.6.1.2 Book Form: As the name suggests, this form resembles a book or a register in appearance. It is the oldest type of catalogue which was commonly used in American libraries (Widodo, 2009). Entries in this catalogue are printed on separate sheets as per a desired arrangement and the sheets are then bound together to form a book or register.

1.6.1.2.1 Merits and Demerits of a Book Catalogue

Merits

Book catalogue has some of the following merits:

- Easy to prepare
- Portable
- Occupy little space and
- Its use is not subject to the availability of electricity.

Demerits

Some of its demerits include:

- Lack of flexibility, as entries of newly coming books cannot be accommodated in proper places, hence it requires frequent revisions.
- It is not economical to keep it up-to-date with changing collection.
- It cannot be used by more than one user simultaneously. Only a single user can use it at a time and therefore, it does not facilitate quick information retrieval by users.
- Expensive to produce more copies for library users.

Due to the above demerits that were noted, these catalogues are gradually being replaced by card catalogues.

1.6.1.3 Card Form: This form of catalogue is used by many libraries worldwide. It was designed to reduce challenges of the previous catalogues mentioned above. In this

form, stiffer paper cards having dimension of 3 x 5 inches and 0.25 mm, thickness are used to prepare catalogue entries. One card is used for every individual entry, main or added. Each card has a small hole at the bottom of the middle part, for inserting a steel rod. The cards are arranged according to a predetermined sequence in wooden trays that reside in pigeonholes of catalogue cabinets. Most libraries have separate catalogue cabinets for author, title, subject and classified cards.

Sample of Catalogue Card

<M> HAMILTON, HELEN Combatting cardiovascular diseases skillfully / Hamilton, Helen. – Intermed Communications, 1983 192p. – Nursing Skillbook FD 129 HAM 100016
--

Each tray that holds cards is marked on its outer face by alphabetical numbers of initials of the name of the first authors and the last author, for the case of author cards. The same is done in marking outer faces of trays of the title, subject or classified cards. This enables a reader to know which entries of books are contained in a particular tray or drawer for searching purpose.

With this form of catalogue popularly termed as ‘card catalogue’ it is possible for cards of newly acquired books to be inserted in proper places without the need for revision as compared to the book form catalogue discussed above. It is therefore, economical to keep it up to date with new cards. Large number of readers can also use this catalogue as there are several trays in a cabinet from which they can search information they want. Moreover, it serves as an alternative search tool when OPAC is not working due to absence of electricity (Kashmir, 2013).

NB:

- The card catalogue has been and still is one of the most important manual systems in use for more than a century,
- It is the basis from which the present cataloguing standards (cataloguing codes, ISBDs, and MARC formats) have been developed
- It is the basis, on which the structure and contents of online catalogues have been developed, i.e., online catalogues are the logical successors to card catalogues.

Card Catalogue Advantages

- i. **Flexibility and currency:** Staff time and size of collection growth permitting, cards for new materials can be added quickly and cards easily removed for those items no longer in the collection. The card catalogue is as up-to-date as your cataloguing and filing.
- ii. **Ease of use:** Library clients are comfortable with the alphabetical approach and can easily adapt to a divided catalogue. It is not much different from using either the white or yellow pages of a phone book. The white pages are for specific names of people and businesses (author/title drawers) and the yellow pages are for listings of companies in a particular type of business or people in a specific profession (subject drawers).
- iii. **Availability:** The likelihood of more than one person needing the same catalogue drawer at the same time is minimal. Unless, of course, every student in a class has been given exactly the same topic to research. This is often referred to as a queuing problem (i.e. everyone must wait in line).
- iv. **Costs:** In smaller libraries, the cost of maintaining a card catalogue is not overly expensive. Card stock is readily available and there are software programs that can produce catalogue cards on a computer printer. Libraries can now order prepared catalogue cards from their book supplier, which may only require the call number to be added.

Card Catalogue Disadvantages

- i. **Size:** As the collection grows, so does the card catalogue. This takes up precious space which could be used to house more materials.
- ii. **Human error:** Even the most careful filer can make mistakes and these mistakes can be overlooked by someone checking for accuracy. A single card misfiled can lead to another card being misfiled. When large academic libraries had card catalogues, double-runs as they were fondly called, could become extremely large, resulting in hours of re-filing cards in their proper order. When a horrified gasp from a co-worker was heard as they were filing or checking it was known exactly what they had discovered.
- iii. **Ease of use:** Because of the way cards are filed, only one bibliographic item can be viewed at a time. Only the first word of a title or subject heading is accessible. If a patron cannot remember the first word of a title or does not know the exact subject heading, he or she may not find the item.
- iv. **Costs:** It takes time to file and pull cards and staff time is costly. When libraries have branches, it can be expensive to maintain many catalogues in many locations.
- v. **Flexibility and currency:** Individual cards are not easily altered and may have to be reprinted. Before computer production of cards, many libraries purchased electric erasers to remove outdated headings on cards.

- vi. Electric erasers were delicate instruments to use. If a person pressed too hard, the eraser would eat right through the card stock.

1.6.1.4 Microform Catalogues

These are films which contain bibliographic information of books. These can be read by microfiche reader or computer. There are three main microform storage media used in libraries these are: microfiche, microfilm and aperture card, reflecting items on which materials are captured, i.e., rolled film, flat film, transparent or opaque paper. Micro-cards, a format no longer produced, was similar to microfiche, but printed on cardboard rather than photographic film.

Microform images are created by computers and cameras by reducing documents to about 25% of their original size on film or paper. Microforms were preferred by libraries and archives for storage of information due to space limitation. However, to meet the needs of many users they have to be produced in many copies, which to some extent is costly. The three forms are explained below:

- i. **A microfiche** (flat film): this is a very compact analogue storage media, having about 4 x 5 inches of bits of film that can reduce a document to about 0.25% of its original size. It can store all the pages of an average book. Microfiche are stored in open top envelopes which are put in drawers or boxes as file cards, or fitted into pockets in purpose made books (Batz, 1954).
- ii. **Microfilm**: this is a reel of film normally 35mm wide. It requires a special camera to reduce a document to 1% of its original size. It is viewed on a similar machine to microfiche but the media is spooled past the lens (Concordia University, 2013). One roll of 35 mm film may carry about 800 images of broadsheet newspaper pages. Roll microfilm is stored on open reels or put into cassettes.

Microfilm, a com catalogue (Computer Output Microfilm Catalogue) was developed as outgrowth of book catalogue which has advantages and disadvantages as explained below:

Advantages of COM Catalogue

COM catalogue offers several advantages some are outlined hereunder:

- a) It is inexpensive to reproduce and can be place in many locations inside and outside the library (Saffady, 2000).
- b) There can be separate films for author, title and subject entries
- c) Several records can be viewed at one time.
- d) Entries can be easily copied if microform reader/printer is available.
- e) Since it is analogy (an actual image of the original data), it is easy to view. Unlike digital media, the format requires no software to decode the data stored thereon.

It is instantly comprehensible to persons literate in the language; the only equipment that is needed is a simple magnifying glass. This eliminates the problem of software obsolescence (Metcalf, 1996).

- f) It is virtually impossible to mutilate. Users cannot tear pages from or deface microforms (Jamison, 1988).
- g) Using a computer, one can store and sort catalogue entries automatically.

Disadvantages of COM Catalogue

Some disadvantages of COM catalogue are:

- a) Reader machines used to view microfilm are often difficult to use, requiring users to carefully wind and rewind until they have arrived at the point where the data they are looking for is stored (Baker, 2001).
- b) Reading microfilms on a machine for some time may cause headache and/or eyestrain (Jamison, 1988).
- c) Microforms are often not very readable compared to print.
- d) It is not easily updated. Updating is by supplements which may confuse the catalogue user.
- e) The microfiche format may lead to interfiling of with supplements.
- f) Deleted materials remain in the file until next update.
- g) Special microform reader/printers are expensive.
- h) Like all analogy media formats, microfiche is lacking in features enjoyed by users of digital media. Analogy copies degrade with each generation, while some digital copies have much higher copying fidelity. Digital data can also be indexed and searched easily (Baker, 2001).
- i) Users should be tuned to the computerised systems to exploit fully the of a machine-readable catalogue.
- j) It can be interrupted by power cut off

- iii. **Aperture card:** a punched card that has a cut out in which a piece of microfilm is placed. Such a card is used for archiving and making multiple copies of a document for ease of distribution (Concordia University, 2013). Aperture cards may be stored in drawers or in freestanding rotary units.

Image Creation

Special equipment are required to create microforms. These include: roll film cameras, flow roll film cameras, microfiche cameras, or computer output microfilm. Data stored in microforms are too small to be read by naked eye and so have to be viewed with a special reader such as microfiche reader that has a capacity of magnifying reduced writings. As compared to other reading materials, they are not only difficult to catalogue but also tiring on the eyes for extended readings (Batz, 1954). Usage of microforms was popular in libraries between 1839 and 1940 (Shoreline Records Management, Inc., 2013).

Nowadays the rate of usage has greatly decreased due to discovery of new storage media such as CDs, DVDs and removable drives.

1.6.1.5 Online Form Catalogues

This is a form of catalogue which can be accessed through a computer connected to the internet. It is a new form of catalogue which has been developed recently as a result of improvement in Information and Communication Technologies. It has addressed a number of problems faced with previous forms of catalogues mentioned above. It is more flexible as additions, deletions and changes of entries can be made at any time and the results are immediately available to users. In addition, it has revolutionized storage and retrieval mechanism for libraries. As such, they are very dynamic, highly flexible in meeting needs of almost every user (Kasmir 2013). They have enabled libraries to extend services not only to their patrons but also to other interested external readers. The searching capability is very fast even with larger number of users in different locations (Widodo, 2009). The wire-less technology and laptop computers including notebooks and currently the tablet computers (iPads), have made these catalogues accessible to users in their fingertips. This catalogue employs a full-text searching mechanism, which means that you can look for a book by author, title, subject, keyword, year, class mark, or series (Kings College, 2013). This form of catalogue is technically known as OPAC as explained below.

The term OPAC stands for Online Public Access Catalogue. It is a computerized system to catalogue and organise materials in a library. OPACs have replaced card based catalogues in many libraries. An OPAC is available to library users (public access).

Advantages of OPAC

1. Access time: The speed at which data is accessed is very high compared to the card catalogue.
2. Operation: with the OPAC you use the computer to enter data or retrieve it. It is therefore not so tiresome compared to the card catalogue where it is done manually.
3. Accuracy: With OPACs mistakes are easy to correct and therefore more flexible and up to date than the card catalogue.
4. Flexibility: When using OPACs errors can be deleted and terms added for search which is not possible with the card catalogue as any error needs card replacement.
5. Networking: With OPAC bibliographic information can easily be shared with other libraries in the shortest possible time through networking while with card catalogues it is not possible.
6. In carrying out keyword searches using OPAC
 - One can combine two or more keyword commands and search words in the same search.

- Words are automatically combined with and unless one type or not.
- 7. They link to the circulation control system so that not only can a borrower ascertain that the library service holds a particular item, they can also see its loan status at the time (Rowley, 1987).

Disadvantages of OPAC

- System failure can hinder access to the catalogue and hence the collection
- Its internet based hence it cannot work in areas without internet
- Power reallocation can affect its access

(For details refer to Chapter 10)

1.6.2 Inner Form of a Library Catalogue

The inner form of a catalogue reflects internal arrangement of entries of library materials. These arrangements of entries follow the two main sequences i.e., alphabetical and class numbers or both as depicted below:

1.6.21 Alphabetical Catalogues

There are four main types of catalogues which follows alphabetical arrangement i.e., author catalogue, title catalogue, subject catalogue and dictionary catalogue. Classified catalogue follows sequence of arrangement by class numbers and the union catalogue may follow both alphabet or class numbers depending on the type of catalogue to be agreed under joint ownership among cooperating libraries, as explained below:

1.6.2.1.1 Author Catalogue

This contains cards with authors' names as headings which have been arranged in alphabetical order. The word author is normally extended to include illustrators, performers, producers, translators and corporate bodies such as institutions which also have ownership responsibilities for some documents such as policies, strategic plans and regulations. It is useful to be consulted when an author of a book is known. One of the challenges faced by library users including library staff is that some publications do not have authors (Baird, 2002). The main entries for documents of these kinds become titles according to cataloguing rules because they do not have obvious authors. Since every item in the library has a title, most users prefer title catalogue for searching to author catalogue. However, to minimize cases of missing information of a known author, adequate entries of each author and other persons connected with the recorded items, need to be prepared to make this catalogue effective (Lehnus, 1972).

Advantages of Author Catalogue

- Information about all available books of an author is easily received from a single place at the same time.
- It is very easy to determine whether particular book of the same specific author is available in the library or not.

- In case there are many works having the same title, then these can be separated by the name of the author only.

Title Catalogue

This is a catalogue which list entries of library materials according to their titles. It contains alphabetical record of titles of all the stock in the library. It is useful to be consulted when a title of a book is known. To make the title catalogue as effective as possible, an entry should be made for each and every title, regardless of how generic the first word in the title might be (Lehnus, 1972).

Subject Catalogue

Subject catalogue shows arrangement of library materials by subject in alphabetical sequence. This catalogue is important to be consulted when a reader is in need of materials on a particular topic and do not have a list of specific publications on that topic (Lehnus, 1972). It also provides additional information on other related subjects through cross- references e.g. (see also...). Subject cards are filed according to phrases known as subject headings which are located at the top of the card (Dagupan, 2009). Subject headings always appear in capital letters.

Dictionary Catalogue

This is a catalogue in which all entries are word entries (Ranganathan, 1939). According to AACR1 (1967), a dictionary catalogue refers to a ‘catalogue in which all entries such as (author, title, subject and series) and their related references are arranged together in one general alphabet’.

This catalogue can easily be used as a dictionary and is one of the “classical” inner forms of a library catalogue. Rowley (1987) listed some advantages of dictionary catalogue as shown below:

- The single alphabetical sequence is easy to understand.
- The sequence headings and references are independent of a classification scheme, and may thus avoid the pitfalls of any specific classification scheme.
- Lead direct to a given subject which has a known name.
- References help to indicate relationships which are more explicit than those in a classified catalogue.

Entries in a Dictionary Catalogue

Dictionary catalogue normally provides the following:

- a) **Main entries:** Under the author, collaborator or title; if the author is not known or if the item is not produced under editorial. This entry provides maximum information about a book to the readers. The following sections are included in the main entry of the dictionary catalogue:
 - Heading section- author of the document/book
 - Title section- title of the book, its sub-title
 - Note section

- Index number section
 - Accession number
 - Tracing section
- b) **Collaborator added entries:** This is for persons or institutions or societies, etc., associated with the creation of the work.
- c) **Subject added entries:** This is for title of the work and also for alternate title.
- d) **Cross reference entries.**

NB: The entries except the main entry are generally known as added entries.

Advantages of Dictionary Catalogue as shown below:

- The single alphabetical sequence is easy to understand.
- The sequence headings and references are independent of a classification scheme, and may thus avoid the pitfalls of any specific classification scheme.
- Lead direct to a given subject which has a known name.
- References help to indicate relationships which are more explicit than those in a classified catalogue.
- Completeness: This is a complete catalogue since all entries, i.e. subject, author, title, collaborators and series etc. the user/ reader can use these to satisfy his/her needs
- Time saving: This type saves the time of the reader since it quickly provides answers to the queries of the reader by providing direct answers.
- Knowledge of classification schemes is not necessary in using this catalogue

Disadvantages of Dictionary Catalogue

- Growth in size of the library can affect the uses of dictionary catalogue

1.6.2.2 Classified Catalogue

The classified catalogue is arranged by subject according to the classification system chosen by the library. It is partly identical with the shelf list as the arrangement of cards corresponds with the arrangement of books on the shelves. A shelf list is a record of books in the order in which they stand on the shelves. These cards indicating shelf list are sometimes called master stock cards and they serve as inventory to the library and are mainly used during annual stock evaluation (stock taking). In the classified catalogue, the cards are arranged according to class numbers. Within one class number cards are filed according to the author's name in alphabetical order.

Some of the merits of classified catalogue as compared to a dictionary catalogue are as follows:

- Provision of collocation of related subjects
- The subject index draws together related subjects which are otherwise scattered by classified order.
- Reproduction of the shelf order that facilitate information retrieval.

- Subject index to shelf enquiries are rapid and can bypass the more complex classified subject catalogue.
- Convenient for the generation of lists of documents, given subject areas, such as reading lists and simple bibliographies.
- The notation avoids language problems. Whatever a user's native language, the same notation can be used to represent a subject.
- It is easy to make use of effective, including guidance which groups entries into broad subject categories.

Demerits of Classified Catalogue

- It cannot be used without prior knowledge of the language of classification
- The artificial language of the class number is complex and it creates a psychological obstacle in the mind of library user, thus it discourages the use of the catalogue.

Comparison of Dictionary and Classified Catalogue

Out of various types of catalogues, the Classified Catalogue (CC) and the Dictionary Catalogue (DC) are the most important. The dictionary catalogue has superseded all other forms of alphabetical catalogues like author, title, subject, and name catalogues (Lal and Kumar, 2009). With the elaborate cross references, it has increased its usefulness and capability to meet all the requirements of a library catalogue. Similarly, the classified catalogue displaying its entries with a panoramic view of the subjects incorporates many of the features of a dictionary catalogue in its alphabetical index. Therefore, these two forms of catalogue have been adopted by most libraries.

Comparison between Classified and Dictionary Catalogues

s/n	Features Aspects	Classified Catalogue (CC)	Dictionary Catalogue (DC)
1	Preparation	It is simple to prepare as it uses the work already carried out in classifying the documents and its indexing proves easier as the collection grows	It is equally simple to prepare but subject indexing gets complicated with the growth of a collection
2	Arrangement	Arrangement is the same as that of books on shelves. Arrangement in the alphabetical part is like a dictionary, which is easy to understand	Arrangement of entries is alphabetical like a dictionary, which is easy to understand

s/n	Features Aspects	Classified Catalogue (CC)	Dictionary Catalogue (DC)
3	Logical and systematically order	Logical and systematic order is achieved in the classified part because the order is based on a scheme of classification. The order of the scheme of classification used in books and the classified catalogue being the same, users are likely to become more familiar with the shelf order of books, in case the library adopts the classified catalogue rather than the dictionary catalogue	Owing to the natural order of alphabets, entries relating to the same subject would get scattered. e.g. <i>heat</i> and <i>magnetism</i> , <i>geography</i> and <i>economics</i> are related but ones in the catalogue subject entries related to these would get scattered.
4	Deeper function	Most users are not able to name exactly the specific subject of their interest. If the reader wants to name a broader or narrower subject. A reader first consults the alphabetical part and then goes to the classified part where he/she can find the full field of his/her interest spread before him/her in a logical manner. The CC collects all materials on a given topic and displays relationship between subjects in a way more useful to the user than any other kind of catalogue	In it, there is an inevitable scattering of subjects and large number of see also directions, which will virtually tire out the reader
5	Consultation	Classified catalogue is not really difficult to consult. It does not require deep knowledge of classification	Easy to consult and outwardly simple to use because it is usable like dictionary

s/n	Features Aspects	Classified Catalogue (CC)	Dictionary Catalogue (DC)
6	Role of classification	Usefulness of classified catalogue depends upon the qualities of the scheme of classification.	Its usefulness does not depend upon a scheme of classification.
7	Role of cross references	The number of cross references is not accommodated in CC.	Its ultimate success depends upon an elaborate scheme of references. References can often prove to be tiresome and there is always a possibility of missing one or more vital headings. They also multiply at a fast rate making the catalogue difficult to use.
8	Language barrier	International cooperation is possible for the universal classification schemes which use multilingual indexes.	International cooperation is difficult to achieve.
9	Printing of subject catalogue	Any class or subject can be printed at any time easily.	Subject catalogue is more difficult to print.
10	Rate of growth	Overall rate of growth is slower.	Subject entries and references increase at high rate than in classified catalogue. Rate of growth of the catalogue is high, making it difficult to use.

s/n	Features Aspects	Classified Catalogue (CC)	Dictionary Catalogue (DC)
11	Maintenance	The maintenance of subject entries in the alphabetical part is easier because replacing of old subject terms by new one is easier as compared to the Dictionary Catalogue.	Replacing of old subject items by new subject terms is a tedious and time-consuming.

Source: Dhiman and Rani 2005 and Lal and Kumar 2009

So far so good, these types of library catalogue discussed above can work reasonably well and within limits if worked and operated well. There is no absolute yardstick to measure their merits and demerits

1.6.2.3 Union Catalogue

In order to enable patrons to trace materials which are not available in their libraries, a concept of union catalogue was introduced. Once a given material has been obtained, a special borrowing arrangement termed as interlibrary loaning system could be used to borrow a material in need from other libraries. A union catalogue is a combined catalogue having holdings of several libraries (Piggott, 1988). Two main formats exist i.e. print and electronic. Arrangement of cards for catalogues in print formats follows the same sequence as in other catalogues mentioned above, that is by, author, title or by subject. Electronic version catalogues termed as Online Public Access Catalogues (OPACs) explained in detail in Chapter Ten support keyword and Boolean searching. Union catalogues provides wide range of literature than is available in one library. Contributions to a union catalogue are made by group of libraries that share common characteristics such as:

- Being located in different geographical areas,
- Having the same subject interest or serving the same class of readers and,
- Willing to make their stock available for use by others outside their own union (Piggott, 1988).

Objectives of these catalogues are to improve cooperation and sharing of information among libraries at national and international levels (Ranaweera, 2008). These catalogues are useful to librarians not only in enabling them to know what other libraries have but also in selection of materials for acquisition.

Examples of Union Catalogues

- The American National Catalogue

- British Union Catalogue of Periodicals (BUCOP).

- DATAD (Database of African Theses and Dissertations)
- Union Catalogue of Theses and Dissertations (UCTD) South Africa.

Objectives of Union Catalogue

- The aim of a union catalogue is to identify, locate and retrieve reading documents stocked in different libraries of the particular area for which the union catalogue is prepared.
- Making library resources available when and where they are needed
- To allow researchers to search through collections to which they would not otherwise have access, such as manuscript collections.
- Resource sharing between the libraries
- Central access point for users
- Platform for service co-operation, such as interlibrary loan
- Platform for agreement of bibliographic standards
- Efficient management

Necessary conditions for successful Union Catalogues

- First, that cataloguing contributed to the union catalogue is done in accordance with national and international standards.
- Second, that every participating library commits to cataloguing according to their means—that is playing their part in doing original cataloguing for the benefit of all— while using already created records according to their needs.
- Third, that cataloguing is not only standardized but also done in a timely manner. No one, local or remote, can have access to an catalogued resource.
- Fourth, a willingness to share local resources with others as well as to take advantage of remote resources through inter-library lending and document delivery. That is, to contribute to as well as take from the resource sharing system.
- Fifth, adequate financial support that maintains the union catalogue and the resource sharing system that is based on it.
- Seventh, a speedy and efficient delivery system linked to the union catalogue that guarantees delivery of books and other tangible objects; that allows for sophisticated facsimile transmission of journal articles and other short texts; and, that permits easy access to available electronic databases.

Advantages of union catalogue

- Union catalogue makes available the information about the total resources of the books stocked in the libraries of that particular area in which the catalogue is adhered;
- It can be consulted more quickly than the separate catalogue;
- It provides the location of the required book, where the book is available;
- Inter library loan service may only be possible with the arrangement of union; catalogues.
- It helps in avoiding the duplication of acquisition of books,

- Development and maintenance of mutually acceptable standards.
- Increase in the supply of quality records, both bibliographic and authority (Anthi, 1998; Stubley, 2003).
- Reduction in acquisition and cataloguing expenses.

Its advantages for users include among others (Stubley, 2003):

- Confirmation of the existence of an item;
- accurate known locations for an item;
- availability at those known locations;
- timeframe for user need; and
- Licensing controls and authorization.

Disadvantages of Union Catalogue

- Loss of local flexibility
- Complexity of relationship between local and central database
- Dependency on infrastructure
- Diverse libraries and patrons

1.7 Different Views on the Role of Catalogues in Libraries

Various library professionals have difference views on the roles of catalogues in libraries. Prominent ones include: Charles Jewett and Charles Cutter. Charles Jewett is a librarian and Assistant Secretary at the Smithsonian Institution. He had controversy about the creation of union catalogue in US. Jewett strongly believed that a national library was needed, which would oversee a collective catalogue for public libraries across the United States. He perceived that the catalogue would permit scholars to access important books and manuscripts, show where intellectual disparities existed, and would act as a facilitator for the progression of knowledge (Jewett, 1985:54).

Jewett (1985) advocated alphabetical catalogue for the convenience they offered, both to cataloguers and users. He saw a catalogue as a list of book titles owned by the library, which contained only information that authors included (Jewett, 1985:59). He believed this to be good practice because it kept the size of the catalogue and the costs of printing down. To accomplish his goal of the 'union catalogue,' there was a proposal to use 'stereotyped plates,' a series of preserved, mass-produced separate titles to be composed in adherence to a set of very strict rules. Uniformity was Jewett's major concern, advocating the strict and unwavering practice of following guidelines in cataloguing to avoid errors and confusion (Jewett, 1985:61). He further observed that catalogues were established to allow users to figure out where particular books are located with the added possibility of borrowing them.

Jewett (1985) differed greatly with Charles Cutter, a Librarian at the Boston Athenaeum, who is best known about his work "*Rules for a Dictionary Catalogue*". Cutter (1904) is considered as the first to establish a set of systematic cataloguing rules.

As much as he advocated rules for cataloguing, he hoped that they would never forsake the library users, who were always first in his thoughts. His credo was "the convenience of the public is always to be set before the ease of the cataloguer, and that a plain rule is not only easy for us to carry out, but easy for the public to understand and work by" (Cutter, 1904:65). He did not see cataloguing as a science, with strict and complex rules, but as an art that would facilitate the public expectations above everything else.

At the time of his writing, the Library of Congress (LC) printed cards were beginning to appear, and although he feared for the loss of the art of cataloguing, he could see the great benefits that they would provide to libraries (Cutter, 1904:65). Cutter saw catalogue as having three main objectives:

- a. To allow users to find books if authors, titles, or subjects are known;
- b. To act as a display for what the library has by any given author, title or subject;
- c. To give assistance in book selection, providing edition and character information (Wynar, 1985b: 16).

Patrick Wilson

Wilson (1983) looked at the purpose of the library catalogue and endeavoured to show that they do not accomplish the objectives to which they were set out. He illustrates this by setting up a critique of the work of Charles Cutter, whose theory helped to lay down the philosophical foundation for libraries and the services they offered. Wilson maintains that Cutter's objectives (listed above) were never met, since catalogues do not show everything by a particular author (Wilson, 1983: 258-260). Without an online system that incorporates circulation of information, they are unable to help in locating anything adequately (Wilson, 1983:258).

Wilson (1983) attempted to remove old notions about library catalogue, emphasizing that they are not the last word in bibliographical control. He sees no reason to construct more complex subject indexes on the ground that they neither enable evaluation nor organise materials functionally (Wilson, 1983:266. Subject cataloguing is based on content description, and therefore, can be expected to provide initial groundwork required for research topics. Anything further will require investigating other sources, such as specialized indexes, bibliographies and footnotes (Wilson, 1983:267). The author also maintains that:

... the unique contribution of the catalogue is after all, just what most people have always agreed, i.e., to help locate books and texts that may have been learned about elsewhere (Wilson, 1983:267).

Comparisons of Jewett, Cutter and Wilson's views on Cataloguing

Jewett and Cutter were pioneers in a field of library who greatly contributed to its development. However, they had different views with regards to usage of catalogues. Jewett's vision originated from the American national library, with a union catalogue,

that included the possibility of incorporating European countries as well. For him, standardization and a strict uniformity to procedures were imperative for success of library catalogues. The aforementioned conditions were necessary for Cutter who laid down basic rules for catalogue use in American public libraries.

Both were visionaries, whose work transformed libraries: Jewett foresaw that the interlibrary loan system and inclusion of subject indexes are useful as noted to have originated from LC printed cards. Cutters' principles have greatly development of the Library of Congress' classification scheme and subject headings, still in use today.

Despite the fact that catalogues facilitate information retrieval, computers have changed library environments by providing flexible ways of retrieving information compared to card catalogues. As Wilson has pointed out, a computer catalogue has made main entries obsolete; altered how they make entries; and transformed catalogues into search stations that can use various prompts to retrieve information (Wilson, 1983:261- 262). Computer cataloguers no longer limit libraries to only author and title entries, but they provide other searching facilities that are necessarily connected to circulation records.

Parts of Catalogue Record

In general every catalogue record has three separate parts (Wasserman and Polk, 2006), as explained below:

- i. **The Description**– this consists of all bibliographic information found on the title page and elsewhere on the item. It includes the author, title, publisher, date of publication, added personal entries such as a joint author, illustrator and translator. Other descriptive information include number of pages, illustrations, size of a book and format information like video or CD. It also contains other helpful notes relating to information such as contents notes and bibliography of a book. This information for any particular title is often the same everywhere.
- ii. **The Subject Headings** – these are terms used to identify contents of the title. Subject headings need to be consistent and systematically assigned so that one search will bring up all materials on any subject a patron is looking for. There are two major sources for subject headings: the Library of Congress Subject Headings and the Sears List of Subject Headings (SLSH). To use either of these subject heading sources you have to look up the subject you want in the given volume and find the absolutely correct wording and the correct punctuation for the needed subject heading. Subject headings have parts, the main part, followed by any number of subdivisions to further define the subject. The main topic of the subject heading can be one word or a series of words. A series of words can utilize a comma or parenthesis. These subdivisions which can be separated from the main part of the subject heading

by a hyphen, can either be topical or geographical. A correct subject heading must therefore, conform to the language and punctuation as it appears in the subject headings source. Usage of LC subject headings is usually recommended despite being mainly academic and therefore, shows need of review. This is because Sears List is too general, as it was designed to suit small libraries, in particular the public libraries, as compared to LC which was designed to cater for large collections mostly found in academic libraries. However it is possible to make own subject heading if they are thought to assist patrons to locate materials. But extra care needs to be taken in tracking and consistently using them. When making subject headings, adherence to acceptable standards is important. The use of “see” and “see also” cross-references from a common term to the standard accepted heading can solve imminent problems.

- iii. **The shelf location** – this is also known as the call number or class mark. Its etymology is that in the past patrons were not allowed to go into the book shelves to find books for themselves. The procedure used was that the needed book was requested or called for from a library staff, who then searches a book for the patron. That is how the location number that enabled a librarian to get a book got the name of a call number. Now, with open stacks, the preferred term is shelf location, because at times the “call number” was actually not a number but a word like “Fiction” denoting books about fiction which do not have actual classification numbers as compared to nonfiction books. The term “**shelf location**” is therefore, more appropriate as it can either be a number or a word. The “shelf location” is derived by classification system used. In fact the classification number assigned to each title is the shelf location for that title.

1.8 Importance of Catalogues in Libraries

Library collections house a wide variety of materials on many different topics and in many different formats. All these materials are listed in the catalogue to let patrons know what is in the library collection. The Encyclopaedia of Library and Information Science (1970) provides importance of catalogues in libraries as shown below:

- a) To enable a person to find a book or any other reading material whose author, title or subject is known.
- b) To show what the library has by a given author, title or subject. To assist in the choice of new books basing on the existing editions. It enables readers to get bibliographic information useful for citing references in their assignments.
- c) It saves time for library staff to visit shelves for handling and selection of books for ordering purpose (Piggott, 1988).

Therefore, a catalogue whether it be manual or electronic is important in libraries in facilitating information retrieval, as observed that, “Catalogues are necessary whenever a collection grows too large to be remembered item for item (Wynar, 1976a;

Ala, 1968; Eyitayo, 1996). In emphasising importance of library catalogues, Barman (2005) argued, ‘library catalogues enables library staff to assist end-users in locating needed materials’.

Qualities of an Effective Catalogue

An effective catalogue in any format should possess certain traits that will allow it to be easily consulted and maintained (Wynar, 1976a). A good catalogue therefore needs to be:

- **Flexible and up-to-date.** This means that entries need to be added or be removed as books are added or discarded from the collection. It should also be possible to bring together **entries** having the same **heading**.
- **Easy to handle and consult.** It should be constructed so that all entries can be quickly and easily found. This means that the content of each tray must be identified so that a patron who wants to locate a work, let us say of ‘Armstrong Michael’ can find the Armstrong’s entries easily. This call for labelling of every drawer to enable library user to know exactly which types of alphabets are contained in each drawer. Similarly the trays must have a guide cards to identify coverage of cards they contain (Wynar, 1976a).
- **Economically prepared and be possible to maintain without much space.** The catalogue that can be prepared most inexpensively and with greatest attention to currency should have the following advantage.
 - It should be reasonably accessible to both users and members of staff.
 - It should be portable/possible to consult it inside or outside a library
 - It should be compact in terms of space, easily removable for consultation and prolonged study.
 - It should be amenable for fast speed of search.
 - It should be easier to use than a published bibliography.
 - It should lead to materials which are immediately available (Piggott, 1988).

Library cataloguers therefore, need to strive to improve qualities of catalogues to make effective use of the same by the library users, as observed that, ‘effective use of library resources greatly depends on the quality of the catalogue’ (Barman, 2005). The author adds that, “a well-made catalogue definitely adds to the reputation of the library.

Criteria for Selecting an Appropriate Catalogue for a New Library

Once a new library building has been established, it is the responsibility of library staff or any other responsible person (s) to conceptualise items that can improve quality of a catalogue. Some of these criteria or conditions that need to be considered are as shown below:

- i) **Economic to produce and handle.** The production and its subsequent maintenance cost and labour charges of the catalogue should be minimal.
- ii) **Compact in size.** It should not occupy much space in the library.

- iii) **Bring together like entries.** It should have the provision to bring together entries with the same heading.
- iv) **Updating.** The selected catalogue should have the provision to insert or withdraw entries easily as and when required.
- v) **Reproduction.** It should have the provision to produce duplicate copies of entries for alternative searching procedures.
- vi) **Durability.** The catalogue should be durable.
- vii) **Accessible.** It should be reasonably accessible (within approach) to both users and staff members of the library.
- viii) **Easy to handle and consult.** It should enable a user to find entries with ease.
- ix) **Speed of searching.** It should be amenable to fast speed of search.
- x) **Portability.** It should be easily portable to enable users and library staff to consult it from inside and outside of the library (Barman, 2005).

Catalogue Cards

These are cards on which bibliographic information of library materials are written. The standard card size of 12.5cm X 7.5 cm, was used (Wynar, 1976a), which are approximately the same if converted to inches as explained in Chapter One. These cards are kept in drawers and drawers are kept in pigeon holes of cabinets. Each card is a unit record of a book. This record is called an entry.

The cards have small holes punched at the bottom for inserting steel rod that keep them intact from the rest for prevention of confusion of their alphabetical order.

During filing, the new cards are placed in appropriate positions above the rod according to alphabetical or class numbers (Rach, 2008). The metal rod is then pulled back slowly to make the new cards occupy their appropriate positions. The rod is then returned to its original place by pushing it forward and tightening it with the existing lock if any for making it secure from periodic pulling back and forth by users when searching library materials.

1.9 History of Library Catalogue Card

The history of catalogue cards began in Paris during the time of the French Revolution and ended in Dublin and Ohio in the 1970s. The purpose of the cards as used in Bibliographic cataloguing has not changed during the years including the format used. and size used. The most intriguing cards were those that were handwritten by trained librarians. Handwritten cards were replaced first by typewritten cards, then purchased cards, then online catalogues. In today's ICT generation, usage of manual catalogues having cards for searching information has greatly decreased in substitution with OPACs.

Study Questions

1. Define the term “Library Catalogue and discuss its objectives, purpose and functions.
2. What are the importance of catalogues in libraries and information centres?
3. Discuss different types of catalogues that are familiar to you
4. Explain different parts of a catalogue record
5. Mention and explain qualities of a catalogue
6. Discuss the qualities of a library catalogue with reference to a library catalogue that you are familiar with.
7. Compare and contrast various forms of catalogues that you have learnt in this chapter
8. What are the disadvantages of using a book catalogue in a Library?
9. Discuss suitability of two forms of catalogues with regards to their external and internal arrangement that you will recommend for a new university Library.
10. Discuss briefly the relevance of the Library Catalogue in relation to the Five Laws of Library Science. Or
11. Discuss the implications of the Five Laws of Library Science for Library Catalogues.

CHAPTER TWO

TYPES OF CATALOGUING AND THEIR APPLICATION IN LIBRARIES

2.0 Introduction and Definitions

Cataloguing is a process of preparing bibliographic entries of library materials in the catalogue cards so that they can be filed in the respective catalogues explained in Chapter One. Examples of library materials to be include but not limited to: books, journals, research materials (theses and dissertations), DVDs and CD-ROMS that are accompanied with books or having other reading materials such as conference reports.

Freedman (1977) considers cataloguing as the intellectual process whereby a given work (e.g., the actual copy of a book) is described, categorised by subject, and assigned a physical location in a library. What makes this process the work of a professional cataloguer is that it is done in accordance with a code of rules and thesauri governing the form and content of the catalogue record.

Danskin (2007) adopted a broader definition on cataloguing by incorporating different kinds of activities as description of resources sufficient for the purpose of identification and for differentiation from other similar resources. It deals with the control of access points, subject analysis of resources, assignment of subject indexing terms, labelling and production of cards for the categories and most importantly, assignment of classification numbers.

On the other hand, Wasserman, and Polk (2006) defined cataloguing as the method used to create an index of a collection. It tells a library user what it has and where to find it. The catalogue describes each title in the library and attaches it to the classification number or shelf location assigned to it. Every title in a library will have a record in the catalogue to facilitate information retrieval. If there are a lot of books in a particular place such as a room, the most important thing is to catalogue them.

In general, cataloguing refers to the process of preparing bibliographic entries of library materials. It involves provision of technical data that is necessary for readers to find what they need when the need arise. Such information includes class mark and subject headings.

Cataloguing is not limited to library materials, but it is also applicable in many areas where people deal with many items that need to be described for example in supermarkets and shops. Cataloguing is necessary in libraries because of increasing number of materials which make it difficult for librarians and information managers to memorise them.

Cataloguing is therefore, important as it describes library materials in a manner that can enable patrons to find information they want. This is in line with the argument that, “without cataloguing, it would be difficult for anyone to know what is in the collection, how many items dealing with a particular topic are in the collection” (Barman, 2005)

2.1 Challenges of Cataloguing

Cataloguing is a complex operation requiring extensive training. Yet it is not feasible to hire a highly trained cataloguer for a small library with few books, as he/she will likely lose professionalism acquired through lengthy training. It is an oldest activity in libraries. Like any other activity, it has its own challenges as noted by library scholars as explained below:

- Increasing number of books as compared to a number of cataloguers in libraries.
- Decreasing library budgets

Disagreements among librarians in certain cataloguing rules as observed that, “AACR2 rule is the source of debates due to existing ambiguity (Inter, 1989), and in particular on elements which should receive concentration from cataloguers. For the Library of Congress cataloguers, they have been trained to pay more attention on physical description of materials and access points, and less on spacing and punctuation (McCue, 1991:71-75) to speed up cataloguing.

This debates lead to emergency of two camps, one favouring faster cataloguing for immediate user access to library materials and the second on perfect cataloguing records (Smith 1994). This is in line with the observation that, ‘some librarians failed to accept the near-perfect catalogue records of the Library of Congress without modify them to fit original cataloguing’ (Tillett, 1993). In highlighting this challenge, Rider (1996) argued, “backlogs have developed because librarians have not readily accepted records without extensively checking them first, thus, not meeting the needs of their users quickly enough.

Some of the procedures taken to minimize the said challenges include automation of library cataloguing departments so that libraries could share catalogue copies to get rid of their backlogs (Smith, 1994:1). Other strategies devised to make cataloguing quicker and faster, including, reduction of workload on the parts of cataloguers involves introduction of different types of cataloguing as explained below:

2.2 Types of Cataloguing

There are eight (8) types of cataloguing that is: individual, cooperative, centralized, traditional, original, derived/copy, commercial and descriptive cataloguing as explained below.

i) **Individual Cataloguing.** This is cataloguing done by people in individual libraries to serve their own needs. If this cataloguing approach is to be adopted by a library, it is better for the library management to evaluate some of its costs as shown below:

- Cost of acquiring expensive cataloguing tools to support cataloguing activities
- Cost of training staff in standard cataloguing practice
- Cost of staff time spent on cataloguing activities
- Cost of materials (e.g. catalogue cards, spine labels, book covers)

ii) **Cooperative Cataloguing.** This refers to a situation where a number of independent libraries share the work of producing a catalogue for their mutual benefit. It is done in two or more libraries for the benefit of each participant and the results may or may not be made available to other libraries. One of the important outputs of cooperative cataloguing is Union catalogue. Cooperative cataloguing will help to keep expenses down, as will the sharing of resources (Taylor, 1988:334). About the importance of cooperative cataloguing (Tillett, 1993:4) argued that: One should not lose sight of a larger goal to provide our users with access to the bibliographic universe while inventorying the holdings of our libraries. Cooperatively creating catalogues was seen as a way to reach these goals. According to Tillett (1993) many cooperative cataloguing enterprises began to appear in 1876. One of them was the Library Bureau that began to sell printed catalogue cards. In addition, the famous Library Classifier (Melvil Dewey) proposed that the American Library Association (ALA) lay down guidelines for cooperative cataloguing, which all libraries could follow, to be filtered through the Library of Congress (Tillett, 1993).

Over the next twenty-five years many ALA member libraries did enter into programs that shared cataloguing information, and in the 1890s, the Library of Congress ousted the Smithsonian Institute as national library, and took over the role of copyright depository. During the Depression and throughout the war years, materials were in short supply and very costly. Libraries began not only to share bibliographic information, but also library materials (Tillett, 1993:8). Jewett's vision of an interlibrary loan system took hold, allowing users to find out where particular books were in the country and the opportunity to borrow the materials was allowed. By this time, the Library of Congress printed catalogue cards were on the market, and they changed the direction of cataloguing in a very meaningful way.

iii) **Centralised Cataloguing.**

Due to the problems of growth in volume of published materials, the emphasis on rapid transfer of documents and bibliographic records from producer to consumer, and the resultant need for more and better library service, traditional patterns of cataloguing and processing are changing significantly.

Most libraries and library systems of any size have either centralized their technical services or entered into cooperative arrangements with other libraries.

This is defined as the cataloguing of documents by some central organization for creation of a standard and acceptable record that can be inserted into the catalogue of a large number of independent libraries for their own benefits (Rowley, 1987). This form of cataloguing can take place within one library system or within a number of library systems. In some cases it may be done by another agency. The British National Bibliography and the Library of Congress are examples of centralised cataloguing services. Other areas of services include: shelf service, cataloguing in source, cataloguing in publications, and Pre-natal is cataloguing. The term “Pre-natal cataloguing” was used by Ranganathan (1972), to mean cataloguing done by the National Library of a country on each book before its release by the publisher. This is done with the help of a copy of each book sent by each publisher to the National Library. The National Library prepares a catalogue cards for each book before its release. The catalogue cards are later made available for distribution to libraries on order along with the release of books themselves. Call numbers are also printed on the back of the title pages and tooled on the binding as well. According to Ranganathan, this type of process leads to saving 79% in the technical manpower of libraries.

Objectives of Centralised Cataloguing

There are several readily identifiable objectives to be sought when setting up a centralized cataloguing unit. These are as follows:

- a) Elimination of duplicative work.
- b) Effective employment of specialization.
- c) Higher quality of cataloguing output.
- d) Better service levels of member libraries.
- e) Lower per-unit cataloguing cost.

Elimination of Duplicative Work: The first objective is the most obvious, and has been the subject of a great deal of discussion in the past. The benefits that accrue from the elimination of duplicative work are direct; the cataloguers may process ten books in a given time rather than processing the same book ten times at ten different locations in the same time period. The saving of time is reduced by the need to duplicate the output, distribute it to the client, and alter the output at the destination to fit the client’s collection. Obviously, the less alteration and adaptation needed, the greater the savings that accrue from non-duplicative premise enables cataloguing for other to be a commercially viable proposition. Mass production of unit cards is the basis of the activities of several commercial cataloguing firms.

Effective employment of specialisation: The second objective, more effective use of cataloguers, closely follows the first, in the same way, freeing them both to process more books and process books within a greater degree of precision.

With the centralization of cataloguers handle the books in the same way, freeing them both to process more books and to process books with a greater degree of precision. With the centralization of cataloguers come several personnel advantages. The specialist cataloguer has more scope for his activities, and the central organization may be able to afford more specialist cataloguers. In this manner, scarce specialties and competencies may be provided by a system where an individual member is either unable to afford specialists, has too little scope for them, or, regardless of monetary considerations, is simply unable to obtain them. Although independent libraries may have to forego specialist treatment of certain resources, the system can provide that treatment by amalgamating the resources needing it into a mass large enough to justify the service of the specialist.

Higher Quality of Output: Higher quality of output like greater efficiency of personnel utilization is not guaranteed by simple size alone. It is a possibility realized only by skilful management and rational planning. Management can ensure quality by assigning personnel where they are most suited to work, carefully training them, providing them with the kind of resources they need to do the job properly such as manuals and relevant reference tools in adequate quantities, and then setting up rational and effective quality-control procedures. Planning is essential because foresight is needed to set up quality-control system that will do its job without degenerating into sloughs of mutual distrust of everybody work and an exhaustive checking of every detail by several people. Aside from the organisational and management considerations, quality also depends upon the calibre of personnel hired and the ground rules under which they do their cataloguing.

Better Service Levels of Member Libraries: better service for member libraries, the forth goals, is of central importance to those systems composed of small-town libraries. To small libraries, a central processing unit can mean a quantum jump in service to their readers, the difference between the minimal and the quietly excellent. For them, the problem of standardization is vastly outweighed by the benefits to be gotten by affiliation with a system. A typical example of the quantum jump is the Public Library System through a scheme of centralized technical services and a rotating collection circulated from the processing centre, the resources of the member libraries are increased tremendously, up to ten times the number of books as are complete centralization of the technical service function, couple with a distribution and rotation system for a central collection of books.

Lower Per-Unit Cataloguing Cost: Lower cost per capital in cataloguing is the sum of the careful planning and supervision that made possible the benefits mentioned above. It should be noted that overall cost may seldom decline, because the central unit is used to extend and improve library service rather than simply to make cheaper that service which already exists, with no thought to improvement. Nevertheless, in a well-planned system, the rising overall cost, when divided by the volumes processed, should not produce figures per capital that are more expensive than those which earlier

obtained. This per- capital cost saving can be negated by the same factors that negate other objectives, namely the failure to adequately standardize the job at hand .when custom cataloguing is the end result of centralization, the saving will disappear quickly.

Steps for Centralised Cataloguing

A planning of Centralized Cataloguing may include several steps:

- a) Identification of system members and their needs.
- b) Identification of degree of common resources and objectives.
- c) Determination of feasibility of the proposed central unit.
- d) Coordination of standardization between member, and the
- e) Planning of the centre.

Before any centre is actually planned, prospective members should be known and their needs and problems studied, so that the centre when set up will address itself to those needs. Identification of commonality between members goes hand in hand with a feasibility study; if the members have little hope of achieving its objectives. When commonality has been determined, coordination between members should take place in order to insure that the centre will have a standard base upon which to achieve the saving that centralization offers. A detail of its activities should be matched with the practices of all the members.

Conditions for Successful Centralised Cataloguing System

For a centralised cataloguing system to be successful the following are required:

- There must be some standardization in cataloguing and classification system. This can also help in reducing duplication of cataloguing decisions.
- Libraries must acquire the same documents. If some books are required by only a limited number of libraries in a given region or country, it will be difficult to recoup the cost of records.

Merits of Centralised Cataloguing System

- Economy of effort, particularly in eliminating unnecessary duplication of cataloguing effort..
- Superior cataloguing may result due to consistence and closer adherence to standard codes and rules by cataloguers who spend all of their time cataloguing.
- Uniformity of cataloguing between a numbers of libraries which all use centrally produced records. This may not always be consistent with local requirements, and local modifications.
- In some libraries the exploitation of centralised cataloguing records contributes to more prompt cataloguing, since less local cataloguing needs are applied.

Disadvantages

- a) Pooling up the necessary funds to opt for centralized cataloguing may be difficult for some libraries.
- b) Because of local variations it may be difficult to go in for centralized cataloguing.
- c) Centralized cataloguing system may cause delay. A library with a lower number of accessions can complete the job of cataloguing much earlier.
- d) Similarly such libraries may not need all the catalogue cards prepared by the central organization. It may not buy all the books because of its limited funds and requirements. Excess cards will be a waste then.

Differences between Centralised Cataloguing and Cooperative Cataloguing

Cooperative	Centralised
Means sharing of cataloguing by a number of libraries.	Means provision of cataloguing by a central agency.
The emphasise is given only on cataloguing work.	All work related to the book such as acquisition, classification and cataloguing are done centrally.
All libraries purchase books as their own work.	Reading materials are purchased by central agency.

Source: Lal and Kumar (2009).

iv) Traditional Cataloguing

This type of cataloguing is done according to an accepted set of rules, i.e., the Anglo-American Cataloguing Rules 2 abbreviated as AACR2. These rules dictate exactly which information should be included, the order to be followed, and how each line should be punctuated. In fact, AACR2 governs the entire design of the card. AACR2 ensures that cataloguing is done professionally and so uniformly in all libraries is maintained. Once the item description is created, then you assign the correct subject headings and you classify the item by assigning it a shelf location. All of this information is found on the card which is known as the main entry card. But for each item a card set needs to be created. In addition to a **main entry** card, a card set includes a subject card for each assigned subject, added entry cards for each added entry and a shelf list card which includes the copy information and price. Each of these cards has the appropriate identifying line on the top so it can be filed appropriately. *Even if you purchase a card set, you may need to edit each card, to put the subject headings on the top and the shelf location on the right hand side corner of each card. Cataloguing is a special area of professional librarianship that needs serious training, and expertise to do it correctly.*

v) **Original Cataloguing**

This is a type of cataloguing in which a cataloguing record is prepared from scratch without reliance on existing bibliographic record (Gorman, 1998; Wikipedia Encyclopedia, 2012). It is often done by librarians or highly trained paraprofessionals. In this system, a cataloguer examines important parts of an item to obtain information needed to describe it (McIntosh, 1997). This type of cataloguing permits application of local cataloguing systems. However, there are some concerns associated with it as described below:

- Original cataloguing is time-consuming for the cataloguer and the data processor.
- Shortage of cataloguers, typists or secretaries may delay completion of planned activities and so is the usage of materials by library users.
- Inexperienced cataloguers may spend long hours misapplying rules. Thus, the advantages of using a standard system are often negated and re-cataloguing is often necessary at a future date.

vi) **Derived or Copy Cataloguing**

Derived or copy cataloguing refers to the process of cataloguing items by using existing bibliographic records obtained from various sources and altering those records to conform to local cataloguing standards. Cataloguing information may be found in:

Source from which existing bibliographic information can be found include:

- Cataloguing-in-publication (CIP) data to be found within an item
- Non-book catalogue (e.g., microfiche and CD-ROMs)
- Electronic catalogue (e.g., the Internet).

This type of cataloguing can help to speed up cataloguing. However, cataloguers need to thoroughly check the CIP's and other downloaded bibliographic information of books from OPACs of other libraries. The aim is to maintain consistence in local entries by making necessary editing as there can be differences in cataloguing systems such as (DDC or LC) applied by other libraries in the same book. Maintenance of consistence in cataloguing is essential to be observed by cataloguers, not only in improving information retrieval but also in getting positive judgment of library performance from patrons. This in line with the observation that,

Good performance of the library can be noted by users and other libraries from its online catalogue through the internet. If a library presents an inferior, mediocre, and non-integrated catalogue, the staff who works there are judged accordingly. Therefore, library administrators must be aware of all the possibilities and problems attached to each system (Singh, 2011; Mason, 2013).

Challenges Associated with Copy Cataloguing

There are several challenges that can arise from using catalogue copy, and they include:

errors in MARC coding; varying forms of entry; problems with punctuation; a deficiency regarding a local practice; typographical errors; and insufficient call numbers (Taylor, 1988: 332). However, to reduce workload of cataloguing, the cataloguers need to properly edit the catalogue copy obtained from the CIP or downloaded from the internet as described above. Library management may also need to consider including the type of cataloguing to be adopted in their policies so as to minimize errors in cataloguing. Examples of errors that are likely to be committed during cataloguing have been noted by some library researchers, as argued that,

Twenty-five AACR2 rule errors occurred in descriptive headings in OCLC's records; 29 occurred in RLIN's. These errors related mainly to the choice of main entry versus added entries...this relatively large number of errors relating to headings exhibits a startling lack of understanding of AACR2 Chapters 21-25 among cataloguing experts (Inter, 1989:12).

vii) Commercial Cataloguing

Commercial cataloguing refers to cataloguing services now being offered by a number of firms for a minimal fee (McIntosh, 1997). It may take the form of simplified cataloguing records for only certain titles to customized cataloguing for specialized collections. Care should be taken in choosing this type of cataloguing as some may follow different formats from locally accepted standards.

Advantages of applying commercial cataloguing include:

- Requiring less expertise on the part of the librarians as they will not be very much involved in cataloguing.
- Easy conversion a card catalogue to an electronic format by the commercial vendor.
- Commercial cataloguing saves time for the librarians, hence enabling them to concentrate on other activities such as filing produced cards in a manual catalogue and entering bibliographical records in their library databases.
- It also greatly reduces amount of time required to complete retrospective conversion of the catalogue (McIntosh, 1997).

viii) Descriptive Cataloguing

Descriptive cataloguing is that phase of cataloguing process which is concerned with identification and description of a book and recording of its information in the form of a cataloguing entry (Wynar, 1976a: 12). The term also refers to the physical make-up of the book. When examining books to be catalogued, the cataloguers need to check the cataloguing-in-publication (CIP) data of a given book. The CIP is a bibliographic record prepared by the Library of Congress for a book that has not yet been published (Newton, 2013).

This information of the forth coming books is obtained from publishers who submit copies of published books to the LC so that a catalogue record can be made. This is important for publishers and authors for declaring ownerships of works to be published and fixing of copyright dates. The LC then returns the catalogue record to the publisher in time to be printed on the verso (back) of the title page of the book before it is distributed.

A verso page in books is usually even numbered and contain publishers' information such as CIP and copyright information, while a recto page (page on the right hand side of a book is usually odd numbered, and contain such as title of a book, table of contents, preface, introduction and chapter headings (Business Dictionary.com, 2013).

When the book is published, the publisher includes the CIP data on the copyright page thereby facilitating book processing for libraries and book dealers.

A CIP entry typically provides the following:

- Author
- Title
- Series title if the item is part of a series of publications
- Various important pieces of information about the item,
- Called "notes", such as whether the item has an index
- Subject heading
- Classification number or call number

When carrying out descriptive cataloguing exercise, the library staff needs to add local information such as imprints and collations after making necessary editing for any discrepancies that may exist due to reasons explained above under the copy cataloguing procedure.

Important Things to be Noted by Cataloguers

In carrying out cataloguing activities, the cataloguers are advised to observe the following:

- They should use proper tools and follow the associated instructions.
- They should not mistreat a book by giving it a wrong entry, misspelling the words in a title or giving it a wrong title.
- They should take data from the chief source of information or other prescribed alternatives. If this is not there a cataloguer should look from other sections of the book/material and
- Lastly cataloguers should never include imaginary items in the process of cataloguing library documents.
- Properly edit CIP information that is accompanied with new books that omit local in (Quality Books, Inc., 2005).
- Organise description of the document useful for consistence inciting.

- They should consult various sources for cataloguing information such as
- Punctuate information that is useful for partition of the components of description (Rowley, 1987).

Development of Cataloguing Code (Rules)

A Cataloguing code is a systematic arrangement of compiled rules or laws for cataloguing aimed at avoiding inconsistency and duplication of catalogues (Sarika, n.d). The current cataloguing rules (AACR2) have passed several stages of development which dates back to 1839. Since this is a main cataloguing tool and from which various cataloguing principles have been developed, readers may be interested to know its historical background. This section focus on this issue.

Early English Language Cataloguing Codes

British Museum Rules

- The first major English-language cataloguing code was that developed by Sir Anthony Panizzi for the British Museum catalogue. Panizzi's 91 rules were approved by the British Museum in 1839, and were published in 1841.
- The British Museum rules were revised in 1936, and this made the library departments of the British Museum to become part of the new British Library in 1973.

Cutter's Rules for a Dictionary Catalogue

- The first edition of Charles Ammi Cutter's Rules for a Dictionary Catalogue was published in 1876.
- Cutter's rules set out the first principles of cataloguing and included a statement of objectives of the catalogue.
- The code covered rules for dictionary catalogues including entries for authors, titles, subjects, form headings and description.

Anglo-American Code

Development in United States of America

The American Library Association (ALA) cataloguing rules "Condensed Rules for an Author & Title Catalogue" were first published in the Library Journal in 1883.

- In 1900 ALA appointed a committee led by J.C.M. Hanson of the Library of Congress to revise these rules. Of particular focus was agreement of the ALA rules and the rules of the Library of Congress due to the upcoming introduction of Library of Congress printed cataloguing cards.
- In 1902 an advanced edition of the revised ALA rules was produced by the Library of Congress.
- Efforts were made to bring about uniformity between the ALA rules and the fourth edition of Cutter's rules published in 1904.

Developments in the United Kingdom

- In 1893 the “Cataloguing Rules” of the Library Association (LA) were published.
- In 1902 a Committee was formed to revise these rules, and its work drew heavily on the British Museum rules, and the advanced edition of the revised ALA rules.
- A draft revision of the LA rules was discussed at the 1904 meeting of the Library Association.

Co-operation

In light of the similar work being done on both sides of the Atlantic, Melvil Dewey suggested that there should be co-operation to produce an Anglo-American code. The American Library Association and the Library Association formally agreed to co-operate in 1904. Consultation between the two bodies occurred by correspondence.

- The first international cataloguing code was published in 1908 in an American edition (Catalogue Rules, Author and Title Entries) and a British edition (Cataloguing Rules, Author and Title Entries).
- Both editions contained 174 rules covering both entry and heading for authors, titles and description.
- Areas of disagreement between the two editions centred on authors and publications that changed names or titles.
- In both editions disagreements were explained either in a note or by printing two versions of the rule. Library of Congress supplementary rules were also included where necessary.

A.L.A. Cataloguing Rules

1941 edition

- In the 1930s committees of American Library Association and the Library Association discussed revision of the 1908 rules. The two bodies co-operated until 1939 when the Second World War ended British involvement.
- A preliminary second edition of the American edition of the 1908 rules was published by the American Library Association in 1941, and contained 324 rules in two parts: Part I, Entry and Heading; Part II, Description of book; as well as various appendices, including one on authority cards.

1949 edition

- The 1941 edition was criticised for being too detailed and complex, and in 1949 A.L.A. Cataloguing Rules for Author and Title Entries was published. This edition contained only rules for entry and heading.
- American alternative rules in the 1908 code were reflected in the 1949 code.

Rules for Descriptive Cataloguing in the Library of Congress

- As the 1949 ALA code did not contain rules for descriptive cataloguing, the Library of Congress took responsibility for documenting rules of this nature. As LC catalogue cards were widely used by American libraries, there was interest in the rules used by the LC. These rules were published in 1949 and were adopted by the ALA. Included were rules for separately published monographs, serials and some non-book materials.
- Supplementary rules were subsequently issued for additional non-book formats.

Anglo-American Cataloguing Rules

AACR 1967

- In 1951 the American Library Association asked Seymour Lubetzky, of the Library of Congress, to analyse the 1949 ALA code. An approach was also made to the Library Association regarding co-ordination of revision of the 1949 code.
- In 1953 Lubetzky's report (Cataloguing Rules and Principles) was published. This work advocated a move towards a principle-based rather than case-based code.
- In 1956 Lubetzky was appointed editor of the revised code, and in 1960 he produced the draft Code of Cataloguing Rules; Author and Title Entry.
- The International Conference on Cataloguing Principles was held in Paris in 1961 to examine the choice and form of headings in author and title catalogues. The outcome was a statement of 12 principles known as the Paris Principles.
- In 1962, Sumner Spalding, of the Library of Congress, became the new editor of the code.
- The American Library Association and Library Association co-operated by exchanging minutes and working papers, and attending each other's meetings. In addition, the Library of Congress assisted with revision of the descriptive cataloguing rules, and the Canadian Library Association was involved in reviewing drafts of the rules.
- In 1967 two versions of the Anglo-American Cataloguing Rules (AACR) were published: a North American text and a British text. Both texts of AACR contained three parts: Part I, Entry and Heading, based on the Paris Principles, the 1949 ALA rules, and Lubetzky's 1960 draft. Part II, Description, consisted of revised rules from the 1949 Library of Congress rules. Part III, Non-book materials. It consisted of (rules for both entry and description of non-book materials, revised rules from the 1949 Library of Congress rules and supplementary LC rules. Each text contained an appendix listing rules for entry and heading that slightly differed.

- In 1966 there was a “memorandum of agreement” for continued revision of AACR between ALA and LA. In the light of their earlier involvement, the L C and the Canadian Library Association were also formally represented in the revision process.
- Amendments and changes from 1969-1975 were published for the North American text in the LC cataloguing service and for the British text in the Library Association Amendment Bulletin.

International Standard Bibliographic Description (ISBD) and AACR Revisions

At the International Meeting of Cataloguing Experts in Copenhagen in 1969, a program of International Standard Bibliographic Description (ISBD) was developed. The objective was to identify components in a bibliographic description, their preferred order and the necessary punctuation as explained below:

- The first ISBD standard to be produced was that for Monographs (ISBD (M)) in 1971.
- AACR chapter 6 was revised in line with ISBD (M) and published in two versions in 1974. The revised chapter contained rules for printed monographs and reproductions of printed monographs (including microform reproductions).
- Other ISBDs were developed, leading to the publication by the American Library Association of revisions to AACR chapter 12 (Audio Visual and Special Instructional Materials), and AACR chapter 14 (Sound Recordings).
- In 1975 work began on developing a general framework, known as ISBD(G)

AACR2 1978

- In 1974 the Joint Steering Committee (JSC) for the Revision of AACR was established, with membership from the American Library Association, the British Library, the Canadian Library Association (represented by the Canadian Committee on Cataloguing), the Library Association, and the Library of Congress. The JSC was charged with incorporating the North American and British texts into a single version. The JSC appointed two editors for the revised code, Michael Gorman of the British Library, and Paul W. Winkler of the Library of Congress. The Anglo-American Cataloguing Rules, Second edition (AACR2) was published in one version in 1978. It was divided into two parts: **Part I**, (description), based on the ISBD (G) framework. It included a general chapter (chapter 1), and chapters for individual formats, including new chapters for machine-readable data files (chapter 9) and three-dimensional artefacts and realia (chapter 10). The rules for non-book materials were based on alternative codes that were published in the 1970s. **Part II**, (Entry and Heading). Rules were brought more closely into line with the Paris Principles. AACR2 was adopted by the Library of

Congress, the National Library of Canada, the British Library, and the Australian National Library in January 1981.

- In 1981 an abridged version, the Concise AACR2 was published.
- Revisions to AACR2 were adopted in 1982, 1983 (published 1984), and 1985 (published 1986).
- A draft revision of AACR2 chapter 9 (renamed: Computer Files) was published in 1987.
- From 1981 an Australian Committee on Cataloguing (ACOC) representative was sent to JSC meetings, and from 1986 ACOC became a full JSC member.
- 1988 AACR2 Revision. This incorporated the 1982, 1983, and 1985 revisions plus subsequent unpublished revisions. The 1988 Revision was published in both book and loose-leaf format.
- One set of amendments was published in 1993.

1998 Revision

- The 1998 Revision of AACR2 incorporated the 1993 amendments, and revisions were approved between 1992 and 1996.
- The 1998 Revision was published in book and CDROM format.
- Amendments packages were published in 1999 and 2001. The 2001 amendments included a complete revision of chapter 9 (renamed: Electronic Resources).

2002 Revision

- The 2002 Revision of AACR2 incorporated the 1999 and 2001 amendments, and changes approved in 2001, including complete revisions of chapter 3 (Cartographic Materials) and chapter 12 (renamed: Continuing Resources).
- The revision of Chapter 12 arose from a recommendation of the International Conference on the Principles and Future Development of AACR, and IFLA-led efforts to harmonize ISBD (CR), ISSN practice, and AACR2.
- In 2002 AACR was published only in loose-leaf format (Sarika, n.d).

2.3 Application of Anglo-American Cataloguing Rules (AACR2)

These rules provide guidance on how to organise bibliographic information in a systematic way. They prescribe which information from a bibliographic item is included in the entry; how this information is presented on a catalogue card and how entries should be sorted in the catalogue (Barman 2013). They are flexible enough to permit an acceptable treatment of exceptions.

These rules which were jointly prepared by American Library Association, The British Library, The Canadian Committee on Cataloguing, The Library Association, UK, and The Library of Congress, were published in 1978 by the American Library Association and Canadian Library Association.

The rules have two parts and four appendices as shown below:

Part I: Description

- i. General Rules for Description
- ii. Books, Pamphlets and Printed Sheets
- iii. Cartographic Materials
- iv. Manuscripts
- v. Music
- vi. Sound Recordings
- vii. Motion Pictures and Video Recordings
- viii. Graphic Materials
- ix. Machine-Readable Data Files
- x. Three-Dimensional Artifacts and Realia
- xi. Microforms
- xii. Serials
- xiii. Analysis

Part II: Headings, Uniform Titles and References

- i. Choice of Access Points
- ii. Headings for Persons
- iii. Geographic Names
- iv. Headings for Corporate Bodies
- v. References

Appendix A: Contains instructions for Capitalization

Appendix B: Contains list of Standard Abbreviations

Appendix C: Deals with Numerals

Appendix D: Glossary

AACR-II prescribes three levels of details in the description depending upon the nature and the size of the library. The first level provides a brief cataloguing description just to identify a particular document. It is recommended for a small library. The second level description is recommended for a medium size library, whereas the third level of description includes all the elements prescribed in the AACR-II and is recommended for big libraries. This book will focus on the second level of description.

Type of Information Needed for Cataloguing

The cataloguer needs the following information about a document for cataloguing:

- i. Name of the authors
- ii. Name of the collaborators
- iii. Title, subtitle or alternative title of the document
- iv. Edition
- v. Name of the series
- vi. Editor of series

- vii. Name, place and year of publication
- viii. Size and number of pages of the document
- ix. Copyright year
- x. ISBN/ISSN

Sources of Information Needed for Cataloguing Library materials

- **Books**

The prescribed source of information for the preparation of entries (bibliographic records) of books is the title page. It provides most of the information about the book. It is often located on the next third preliminary page of a book as illustrated on the parts of the book at (<http://goo.gl/xoFO9F>). The title page, in upper most part of it, contains the title and subtitle (if any) of the book. The names of authors and collaborators with their working institutions are given in the middle of the page. In the lower part, the name of the publisher, place and year of publication and price if any are given. If there is no title page, one can consult the cover caption or the half title page of the book that provide only the title of the book. Sometimes, the name of the series is also printed on this page. The verso (back) of the title page contains information such as copyright year, print and reprint, edition, name and address of the publisher and price.

- **Periodicals (Journals):** The main source of information is the cover page including other subsequent pages.
- **Maps:** They normally have labels where there are colours, publishers and the scales.
- **Music records** especially tapes/discs: They normal have labels on their covers. The labels may show information such as speed per second, name of creator and date of manufacture.
- **Movies and Video Tapes:** The source of information can be found on the cover/case.
- **Manuscripts:** These are documents which have not been published and some can be hand written. The source of data for these is: the *front page* where one can find the title, author, date and other related needed information.
- **Three Dimensional Artifacts Figures:** Examples of these are: carvings and other moulded items. These normally come with labels which usually provide information such as the name of the artifact, creator, dimension, height, width and length.
- **Electronic documents:** These are available in computers and other electronic media, and they are normally referred to as e-publications. Needed information can be found on the title page and other subsequent preliminary pages after the document has been opened.

Types of Entries

Each library prepares various unit records for each document in its holding. These unit records are prepared to meet the various need and approach of the library user to the document. These unit records are called as entries. There are two main types of entries i.e., (main entry and added entry).

Main Entry

This is an author entry of a library item. The AACR-II regard the main entry as a complete catalogue record of a library item, presented in the form by which the entity is to be uniformly identified and cited. The main entry normally includes the tracing of all other headings under which the record is to be represented in the catalogue. If the author is diffused or not known the main entry is prepared under the title. The Main Entry is the complete catalogue record of an item. It also includes the tracing of all other headings under which the record is to be presented in the catalogue.

Added Entry

This is a secondary entry, additional to the main entry, by which an item is represented in a catalogue (AACR-II, 1978: 563). The additional entries supplement the main entry by providing an additional approach to the documents listed in the catalogue. There are different types of added entries, i.e. Joint author(s), Editor(s), Translator(s), Compiler(s), Subject, Title, Series, etc. The number and kind of added entries required by a document depends upon the nature of a particular document and also on the nature of the catalogue used in a library.

Reference: This is a direction from one heading or entry to another. There are different types of references in AACR-II. They are See Reference, See also Reference, Name title Reference, Explanatory Reference, etc. Out of all the references “See” and “See also” type of references are frequently used.

See Reference: It directs the user of a catalogue from a form of the name of a person or a corporate body or the title of a work to the form that has been chosen as a name heading or a uniform title.

Examples: Prof Kuzilwa Joseph Andrew: See Kuzilwa Joseph A.

See Also, Reference: This directs the user from one name heading or uniform title to another that is related to it. If the works of one person or corporate body are entered under two different headings a “see also” reference is prepared from each heading.

Example: Home Science: See also Interior decoration

Application of these rules is provided in Chapter Three about practical cataloguing.

The Purpose of Cards in Cataloguing

The original purpose of the card as a cataloguing tool was to aid in material retrieval by users, to make access points available from the descriptions on the card, to determine the title, author and subject of the work, and to establish authority control. The section that follows narrates development of cards and final conversion to online catalogues by most libraries particularly in developed countries.

Early Cards

The earlier cards used for catalogues were playing cards which were larger in size and did not have any pattern but were blank on the back. These cards which were obtained during wartime around 1789 were used to record information of books and other manuscripts that were placed in the literary depots in several locations in Paris after being confiscated by the Constituent Assembly from the enemies during the wartime.

During recording activities, title pages of books were transcribed on card and author's surnames were underlined for filing purpose. For books which did not have authors, keywords in the titles were underlined. A collation was added that was to include number of volumes, size, a statement of illustration and any missing pages. This elaborate collation was partly for the purpose of identifying valuable books that the government might offer for sale in order to increase its revenue. After the cards were filled in and put in order by underlining filing words, they were strung together by running a needle and thread through the lower left hand corners to keep them in order." (Hopkins, 1992). The staff at each depot who recorded information about books on cards were also tasked to bind cards in bundles and after completion of the assignment they took the cards to the Paris Bureau (Jackson, 1974:275).

Handwritten Cards and Typewritten Cards

Before the widespread use of typewritten cards, the cards for catalogues were handwritten in the approved style. According to Melvil Dewey, the Director of the New York State Library, 'it pays for a person in the library position to write a library hand (New York State Library School, 1903: 278). Even though the Library of Congress had begun distributing typewritten catalogue cards in 1901, handwritten cards were still preferred for years by many library directors.

Typewritten Cards

The typewritten cards started to be used around 1930 after type-writers started operating. This concurs with the argument that, 'while handwritten cards cannot be abolished altogether... the typewriter should be used in modern days to type cards, for the sake of clarity' (Lee, 1977).

Library of Congress Purchased Cards

The Library of Congress (LC) started selling cards after popularizing their usage in United States around 1901 and thereafter increased production of cards by 1938 following increase in demand for the cards from small libraries (Taylor, 2004).

Most libraries which purchased LC cards they customized them to fit their local needs. These cards were preferred because they gave full details of records of items. Some library scholars recommended usage of LC cards on the ground that they are not only economical but they have been prepared by experts than to be made by individual libraries with had little expertise (Dana, 1920).

In the late 1960s two developments changed the future of cataloguing. The Library of Congress created the MARC format, enabling the machine readability of bibliographic records. The Online Computer Centre (OCLC) was developed in Dublin, Ohio and started providing cataloguing information via cables and terminals to all its member libraries (Taylor, 2004). These two developments paved the way for the creation of Online Public Access Catalogues (OPACs). Because of the considerable amount of cost savings, most libraries particularly in developed countries have frozen usage of cards after converting to online catalogues .

Examples of these universities ended usage of cards are:

- i. The University of Tennessee which in 1985 declared in its Library journal to have saved \$15,000 per year by replacing its card catalogue with the online system.
- ii. The California library sold its card catalogue drawers at an auction to the highest bidder.
- iii. Alfred University in New York burned 100,000 cards to symbolize the ending of the paper path and the beginning of a new computerized road.
- iv. The Danbury, Connecticut Public Library had a mock funeral for the library's card catalogue.

However, cards are still used in most libraries in developing countries.

Book Cards

Book cards are charging cards. They keep a record of who has borrowed a book. One card has to be made for each book catalogued. They are normally of 3" x 5" in size and upright. At the top of the 1st side of the card there is space for a call number, accession number (and/or copy number) author and title. For the newly catalogued books, this information is printed on the book card to be used as records when lending books to users.

Book Pockets

- Book pockets are designed to hold the book card in each book. They are strong enough to withstand wear and tear and light enough to be used in a typewriter. The book pocket is pasted on the second side of the book cover mainly at the bottom of the book cover page. Information such as call number and accession number are printed at the top of the book pocket to be used as records when lending books to users. The date due slip is fixed on the 1st preliminary page of the book.

The class number, consisting of three initials of the authors surname is placed on the spine of the book for ease in shelving and locating books.

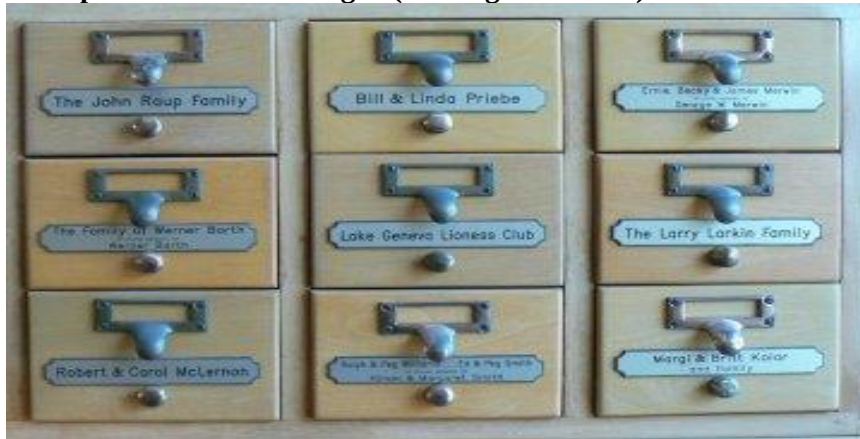
Catalogue Card and Card Catalogue

These two terms are sometimes used interchangeably but they are different. The catalogue card is the card on which bibliographic information is written, while card catalogue is the card holder or cabinet having drawers onto which cards are stored (Nix, 2008), as shown below in Example 1 and 2. The traditional catalogue card on which bibliographic information of items is recorded, has a width and length of 3 x 5 inches (7.5cm x 12.5cm) which are filed in drawers. It is relatively inexpensive and easy to set up and maintain. Entries on separate cards can be added or removed as necessary without affecting other parts of the catalogue. This type of catalogue is easy to use, especially if the drawers are well labelled, the information on the cards is consistently presented and the cards are filed consistently using filing rules such as the ALA Filing Rules set in 1980.

Example 1: A Catalogue Card

	364 .1 SAR
SARVARIA, S.K.	
Law relating to notaries: commentary on the notaries Act, 1952 and notaries rules, 1956 along with relevant statutes / by S.K.Sarvaria,Snigdha Sarvaria and assisted by Apoorv Sarvaria foreword by Kailash Gamnhir. - New Delhi: Universal Law Publishing Co., c2009.	
xxvii,353p. : ill.; 25cm.	
Includes bibliographical references and Index.	
ISBN 9788175347496: Tshs 10,000=	
1. Law - Notaries I. Sarvaria, Apoorv II. Title.	

Example 2: A Card Catalogue (Catalogue Cabinet)



2.4 Cardinal Principles of Cataloguing

Cataloguing is a professional activity that follows laid down procedures or rules set by professionals in the field. The existing rules that guide cataloguing are the AACR2. These rules prescribed how library materials are to be catalogued. These fundamental principles of cataloguing that were derived from the said rules that needs to be observed by cataloguers are as highlighted below:

- i. Catalogue the work in hand. That means that the choice of the main entry and everything relating to the item's description should be based on the work itself, not any related work.
- ii. Transcribe accurately: Anything that is cataloguer-supplied or not found in the chief source of information must be placed in **square brackets**.
- iii. If a work has one named personal author that person is the **main entry**.
- iv. If a work has one named editor or compiler, that person is an **added entry**. The main entry becomes a title. Exceptions: the compiler of a dictionary, bibliography, or book of quotations may be considered the "author" (and main entry) in many cases.
- v. If a work has two or three named **personal authors** (presumably sharing equal responsibilities) the main entry goes to the first-named person and added entries are made for each of the other two authors.
- vi. If a work has four or more personal authors (presumably sharing equal responsibilities) an added entry is made for the first-named person only. (the main entry becomes the title).
- vii. If a work has no named personal author or corporate body claiming responsibility, the cataloguing starts with a **title as a main entry**.
- viii. If a work has only a corporate body (21.1B2) claiming responsibility, the work has a corporate main entry if the work is:

- The policies, procedures, finances, operations, officers, staff, membership (e.g. directories), resources (e.g., catalogues, inventories) of the corporate body.
 - Laws, decrees, administrative regulations, constitutions, court rules, treaties, court decisions, legislative hearings, religious laws, or liturgical works of the corporate body.
 - Records of the collective thought of the body (reports of commissions, committees, and official statements of position on external policies).
 - Reports of the collective activity of a conference, of an expedition, or of an event falling within the definition of a corporate body, provided that the conference, expedition, or event is prominently named in the item being catalogued.
 - Cartographic materials emanating from a corporate body other than a body that is merely responsible for their publication or distribution.
- ix. Anything that appears as an added entry must appear somewhere in the body of the cataloguing (SCRPC, 2001).

Study Questions

1. Describe how a cataloguer uses AACR2R (the code) and MARC encoding to make a descriptive record retrievable. Provide examples.
2. Give reasons why knowledge should be organized.
3. What are the differences between cataloguing and library catalogue?
4. Explain different types of entries produced in cataloguing
5. Compare the contributions of Charles Ammi Cutter and Antonnie Pannizzi towards the development of earlier cataloguing codes.
6. Discuss giving examples, the different types of catalogue entries as given in Classified Catalogue Code.
7. Define the term “Library Catalogue” Discuss its objectives, purpose and functions.
8. Explain different cards as used in cataloguing

CHAPTER THREE

PRACTICAL CATALOGUING

3.0 Introduction and Definition

Practical cataloguing deals with actual cataloguing of library items for determination of various access points (Sibley, 1998). This requires application, at times combination of different types of cataloguing addressed in Chapter Two. Since actual cataloguing exercise, begins with description of an item, a descriptive cataloguing will mainly be applied supplemented by others. Descriptive cataloguing therefore, deals with identification of information of items such as title, edition statement if any, ISBN, series, and notes that describe important features of the work, such as bibliography or index (Oklahoma Department of Libraries, 2004). When examining books, cataloguers may also find CIP information that can speed up cataloguing of a given document as explained in the previous chapter.

3.1 Descriptive Cataloguing Process

Descriptive cataloguing consists of two elements: describing the *physical item*, and determining the main entry and *added entries*. Objectives of describing items are three folds:

- To identify necessary information required for cataloguing.
- To enable patrons to easily retrieve a book after being catalogued.
- To place an entry in its most useful position under a chosen heading so that it can occupy its specific position during filing (Rowley, 1987; Wynar, 1976a).

In this Chapter, the key elements determining main entry, correct formatting of entry, and physical details of entries are shown. The proper punctuation, layout and the style of cataloguing are shown rather than explained.

Describing a book is recording the bibliographical information (author, title, publisher, date, number of pages for each of the books on a catalogue card with size 7.5cm x 12.5cm .This information is drawn from the title page of each book. Follow the punctuation style precisely as it is described and illustrated in this Chapter. The cataloguer is therefore required to write or print information clearly to enable the data typist or data entry librarian to process or enter it into catalogue card or library database.

3.2 Descriptive Cataloguing Milestones

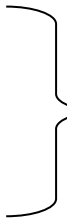
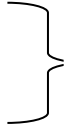
- 1841 — Sir Anthony Panizzi's 91 rules for the British Museum. First major modern cataloguing code.
- 1876 — Charles Ammi Cutter at the Boston Atheneum writes Rules for a Dictionary Catalogue. The 4th ed., published in 1904, still forms the basis of our cataloguing code.
- 1901 — Library of Congress (LC) starts selling its printed cards.
- 1908 — American Library Association (ALA) and the British Library Association (BLA) publish AA 1908, which codifies LC practice and the card format.
- 1949 — LC publishes Rules for Descriptive Cataloguing and ALA publishes Cataloguing Rules for Author and Title Entries.
- 1961 — International Conference on Cataloguing Principles held in Paris, resulting in the Paris Principles. Based on draft rules by Seymour Lubetzky, these deal with choice and form of entry, and strongly resemble Cutter's principles.
- 1966-68 — MARC pilot project begins, involving LC and 16 libraries.
- 1967 — Anglo-American Cataloguing Rules (AACR) was published, based somewhat on the Paris Principles. The Americans choose not to convert existing headings to the new rules.
- 1969 — International Meeting of Cataloguing Experts in Copenhagen drafts ISBD to standardise order and content of bibliographic description published in 1974.
- 1969 — LC publishes the Machine Readable Card (MARC II) format, based on field testing and input from participating institutions.
- 1971 — Online Computer Library Centre (OCLC) was founded to take advantage of the capabilities of MARC for shared cataloguing.
- 1978 — Anglo-American Cataloguing Rules, 2nd ed. (AACR2) was published. Implementation held until January 1, 1981. The Paris Principles triumph at last. First code allowing integration of print and non-print in the same catalogue.
- 1988 — AACR2 Revised edition is published. The code proves durable and updatable.
- 1998 — AACR2 1998 Revision is published, incorporating rule changes since 1988.
- 2002 — AACR2 2002 Revision is published, rewriting Chapter 9 as Electronic Resources, and Chapter 12 as Continuing Resources. Annual updates are published.

Tools for Cataloguing

A cataloguer requires certain tools before preparing a bibliographic information of a document. These tools include the following:

- Anglo-American Cataloguing Rules (AACR2R)
- Subject heading list (Sears List of Heading or LC Subject Heading)
- Classification schemes (DDC or LC)
- Cutter tables
- Filing rules (ALA filing rules)

- Reference books (Dictionary, Thesaurus and Lexicon);

- Describe the item in hand.
 - Choose the access points.
 - Choose the form of headings.
- 
- Description and Access
-
- Assign subject headings.
 - Classify and assign call number.
- 
- Subject Analysis
-
- MARC tag for data entry.

Steps in Cataloguing and Classification

Bearing in mind the needs of the user, the cataloguer must always ask, “How will the user look for this item?” Following standard rules such as AACR2r produces a complete, concise, accurate and clear record for the work being described. AACR2r deals not only with what the work looks like, but also tells the cataloguer how to choose the person or corporate body responsible for the intellectual content of the described work (Maxwell, 1993). Concerning sources of information for cataloguing books, chapter two of AACR2r gives the cataloguer these clear and explicit directions:

“The chief source of information for printed monographs is the title page or, if there is no title page, the source from within the publication that is used as a substitute for it. For printed monographs published without a title page applying to the whole work (as in the case of some editions of the Bible and some bilingual dictionaries), use the part of the item supplying the most complete information, whether this be the cover (excluding a separate book jacket), half title page, caption, colophon, running title, or other part. If no part of the item supplies data that can be used as the basis of the description, take the necessary information from any available source. If information traditionally given on the title page is given on facing pages or on pages on successive leaves, with or without repetition, treat those pages as the title page” (Gorman, 1988: 62.).

Special considerations must often be applied when cataloguing children’s materials. Those who use this type of material often have distinctive characteristics and needs. While AACR2r defines three levels of cataloguing, the level recommended for children’s materials is the second level. This description includes those items required

in brief cataloguing, such as author, title, edition statement, publisher's name, date of publication, a brief physical description,

notes essential to the use of an item and standard numbers. Further, it calls for the addition of items considered as essential as search tools for children, parents and teachers such as dimensions, other statements of responsibility (such as illustrator) and series (Zuiderveld, 1991).

Each cataloguing record, whether displayed on a computer or on a card, contains basic information that is required as a part of standards established for consistency in cataloguing. The purpose of cataloguing is in part to create a unique description of each item in a library's collection. This is done in several sections that are reviewed below.

The first section of information is usually the descriptive section. This includes information on:

- The title.
- The format of the item.
- The person (s) responsible for creating the information
- The edition (if any).
- Information about the publisher and the date of publication
- A physical description of the item
- Information about any series that the item is a part of.
- Necessary notes that further describe the item.

Particular types of punctuation are used to separate the parts of this descriptive information, so that each type of information can be clearly read and will not be confused with other areas. Whether the record is on a computer or on cards, this descriptive information should be consistent.

In looking at the computer record below, from the Mzumbe University Library database, the author, title and format appear near the top of the record. The title, Management, has a subtitle, "Theory and practice". This is followed by the author, Gupta, G.S. Next comes the publication information, which indicates that the publisher is Tata McGraw-Hill the date is 2008. The location of the publisher is given as New Delhi. The next area shown is the physical description, which indicates that this is a book that is 532 pages long; it has illustrations, and is 23cm. tall. This item does not have an edition statement, so that area is omitted. There is also no series.

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GUP

GUPTA, G.B

Management: theory and practice / G.B Gupta. - 13th ed revised and enlarged. -
New Delhi: Sultan Chand and Sons, 2009.

xxix, various paging : ill ; 24cm.

Includes bibliographic references and index

ISBN 9788180547065:

Tshs 45,982.35=

1. Management I. Title



Several notes are included in this cataloguing record, not necessarily to further describe the item physically, but to indicate further details that might be helpful in identifying the item, or information of interest to someone looking for this book. The ISBN number assigned to this item is included, as well as a summary of the story and information about the series of related stories of which this is a part. There are two categories of notes, formal and informal. Formal notes are those always done in a particular style, often with punctuation that divides titles or performers or other pieces of information. Informal notes are any notes that the cataloguer felt might be useful to include, either for the library staff looking at the record, or for the patron accessing the item. The notes in this record fall into both categories. The series information is an informal note, and the ISBN number and summary are formal ones. A complete listing of the types of notes that can be used is available in a cataloguing rule book such as The Concise AACR2: 1998 Revision by Michael Gorman, 1999. A basic cataloguing rule book should be a part of the collection of any library that catalogues non-book materials.

3.3 Levels of Detail in the Description

Based on AACR2 1.0D

The elements of description in the rules provide for a maximum set of information. This rule sets out three recommended levels of description each containing those elements that must be given as a minimum by archives and other cataloguing agencies choosing that level of description. Choose the level of description on the basis of the purpose of the catalogue or catalogues for which the entry is constructed, and the resources available to carry out the work.

Include the minimum set of elements for all items catalogued at the chosen level when the elements are applicable to the item being described and when, in the case of optional additions, the archive or cataloguing agency has chosen to include an optional element.

The AACR2 recommends three levels of description. Whichever level is selected or opted must include all the elements applicable to the level. Of course, all items catalogued will not have all every element. For instance, an item may not have a series; or it does not have a series, it may not be numbered. The level of description used is a professional decision based on a library's needs and the library staff's skills.

Most libraries will probably use the second level description; examples in this text will be based on the second level description.

1. First level of description (minimal). (1.0D)

Adapted from AACR2 1.0D1 for the first level of description includes at least the elements set out below: Title proper / first statement of responsibility. - edition statement. - First publisher, etc., date of publication, etc. - copyright. - Extent of item. - Note(s). - Number(s). This first level would probably appeal to school libraries and small to medium public libraries. Some special libraries might also find this level satisfactory.

First Level Description

Title proper/first statement of responsibility, if different from the main entry heading in form or number or if there is no main entry heading. -Edition statement. - material (or type of publication) specific details. -First publisher, etc., date of publication, etc. -Extent of item. -Note(s). -standard number



Figure I (a). Card Example of First Level of Description

	150 MYN
MYNENI R. S.	
Psychology / by S.R. Myneni. – 2 nd ed. - Hyderabad: S.P.GOGIA, c2010.	
xxxii, 544p.: ill.; 21 cm.	
Includes bibliographical references and index.	
ISBN 9789380087955	Tshs 45000=
	

Example 1b

	364 .1 SAR
SARVARIA, S. K.	
Law relating to notaries: commentary on the notaries Act, 1952 and notaries rules, 1956 along with relevant statutes / by S. K. Sarvaria, Snigdha Sarvaria and assisted by Apoorv Sarvaria foreword by Kailash Gamnhir. - New Delhi: Universal Law Publishing, c2009.	
xxvii, 353p.ill. ; 25cm.	
Includes bibliographical references and Index.	
ISBN 9788175347496	
	

Example 1c

		027 .7 JUN
JUNION-METZ, Gail		
Instant web forms and surveys for academic libraries / Gail Junion-Metz and Dererk L. Metz. - New York: Neal-Schuman Publishers, 2001.		
xiii, 267p. : ill. ; 28cm.		
Includes matching perl scripts, tutorials and index.		
ISBN: 1555704123. Tshs 23450=		
○		

NB:

Not all elements are applicable. For example, edition and ISBN are not recorded in the example since the book has no ISBN and edition statement.

Explanation of Card Layout

The diagram shows a library card with various parts labeled with letters and arrows pointing to them:

- a**: Points to the call number **027 .7 JUN** in the top right corner.
- P**: Points to the author **MUSIBA, Pius, J.** on the left.
- g**: Points to the title **The paradox of disappeared books: a case study of book theft at Mzumbe University Library / Pius Musiba and Juma Muhusin.**
- h**: Points to the edition statement **-2nd ed.**
- c**: Points to the publisher **Nansio: Nasio Book Publishers, 2013.**
- h**: Points to the physical description **xxxvii, 781 p. : col. ill. ; 25 cm.**
- d**: Points to the note **Includes bibliographical references and index**.
- e**: Points to the price **Tshs 37,760=**.
- e**: Points to the first note **1. Book theft in Higher Learning Institutions-Tanzania**.
- n**: Points to the second note **2. Library vandalism and textual mutilation I. MUHUSIN, Juma, II. Title**.
- m**: Points to the subject **1. MUHUSIN, Juma, II. Title**.
- k**: Points to the subject **1. MUHUSIN, Juma, II. Title**.
- j**: Points to the subject **1. MUHUSIN, Juma, II. Title**.

In simplified cataloguing, the basic catalogue card consists of the following:

- a) Call number (including DDC number, three initial letters of the main entry, and the first letter of the title.
- b) Title proper and Other title information
- c) Statement of responsibility
- d) Edition statement
- e) Place of publication
- f) Publisher
- g) Date of publication
- h) Physical dimension of the item
- i) Other physical details
- j) Added entry(author)
- k) General notes
- l) Standard number
- m) Terms of availability
- n) Tracing for subject heading (in Arabic numerals, 1, 2, 3, 4. e.t.c).
- o) Tracing for added entries (in Roman letters, i.e. i, ii, iii, iv, e.tc)
- p) Author

2. Second Level of Description (2.0D) (full) – most catalogue at this level

Adapted from AACR2 1.0D2 for the second level of description, include at least the elements set out below:

Title proper [general material designation] = Parallel title: other title information / first statement of responsibility; each subsequent statement of responsibility - edition statement / first statement of responsibility relating to the edition. - First place of publication, etc.: First publisher, etc., date of publication, etc. - copyright. - Extent of item: other physical details; dimensions. - (Title proper of series / statement of responsibility relating to series, ISSN of series; numbering within the series. Title of subseries, ISSN of sub-series; numbering within subseries). - Note(s). - Number(s).

This level has become the standard level of description. It would be adopted by academic libraries, large public libraries, and some special libraries. It would probably be the level of cataloguing available through much of the shared or commercial cataloguing. The second level is the standard for this course.

Example

Title proper [general material designation = parallel title: other title information/first statement of responsibility; each subsequent statement of responsibility.-edition statement /first statement of responsibility relating to the edition.-material (or type of publication) special details.-First place of publication, etc.: first publisher, etc., date of publication, etc. .- Extent of item: other physical details; dimensions. - (title proper of the series/statement of responsibility relating to series, ISSN of series; numbering within the series. Title of sub series, ISSN of sub series; numbering within subseries).-Note(s).- Standard number ISBN-



NB:

Not all elements are applicable. For example, edition and INSBN are not recorded in the example since the book has no ISBN and edition statement.

Card Example Description of the Second Level Description (Example I a)

370
.15
EDU

Annual editions: educational psychology 2007/2008 / edited by Katherine M. Cauley and Gina M. Pannozzo. - 22nd. ed. - New York: Dubuque, 2008.
xvi, 223p. : ill. ; 27cm. - Annual Educational Edition Series.
Includes bibliographical references and index.
ISBN 9780073397375: Tshs 45661/=

1. Educational psychology I. CAULEY, Katherine M. (editor) II. Pannozzo, Gina M. (editor) III. Title IV. Series



Card Example Description of the Second Level Description (Example I a)

	519 .5 SAN
SANDERS, Donald. H.	
Statistics: a first course / Donald H. Sanders; Robert K. Smidt. - 6th ed. - Boston: McGraw-Hill, 2000.	
xx,709p. : col. ill. ; 26cm.+ (1CD ROM in pocket).	
Includes bibliographical references and index.	
ISBN 0-07-229547-3: Tshs 45,000=	
1.Statistics I SMIDT, Robert K. I. Title.	

Example 1b

	344 .2076 SAR
SARKAR, S.	
Sarkar's law of evidence / by Sudipto Sarkar and v.R. Maushar. - 14th ed. (thoroughly revised and enlarged). - Agra : Wadhwa and Company, 1993.	
2v. (xxv 1332 p.: clxxvi, 133-2285 p. : ill.; 25cm.	
Includes bibliographical references and index	
Content: This book contains 2 volumes. Vol. 1. the Indian evidence, 1872 section 1-100	
Vol.2 The Indian evidence Act, 1872 section 101-167. index	
1. Evidence law-India I. Title.	

Example 1 d

338	
.9678	
TRA	
TRANSITIONAL economic policy and policy options in Tanzania / edited by Samuel M. Wangwe, Haji H. Semboja and Paula Tibendebage. - Dar es Salaam: Mkuki na Nyota Publishers, for economic and social research foundation, 1998. viii, 136p.: ill.; 24 cm. - (Tanzania political economy series No. 1). Includes bibliographical references. ISBN 9976973411: Tshs 20,000=	
1. Economic policy-Tanzania. I. WANGWE, Samuel. M. (editor). II. Title. III. Series.	
	

3. Third level of description (3.0D) (detailed)

The basic difference between the third and second level is the inclusion of all the optional elements in the third level. It would probably be used for rare book or special collections in national libraries or large academic libraries. It may also be selectively applied to specific types of materials (motion picture, sound recordings) in some libraries.

NB:

- The third level of description includes all elements set out in the AACR2 that are applicable to the item being described.
- Libraries may choose to catalogue some materials at full level and others at minimal, based on staffing, expertise (subject, language, format), cost, or any other criteria.

For most libraries, it is not economically feasible to catalogue everything at full level. Cataloguers are constantly balancing the need to meet the goals of Description and Access with the cost of cataloguing.

Punctuation (*Based on AACR2 1.0C1*)

- Precede each area, other than the first, or each occurrence of a note or number, by a full stop, space, dash, space (. -) unless the area, note or number begins a new paragraph.
- Precede or enclose each occurrence of an element of an area with standard punctuation as outlined above, and also prescribed at the head of each area.

- Precede each mark of prescribed punctuation by a space and follow it by a space, except for the comma, full stop, hyphen and double hyphen and closing parentheses and square brackets. The comma, full stop, hyphen, double hyphen and closing parentheses and square brackets are not preceded by a space; the opening parentheses and square brackets are preceded by a space.
- Precede the first element of each area, other than the first element of the first area or the first element of an area beginning a new paragraph, by a full stop, space, dash, space. When that element is not present in a description, precede the first element that is present by a full stop, space, dash, space instead of the prescribed preceding punctuation for that element.
- Indicate an interpolation (i.e. data taken from outside the prescribed source(s) of information) by enclosing it in square brackets. Indicate a conjectural interpolation by adding a question mark within the square brackets. Indicate the omission of part of an element by the mark of omission (...). Precede and follow the mark of omission by a space. Omit any area or element that does not apply in describing an individual item; also omit its prescribed preceding or enclosing punctuation. Do not indicate the omission of an area or element by the mark of omission.

International Standard Bibliographic Description (ISBD)

The International Standard Bibliographic Description (ISBD) is a set of rules produced by the International Federation of Library Associations and Institutions (IFLA) to create a bibliographic description in a standard, human-readable form, especially for use in a bibliography or a library catalogue. A consolidated edition of the ISBD was published in 2007 and revised in 2011, superseding earlier separate ISBDs for monographs, older monographic publications, cartographic materials, serials and other continuing resources, electronic resources, non-book materials, and printed music. IFLA's ISBD Review Group is responsible for maintaining the ISBD.

Purposes of International Standard Bibliographic Description

The major purpose of ISBD is to facilitate the international exchange of bibliographic information by standardizing the elements to be used in the bibliographic description, assigning an order to these elements and specifying a system of symbols to be used in punctuating these elements. Wynar (1992) and IFLA (2004) noted that specifically ISBD intends to:-

- a. Make records from different sources interchangeable, so that records produced in one country can be easily accepted in library catalogues or other bibliographic lists in any other country;
- b. Assist in the interpretation of records across language barriers, so that records produced for users of one language can be interpreted by users of other languages; and
- c. Assist in the conversion of bibliographic records to electronic form.

Standards for Spacing, Punctuation, Capitalization Abbreviations and Numerals in ISBD and AACR

Following is a summary of the use of each mark of prescribed punctuation (see rule 1.0C Punctuation).

Spacing

1. Author heading begins on the third line from the top of the card
2. Single space the entries, with the exception of double space before beginning a note or statement of content
3. Leave one space before and one space after the following:
 - a) Equal signs used to indicate parallel titles eg. African socialism = Ujamaa wa Kiafrika ,
 - b) Colons: Library classification and cataloguing: a text for beginners, 366p. : ill., Mzumbe: Mzumbe University Press.
 - c) Slashes used to indicate the statement of authorship e.g. Library classification and cataloguing: a text for beginners / G.E. Mosha and G.K. Bea
 - d) Dashes used following the period that ends the title and statement of authorship, the edition area, and collation area e.g. by G.E. Mosha and G.K. Bea. – 2nd ed. – Mzumbe.
 - e) Semicolon: Used to indicate different functions of subsidiary authorship: by J.P. Musiba;
 - Used to separate to separate illustrative materials from the size from the collation = ill. ; 26cm.
 - Used to separate numbering from the series title: Studies in Tanzanian languages; no.1.
 - f) The ampersand (&) used to separate accompanying materials from the size in the collation: 30cm. & atlas.

NB:

- Omit the space before all commas, periods (full stop), hyphens, closing parentheses, and closing square brackets.
- Omit the space after all opening parentheses, opening square brackets, and hyphens that are followed by additional information.

4. Leave one space after

- a. Periods ending the title and statement of authorship area: - by G.E. Mosha and G.K. Bea. – 2nd ed. – Mzumbe.
- b. Periods ending the edition area (see example in 4. (a) Above.
- c. Comma separating publisher from date of publication:- e.g. Library classification and cataloguing: a text for beginners / G.E. Mosha and G.K. Bea . – 1 st ed. - Mzumbe, 2013.

5. Use of comma

- a. Between the name of publisher and the date of publication in the imprint area: - Dar es Salaam University Press, 2013.
- b. Between different pagination of sections of a work: - xxx, 446p.,
- c. To separate surname and forename:- Musiba, July.
- d. Following forenames when words are added Musiba, July, ed.
- e. To separate date, number, place, or designation from the name or heading, unless a specific rule provides or indicates or otherwise.
- f. To precede each subsequent edition statement
- g. To precede the ISSN [International Standard Serials Number] of a series or subseries in the series area.
- h. Between different pagination section of a printed work: - xxxii, 274p. ,

6. Use semicolon

- a. To indicate different functions of subsidiary authorship:- J. P. Musiba ; foreword Musini, ill., by Richard Shirima
- b. Between illustrative material and size in the collation area:- ill. ; 27cm.

7. Use full stop/period

- a. At the end of imprint area, unless the final mark of punctuation is bracket:
 - Mzumbe University Press, 2013.
 - McGraw Hill Publishers, 2013 [c 2012]
- b. At the end of notes:
 - Includes bibliographical references and index.
- c. At the end of each entry in the tracings:
 - 1. Classification
 - I. Title.
 - Series.
- d. After abbreviations:
 - ill.
 - col.
 - ed.

8. Use parentheses

- a. To enclose series area
 - (Educational Series)
- b. To enclose physical details of accompanying material in physical description area
 - (CD ROM in Pocket)
 - 2v. ; 32 cm. + 1 atlas (200 leaves of plates : 30 col. Maps ; 44 cm.)
- c. To enclose the continuous pagination of a multivolume **monograph** after the number of volumes (According to the Anglo American Cataloguing Rules, Second Edition (1998), a monograph is defined as

- “A non-serial item (i.e., an item either complete in one part or complete, or intended to be completed in a finite number of separate parts)” (620).
- d. For designation of theses:
 - Thesis (M.A.) Mzumbe University , 2013.
 - e. To enclose qualifications to the standard number or terms of availability:
 - ISBN 9783598220425 (pbk.)

Use square brackets:

- a. To show that the information enclosed has been supplied from a source other than the prescribed sources source of information according to AACR2R:
 - Ndikumana [Tanzania]
 - 4e [ed]
 - Malenga wetu : [poem]
- b. To enclose the General Material Designation (GMD) : From Nigeria to Tanzania in Love [African film]

NB:

AACR2 R states that square brackets "[]" are used to indicate information that has been supplied by a cataloger. Therefore, when square brackets actually appear on the source, they must be replaced with parentheses "()". This shows that the information within parentheses actually appeared on the item.

Question marks are used to:

- a. Denote uncertain dates:
 - [200?]
 - [199?]
 - 19--?]

Capitalization Rules

Capitalize the first word of the title proper. Capitalize other words which are routinely capitalized in the language you are dealing with (e.g., nouns in German) e.g.

- Historical map of England

Capitalization by Language

In English, capitalize personal and corporate names, names of peoples, races, ethnic groups and geographical names. Capitalize these in other languages according to their particular rules, if you are familiar with them.

- A dictionary of American usage

IFLA (2004) emphasises that in general, in those scripts where capitalization is relevant, the first letter of the first word of each area should be a capital; the first letter of the first word of some elements should also be a capital (e.g. general material designation, parallel title, alternative title, section title).

Other capitalization should follow the appropriate usage for the language(s) and/or script(s) used in the description.

The Plus sign (+) :

- The plus sign is used to separate accompanying materials from the dimensions in the physical description area: 26 cm. + 1 atlas.

The mark of omission (...):

- The marks of omission (...) are used to show omission of part of an element:- by July Pius Musiba ... [et al.].
- To indicate an abridged title proper or other title information

Rationale for Opting Certain Level of Description

Several possible rationales can be stated for such collection-level cataloguing:

- i. As a cost-effective means of providing control for low-priority items. Although this rationale might seem to provide a solution to limited cataloguing resources, it should be noted that adequately arranging and processing collections prior to cataloguing also takes time;
- ii. As a means of providing temporary control of unprocessed collections;
- iii. As a means of highlighting the shared characteristics inherent in a collection of materials by providing a summary-level description, thereby “adding value” to any other forms of intellectual access, such as item-level records, and thereby revealing collection strengths that may not otherwise be obvious.

Objectives of Descriptive Cataloguing

Taine (1951) has observed that the principles of subject cataloguing ought to be similar in structure, though, of course, not in detail. They should be concerned with such questions as:

- i. What is the purpose of subject cataloguing?
- ii. What form will the subject' catalogue take?
- iii. To what depth shall subject analysis ordinarily be attempted?
- iv. What shall be the form of entry for the subject catalogue? and
- v. What ought the language and terminology of the subject catalogue to be?

Steps in the Descriptive Cataloguing Process

The first step in cataloguing any item is to decide what it is. To determine that, ask yourself: what category of material does it belongs? Is it a book, or a video, or a piece of computer software, or...?

This first step is important because it determines:

1. What source(s) in/on the item you will use to gather the details needed to create "the (bibliographic) description" of the item and determine its name access points (NAPs),
2. What General Material Designation (GMD)), if any, you will use for the item.

Having decided what it is you are cataloguing and from where in/on the item you will take the details necessary to make up the description, your next task is to identify and record the areas and elements of the International Standard Bibliographical Description (ISBD) by following the rules in part I of AACR2R.

Finally, you complete the descriptive cataloguing process by choosing and formatting non-subject or name access points (NAPs) by following the rules in part II of AACR2R. Now that you are familiar with the components of descriptive catalogue record, you will get some practice in these activities in the assignments.

Materials Required for Cataloguing Books

Smith (1978) states that cataloguer requires the following materials for cataloguing books: accession book/ledger/barcode reader; library name stamp/ownership stamp; catalogue cards, book pockets; date due slips; paste labels/spine labels; pen or electrical stylus and cataloguing tools such as AACR2.

In a modern library, a cataloguer/classifier may need a library database where bibliographical information of books can be entered. Other accessories include theft detector strips/magnetic tapes for preventing unlawful removal of books outside the library.

Accession Book/Ledger

Definition: Accession is defined as a list of records or volumes added to a library or an archival collection, showing the chronological order of the addition, including accession number, bibliographic information, and cost of acquisition. Also referred to as accession catalogue or accession file.

Accession ledger is used for keeping a numerical record of books and other materials as they are added to the library. The first book is numbered 1; the second is numbered 2, and so on. The accession number gives each book a permanent identification number which can be used in a place of a copy number, if desired.

An accession entry includes space for date of acquisition, Good Received Note (GRN), name of supplier, space for author and title, number of volume(s), date of publication, accession number assigned and space for remarks.[This depend on what record a particular library wish to keep]

Layout of Accession Ledger

Date	GRN no.	Supplier	Author/ Title	No. of vol.	Publication Date	Acc. No.	Remarks

This is a typical example of accession ledger used by Mzumbe University Library.

Advantages of Accession Book/Ledger

- It provides in one place a record of all additions, purchases as well as gift and donations –and includes when they are added and withdrawn from the collection.
- It assigns a unique property number that is never used again for any other item in the collection. Therefore, it can be used in place of a copy number.
- It tells at a glance how many books and other items are in the collection (by keeping running total items as they are withdrawn.
- It can serve as a required record for insurance purposes (record the cost of purchase and estimated value of gifts/donation).
- It keeps other statistics such as how many books were purchased during the year, how many gifts/donation were received (and from whom), which funds were used etc. (All this information is useful for making annual stock taking and annual reports.
- An accessioning ledger serves as a permanent historical record of the growth of a collection, as to both size and content, giving the history of every individual book that comes into the collection
- Accession ledger each volume, giving its source and cost, providing the cost of a lost book for which a borrower is to pay and furnishing the answer to patrons who as where the book has been obtained or how much it costs.
- Accession ledger serves as a record of gift and memorials received by the library.
- It may be kept to meet a legal requirement, including proof to satisfy an audit that a book paid for was added to the library collection.

Accessioning

Accessioning is the act of adding; in library it has traditionally meant (1) the assigning of a copy identification number of each volume or other form of library/archive materials as it is added to the library/archive collection and (2) the recording of selected information about it in a permanent record.

The accession record is customarily kept in an accession book available from library supply house. The ledger –type book provides sequential numbers which are assigned to the volumes in the chronological order in which they are added to the library collections, and columns to list the author and title of the volume, as well as additional information ranging from full bibliographic description with cost and source to final disposition of the volume through loss or withdraw. The accession number is recorded at least once in some fixed places in the book itself and thus links it permanently to the history of sojourn in the library collections.

A full accession record gives the library the following:

1. A complete record of each item added, available when the item is itself is not at hand.
2. A direct record of the library's growth statistics and
3. A chronological record of the growth of the collections.

The first two functions can be served by other records, and at the time spent in maintaining the accession record may be hard to justify for the third function only.

The accession number itself is useful in distinguishing among copies or volumes of the same title; in matching library cards to books quickly and accurately , e.g. , as an element in the charging system; and for inventory purposes in a collection arranged in fixed location. Some libraries have given up the accession record but have kept the accession number because of these advantages.

Accession practices vary among libraries from a full record for each item to no accession records at all with its functions distributed among other library records. The process and functions of accessioning have been adapted by each library to its own particular needs so that no single method of accessioning may be cited as most common or as best.

Accession may be made in relation to the acquisition processes or the cataloguing processes or in a separate unit of the library, depending on the use to be made of the accession number and the information to be included. The method chosen depends on the function to be served.

Accessioning is usually done when the book has been passed for addition to the library collections. Ownership and identification are thus established; the volume can be circulated before cataloguing, if there is urgent need of it; and the accession number can be typed on the shelf –list card. On the other hand, accessioning may follow cataloguing so that the classification and book number can be included in the accessioning record and the accessioning count can be broken down by subject class.

Information entered in the accession record may include any of the following items:

- Author
- Title
- Publisher
- Place and the date of publication
- Overall size of the volume
- Number of the pages, edition, list price,
- Vendor or other sources {donation, gift etc.}
- Date of invoice, Goods Received Note (GRN) number
- Classification number and book number
- The disposition of the volume when it is lost or withdrawn from the library/archive collection

NB: Probably no library could be found which includes all these all these items.

Location of the Accession Number

The accession number may be placed in as many as five places in addition to its registration in the accession record: near the front of the book such as on the title page or on the first page thereafter; on some later selected page within the book in case the title page is lost; on the shelf list card (master card); on the book card and on the book pocket. The most common single location in the book is on the first recto (right –hand page) following the title page.

Sceptics on Rationale of Accession Ledger

The American Library Association (ALA) strongly recommends that Library Accession Ledger is the most economical, useful and rational of the library's records. Some scholars such as Justin Winsor wrote against ALA opinion that he found accessioning record as unnecessary and that the needed items of information could be more efficiently preserved on the shelf list card (master card). In 1902 John Cotton Dana reported that he was discarding the accession book /ledger in favour of the use of invoices as the accession record. Libraries which are no longer keeping accession records point out that such a record involves additional work for the library staff, work which is not justified in terms of use. Furthermore, they claim that the accession information is available from other records, records which must be kept away, such as the shelf list (master card), order file, invoices, catalogue cards, and copies of acknowledgement letters for gifts/donation. Similarly, they commented that the use of original price as recorded in the accession record as the charge for a lost volume is unrealistic, as it is more to the point to charge the current price which must be paid to replace it. Today libraries using accession ledger/book defends its intention by mentioning the advantages listed above. The use of the Library Management Systems (databases) might in the future override the use of accession ledger since the have field where book accession number can be entered.

Identification Stamp/Ownership Stamp

A library name stamp is a “must” and one of the item that is almost forgotten when cataloguers starts assembling cataloguing materials. A rubber stamp with name and location of the library can be ordered from stationeries. It may be large or small. For Example: Mzumbe University Library.

Some libraries prefer an embossing stamp which passes through the paper and makes an inkless impression like a corporation seal.

Catalogue Cards

Catalogue cards are used to make card index of materials in the library. They are approximately 3" x 5" in size (exactly 7.5cm x 12.5 cm.) and have a hole punched in its bottom side for a round rod to hold the cards in a drawer.

I. The card catalogue

- A. The card catalogue is the file for public use. It is an alphabetical file of books listed by author, title, and subject. This is in line with the observation that a card catalogue is restricted to a single entry such as author, title or subject (Sharp, 1935: 301).
- B. Cards which give the author, title, publisher, date, paging, and call number (class number) will make the book known to the users.
- C. The card catalogue will look better if cards are done consistently, using the same spacing and form for each card.

II. Card forms

- A. On each 3" x 5" -order slip, add information needed for printing a complete set of catalogue cards. Libraries use a unit card (all basically alike for each book) and type in titles and subjects.
- B. The main entry is the author card. Use the name as given on the title page. If the library has other books by the same author, check the catalogue to see if the same form is used for the author's name.
- C. If the book has two authors, the first one is used.
- D. Usually four or more cards are provided for each title. One card filed under the author's name, the second under the title of the book, and third or more for the major subject or subjects. One card is made for the shelf list (master card).

The shelf list is exactly like the author card except it includes purchasing, cataloguing information and accession numbers. The latter are called tracings. The shelf list is a separate file and is arranged in the same order as the books on the shelves.

Date Slips

Date slips are white, usually 3" x 5" in size are often gummed along the back of the top edge. They are ruled for the date due or date loaned. One slip is required for each book.

Date Stamp and Pad

Date stamp that is small enough to fit into small columns is required, but large enough to be read easily. A date stamp with adjustable date bands is recommended.

Labels

Labels are used for inscribing call numbers or other identification marks on the outside of books and other materials. They are available on variety of sizes and materials.

Shelf list card/Master Cards

A shelf list card is a duplicate of the main entry card with the addition of information which is useful to the library staff rather than to the patron. This information can include cost, location (for example, a branch in a multi-branch system), number of copies owned, the date of acquisition and the source. The shelf list is really a master record of what materials the library owns. It is called the shelf list because the order of the cards in the drawer corresponds to the order of the books on the shelves. This arrangement facilitates taking an inventory of the collection.

The shelf list is filed separately from the other cards in the card set. Generally the shelf list cards are kept in a card file in a staff work area.

Catalogue Cabinet

This is a cabinet that holds cards as shown in the Figure below. The cabinet contains cards which are chronologically arranged.

Type of Information Needed for Cataloguing

The cataloguer needs the following information about a document for cataloguing.

- Name of the authors
- Name of the collaborators
- Title, subtitle or alternative title of the document
- Edition
- Name of the series
- Editor of series
- Name, place and year of publication
- Size and number of pages of the document
- Copyright year
- ISBN/ISSN

The call number (class number and book number) of the document. It can be found at the verso of the title page that will be provided by the classifier. The accession number of the document. It also can be found at the verso of the title page. The accessionist will provide this number.

Sources of Information Needed for Cataloguing

The prescribed source of information for the preparation of the card catalogue is the title page. It provides most of the information about the book. It is the next printed page to the cover of the book. Please note here that the cover page of the book is not the title page. The page leaving one or two pages from the beginning and on which the description mentioned below is printed is called the title page. The title page, in upper most part of it, contains the title and subtitle (if any) of the book. The names of authors and collaborators with their working institutions are given in the middle of the page. In the lower part, the name of the publisher, place and year of publication and price etc. are given. If there is no title page, one can consult the cover caption or the half title page of the book. In the half title page of the book, only the title of the book, but no author and publication statements, is printed. Sometimes, the name of the series is also printed on this page. The verso / back of the title page contain copyright year, print and reprint, edition, name and address of the publisher, the price, and so on.

Besides the title page, we can also collect information about the book (in order of the following preference):

- i) Accompanying material
- ii) A container
- iii) Another published description of the book or
- iv) Any other available sources.

3.4 Cataloguing Format

Once the form of the main entry has been determined add the title information on the catalogue card.

Title

- The title is recorded on the next line and is indented two spaces under the author.
- The first letter of all proper names is capitalized; otherwise lower case letters are used except for the first letter of a title.
- Subtitles follow the main title and are preceded by a space-colon-space (:).
- The full title is the beginning of the “title paragraph.”

Statement of Responsibility

- A statement of responsibility is required for persons or bodies with major responsibility for the item (e.g., an author, corporate body, illustrator, editor,

and translator). If the person or body named in this first statement of responsibility is recognizably the same as that chosen for the main entry

heading and the rest of the statement consists only of the word “by,” omit the statement.

- A first statement of responsibility follows the title and is preceded by a space-slash-space (/). Each additional statement of responsibility is preceded by a space-semi colon-space (;). A statement of responsibility is required when there is an author(s), an illustrator, or an editor being traced.
- Any author, editor, illustrator, and corporate author, who may be recorded in this area, should be traced at the bottom of the card, although this is at the discretion of the library. Added entry cards are produced for inclusion in the catalogue.

Edition

- The edition statement, if necessary, is next.
- It is preceded by a period-space-dash-space (. -).
- The edition statement is included to indicate a revised edition or a numbered edition. Use abbreviations: Rev. ed., 3rd ed.

Place of Publication, Distribution Area

- In this area, information regarding the place of publication, the name of publisher and date of publication is recorded. Collectively this is known as the imprint. This information will generally be found on the title page. The area is preceded by a period space-dash-space. (. -).
- The city of publication is noted first. Transcribe the first named place as the source of the publication. The rule holds even if two or more places are named. e.g., Dar es Salaam (Source of information reads: Dar es Salaam, Dodoma, and Arusha).
- If the city of publication is uncertain, supply the probable place in the language of the chief source of information, followed by a question mark. The city is to be enclosed in square brackets when the cataloguer is uncertain .e.g., [Arusha?]

Name of Publisher, Distributor

- Record the name of the publisher or distributor next. It is preceded by a space, colon, space (:). Give the name of the publisher in the shortest form in which it may be understood. e.g. Dar es Salaam: Dar es Salaam University Press
- The publisher’s name may be shortened to eliminate terms such as Ltd., Co., and Inc.

Date of Publication

- The date follows the publisher and is preceded by a comma-space (,).
- If there is no date on the title page, select the most recent copyright date. These dates are most commonly found on the back (verso) of the title page. Do not use the printing date, unless there is absolutely nothing else.

- If no publication date is available, provide an approximate date of publication. These approximate dates are to be surrounded by square brackets. e.g., [2001?] probable date or [199-?] decade uncertain
- The date completes the title paragraph.

Physical Description

- Begin a new paragraph for the physical description and indent it two spaces. The information for this area may be taken from any source.
- Record the last numbered page, leave a space and then record the abbreviation “p.” i.e., 357 p.
- The last numbered page of a preface paginated with Roman numerals should be recorded, followed by a comma, and then followed by the last numbered page with Arabic numerals. i.e., xiii, 357 p.
- In the case of multi-volume works, record the number of volumes e.g., 5 v.

Illustrative Matter

- Record the abbreviation “ill.” after the number of pages when the book is illustrated with pictures, diagrams, drawings, tables, or maps. It should be preceded by a space-colon-space (:). i.e., xii, 120 p.: ill.

Dimensions

- Measure and record the physical size of the text in centimetres. It should be preceded by a space semicolon-space. (;). i.e. xii, 120 p. : ill. ; 24 cm.

Series Area

- The series, if any, is recorded next. It should be preceded by a period-space-dash-space. (. -).
- Each series is enclosed in round brackets.
- An item which is a numbered part of a series should be recorded after the series title. Punctuation is space-semi-colon-space. (;) i.e. (The ship ; v. 6)

Note Area

- Leave two lines after the physical description before beginning note entries.
- Record here bibliographies or indexes, if present. Contents notes, summaries, multivolume works, in another language, audience level, and local note are also entered in this area. i.e., includes bibliographical references (p. 116) and index.

Standard Book Numbers

- The last item to be entered as part of the physical description of the book is the ISBN. While these particular numbers are of no use to the library reader/user, their presence saves the librarian countless hours during a retrospective conversion if they are included on the shelf list card. These numbers are essential when searching for MARC records.

- ISBN begins on the line immediately following the last note. i.e., 087287221 (pbk).

NB:

Not all elements are applicable. For example, edition and ISBN are not recorded in the example since the book has no ISBN and edition statement.

Card Set

All the cards prepared to provide different access points to a given item make up the card set for that item. The total number of cards in the set will be equal to the number of tracings listed on the main entry card plus two (the main entry card itself and the shelf list card). A quick way to verify if a given set is complete is to count the tracings and add two.

The cards in the card set are characterized by type. A card set typically consists of the following types of entry:

- one main entry
- one or more added entries
- one or more subject entries
- one shelf list card

3.5 Choice and Form of Main Entry

Main entry: The Main entry is an author entry in AACR-II. If the authorship is diffused or not known the main entry is prepared under the title. The Main Entry is the complete catalogue record of an item. It also includes the tracing of all other headings under which the record is to be presented in the catalogue.

"By 'author' is meant the person or corporate body chiefly responsible for the creation of the intellectual or artistic content of a work. The term 'author' also embraces an editor or compiler who has primary responsibility for the content of a work, e.g. the compiler of a bibliography." (Definition by the Anglo-American Cataloguing Rules AACR). The author's name is used as the main heading except for anonymous books and documents for which the title is used as heading.

The first task facing cataloguer is to determine the choice of main entry. The general principle of main entry is to enter a work under the person(s) or corporate body responsible for its intellectual content. In the case of books the chief source of information is usually the title page. Record the information exactly as it appears on the title page. Information appearing elsewhere in the item may be used in the catalogue entry.

The cataloguer is supposed to take care / ensure the consistent spelling of the author entry within the catalogue (in current practice, editors and compliers are never given a main entry as it is used to be in the past.

In current practice, authors are always entered under commonly known name. The general rule of nobility is to employ the most commonly used name. An aristocrat (noble) may be entered under his or her family name or title.

The term main entry heading refers to the major access point chosen during the cataloguing process based on rules for cataloguing practice contained in AACR2R. The main entry heading is generally the author of the work but may be the title of the work or even the name of an organization or group under certain circumstances. The main entry contains a full description of the item in question and a record of all the other access points which have been prepared for the item. This record of access points is called the tracings.

The main entry card shown in the example below contains a complete bibliographic description, that is, all the information needed to identify given work. The bottom third of the card contains the tracings, that is, the list of all the other access points which have been provided for this particular book.

Author Main Entry

"A personal author is the person chiefly responsible for the creation of the intellectual or artistic content of a work."—21.1A1 (AACR, 1998).

For main entry, use the author predominantly named, for example, larger in typography. Make added entries for the others, if there are not more than 3 authors.

The author name appears on top of the catalogue card. If a person authored the book, copy the name from the title page, last name first. Omit titles of nobility such as "Dr." "Sir" "Sr." "Mrs." If there is more than one author use the name of the first as the main entry.

- Names that begin with prefixes such as "de", "van", "la" usually are entered under prefix.
- Sacred books such as bible do not have persons, as author, so the main entry is title, e.g.: Bible. Old Testament. Psalms.

The card below indicate Author as a main entry

	347 .06 MON
MONIR, M. Textbook on the law of evidence / by M. Monir, revised by Manjula Batra and Hemant Kumar Pandey. - 8th ed. - New Delhi: Universal law publishing, c2010. lxxxvi, 502p. : ill. ; 25cm. Includes bibliographical references and index. ISBN 9788175349681: Tshs 45883/= 1.Evidence law I. Batra, Manjula II. Title	

Added Entry

Added Entry: An added entry is a secondary entry, additional to the Main Entry, by which an item is represented in a catalogue. S. R. Ranganathan calls it “entry other than the main entry”. There are different types of added entries. i.e. Joint author(s), Editor(s), Translator(s), Compiler(s), Subject, Title, Series, etc. The number and kind of added entries required by a document depends upon the nature of a particular document and also on the nature of the catalogue used in a library.

Corporate Body Entry

On occasion, the university library may have materials that are the products of a corporate group such as associations, governments, business firms, and conferences. Rule 21.1B2 of the AACR2 defines corporate body as an organisation or a group that act as an entity and is identified by a particular name. When a corporate body is responsible for the intellectual content of a work, the main entry is listed under the corporate body. It is rare that a university library find itself in possession of large numbers of government documents or works emanating from corporate groups. If there is doubt on the part of the cataloguer the main entry becomes the title. Always enter governments and government departments and committees under the name of the country, province, or local jurisdiction, e.g. Tanzania (1994) Government Standing Orders, Government Printers: Dar es Salaam.

Corporate Body Entry Card

An institution as author, rather than an individual, is entered as follow: Mzumbe University, The Tanzania Assembly of God Church. For government publications the main entry is as follows: United Republic of Tanzania. (See examples below).

"Enter a corporate body directly under the name by which it is commonly identified, except when the rules that follow provide for entering it under the name of a higher or

related body (see rule 24.13 in AACR) or under the name of a government" (see rule 24.18)—24.1A.

Name Changes:

"If the name of a corporate body has changed ... establish a new heading under the new name for items appearing under that name. Refer from the old heading to the new and from the new heading to the old" see rule —24.1C1 in AACR2R).

Initial Articles:

"Omit an initial article unless the heading is to file under the article (e.g., a corporate name that begins with an article that is the first part of the name of a person or place).—24.5A1.

Quite often institutions are better known under their acronym than under their full name. (An acronym is a pronounceable abbreviation, a "word", formed by combining initial letters or syllables of a series of words or a compound term.) In that case it will be sufficient to indicate the acronym only. This applies among others to UNIDO, FAO, SATIS, ITDG, and ADB. But as there are always some users who do not know the full name and/or the acronym it is advisable to prepare a cross-reference card.

Example I: Card Showing Corporate Body (TACAIDS) as the Main Entry

	REF 614 .599392 TAC
TACAIDS Tanzania joint biennial HIV and AIDS sector review: report of the technical review / by TACAIDS. - Dar es Salaam: Tanzania Commission for AIDS, 2008. viii,33p. : ill. : mainly pictorial, 25cm.	
1. AIDS-Tanzania I. Title.	Tshs 13,552/=



Main Entry by Title

Example II

	REF 616 .995 WHO
Guidelines for the programatic management of drug-resistant tuberculosis / WHO. - Geneva : WHO, c2006. xi,174p : ill.;26cm. ISBN 9241546956 1.Progmatic management I. WHO II. Title.	
	Tshs 13,552/=
○	

Example III

 corporate author
INSTITUTE OF CULTURAL AFFAIRS INTERNATIONAL, (21.)
Directory of rural development projects. Project descriptions prepared for the International Exposition of Rural Develop- ment. München et al: Saur 1985. 516 p

Personal Name Added Entry

If there is more than one author or an illustrator listed on the title page, record only the first author as the main entry. An added entry is made for the second author or illustrator.

Additional entries are created to provide different access points to the item being catalogued. An added entry record is a duplicate of the main entry with the addition of a heading at the beginning of the record or, on a catalogue card, at the top of the card. This heading can be the title of the item (if the main entry is the author) or it can be the title of a series of works to which the item in question belongs. The heading can also be the name of a joint author, an illustrator, a translator, an editor, or a compiler.

In a card catalogue, the added entry thus created is filed in the catalogue under the new heading. The new heading is now the topmost piece of information on the card and thus becomes the filing element. The number of added entries will vary from one item to another. If a book has two authors appearing on the title page then the appearance of the main entry and added entry is as shown below:

Main Entry-Author

	658 .83 TUL
TULL, Donald S.	
Marketing research: measurement & method / Donald S. Tull, Del I. Hawkins. - 6th ed. - New Delhi: MacMillan, c1993.	
xviii, 863p. : ill. ; 26cm.	
Includes bibliographical references and index.	
ISBN 9788120309616:	Tshs 45882/=
1. Marketing research 2. Marketing Research-Case Studies I. HAWKINS, Del.	
II. Title	
○	

Added Entry

HAWKINS, Del.	658 .83 TUL
TULL, Donald S.	
Marketing research: measurement & method / Donald S. Tull, Del I. Hawkins. - 6th ed. - New Delhi: MacMillan, c1993.	
xviii, 863p. : ill. ; 26cm.	
Includes bibliographical references and index.	
ISBN 9788120309616:	Tshs 45882/=
1. Marketing research 2. Marketing Research-Case Studies I. HAWKINS, Del.	
II. Title.	
○	

Book with Three Authors (main entry)

	658 .1511 HOR
HONGREEN, Charles, T. Cost accounting: a managerial emphasis / Charles T. Hongreen, George Foster and Srikant M. Datar. - 9th ed. - London: Prentice Hall, 1999. xxviii, 1012 p. : ill.; 26cm. Includes bibliographical references and index. ISBN 0135712173: Tshs 80,000=	
1. Cost accounting 2. Costs, Industrial I. FOSTER, George II. DATAR, Srikant M. II. Title.	
	

Book with three authors

Added Entry II {A card for the 2nd Author (Foster George)}

FOSTER, George	658 .1511 HOR
HONGREEN, Charles T. Cost accounting: a managerial emphasis / Charles T. Hongreen, George Foster and Srikant M. Datar. - 9th ed. - London: Prentice Hall, 1999. xxviii, 1012 p. : ill.; 26cm. Includes bibliographical references and index. ISBN 0135712173: Tshs 80,000=	
1. Cost accounting 2. Costs, Industrial I. FOSTER, George II. DATAR, Srikant M. III. Title.	
	

A card for the 3rd Author (Datar, Srikant M)

DATAR, Srikant, M.	658 .1511 HOR
HONGREEN, Charles T. Cost accounting: a managerial emphasis / Charles T. Hongreen, George Foster and Srikant M. Datar. - 9th ed. - London: Prentice Hall, 1999. xxviii, 1012 p. : ill.; 26cm. Includes bibliographical references and index. ISBN 0135712173: Tshs 80,000=	
1. Cost accounting 2. Costs, Industrial I. FOSTER, George II. DATAR, Srikant M III. Title.	
	

If no author is listed, or three or more persons or corporate bodies are listed, the listed the main entry is by title. Make an added entry only for the first author name. The remaining author or corporate bodies are not recorded by name in the statement of responsibility but grouped under the heading [et al,], neither they are traced. Work entered under title is typed in a form called hanging indention.

If a work has been composed by four or more authors and no mention is made of an editor the main heading will be the title. But the first author will be indicated on the entry card.

Main Entry

HEALTH psychology: theory, research and practice / David F. Marks... [et al]. - 2nd ed. - Los Angeles: Sage, 2008. xii, 485p. : ill. ; 22cm. Includes bibliographical references and index. ISBN 9788178298801: Tshs 49500=	613 .019 HEA
1. Clinical health psychology 2. Health behaviour 3. Health promotion- psychological aspect I. MARKS, David F... [et al]. II. Title.	
	

Added entry is made for the first mentioned author as shown below

MARKS, David F	613 .019 HEA
HEALTH psychology: theory, research and practice / David F. Marks... [et al]. - 2nd ed. - Los Angeles: Sage, 2008. xii, 485p. : ill. ; 22cm. Includes bibliographical references and index. ISBN 9788178298801: Tshs 49500=	
1. Clinical health psychology 2. Health behaviour 3. Health promotion- psychological aspect I. MARKS, David F... [et al]. II. Title.	
	

Books with Editors

Books without a clearly identifiable author are treated as title main entries. In cases where an editor or compiler is named as responsible for the work, main entry is again by title. Note that the title of the item is recorded first in the statement of responsibility area and is followed by editor. The editor is traced at the bottom of the card. The book edited by James, A. H. Murry its main entry becomes by title and Added entry by editor. It is easy to recognize whether a person is the author or the editor/compiler since it is indicated by the following notations; "editor(s):", "edited by" or "compiled by". The editor/compiler is treated in the same way as the author but "(Ed.)" or "(Comp.)" should be added in brackets (see examples below).

Main Entry

	REF 423 OXF
The Oxford english dictionary / edited by James A. H. Murry. - 2nd.ed. - New York: Oxford, c1989. 1xviii, 1019p.:ill. ; 32cm. Includes bibliographical references and index. ISBN 9780198611868: Tshs 67000=	
1. English-Dictionary I. Murry, James A.H. (editor). II. Title.	
	

Added Entry (editor)

MURRY, James, A.H

REF
423
OXF

The Oxford english dictionary / edited by James A. H. Murry. - 2nd.ed. -
New York: Oxford, c1989.

lxviii, 1019p. : ill. ; 32cm.

Includes bibliographical references and index.

ISBN 9780198611868:

Tshs 67000=

1. English-Dictionary I. Murry, James A.H. (editor). II. Title.



Main Entry

330
.9678
MAL

MALIYAMKONO, T. L.

The promise / T.L. Maliyamkono and H. Mason. - Dar-es-Salaam : Dar -es-Salaam
University Press, c2006.

x, 619p. : ill. ; 24cm.

Includes references and index.

ISBN 9987250424: Tshs 30,000=

1. Tanzania -Economic conditions/situations 2 Economic Policy-Tanzania I. Mason, H. II.
Title.



More Examples: Main entry

Added Entry- Subjects

TANZANIA -ECONOMIC CONDITIONS/SITUATIONS	330 .9678 MAL
MALIYAMKONO, T. L.	
The promise / T.L. Maliyamkono and H. Mason. - Dar-es-Salaam : Dar -es-Salaam University Press, c2006. x, 619p. : ill. ; 24cm. Includes references and index. ISBN 9987250424: Tshs 30,000=	

Subject Card

ECONOMIC POLICY-TANZANIA	330 .9678 MAL
MALIYAMKONO, T. L.	
The promise / T.L. Maliyamkono and H. Mason. - Dar-es-Salaam : Dar -es-Salaam University Press, c2006. x, 619p. : ill. ; 24cm. Includes references and index. ISBN 9987250424: Tshs 30,000=	



Added Entry-Author

Mason, H	330 .9678 MAL
MALIYAMKONO, T. L.	
The promise / T.L. Maliyamkono and H. Mason. - Dar-es-Salaam : Dar -es-Salaam University Press, c2006. x, 619p. : ill. ; 24cm. Includes references and index. ISBN 9987250424: Tshs 30,000=	
1.Tanzania -Economic conditions/situations 2 Economic Policy-Tanzania I. Mason, H. II. Title.	

Added Entry

The promise	HC885 .M357 2006
Maliyamkono, T. L	
The promise/T. L. Maliyamkono and Hugh, Mason.-Dar-es-Salaam: Tema Publishers, 2006. x, 619p.:ill.;24cm. Bibliography p.615-619 ISBN 9987250424:	Tshs 35000/=

Item Number 2: Main entry

TECHNOLOGICAL INNOVATIONS-ECONOMIC ASPECTS

HC79.
T4 T68 1990

Trade, growth and technical change/ edited by Daniele Archibugi and Jonathan Michie.- Cambridge: Cambridge University Press, 1998.

xvi, 276p. : ill. ; 24cm.

Includes bibliographical references: p. 226- 267, Index: p.268 – 276.

ISBN: 0521556414 (pb) Tshs 22,521/=



Added Entry – Title

Trade, growth and technical change

HC79.
T4 T68 1990

Trade, growth and technical change/ edited by Daniele Archibugi and Jonathan Michie.- Cambridge: Cambridge University Press, 1998.

xvi, 276p. : ill. ; 24cm.

Includes bibliographical references: p. 226- 267, Index: p.268 – 276.

ISBN: 0521556414 (pb). Tshs 22,521/=



Added Entry – Subjects

Entries are also created to provide access by subject to the item sought. The heading or headings which describe the subject are not chosen at random. Rather, to ensure consistency in a given library and among libraries, subject headings are selected from standard lists such as the Library of Congress Subject Headings or Sears Subject List.

In a card catalogue, the subject heading assigned to the item is added to a duplicate of the main entry card at the very top line of the card. This subject heading is usually printed in capital letters so that it will be easily identified as a subject access point. The addition of a subject heading means that the subject entry thus created will be filed in the catalogue under that heading.

The new subject heading is now the topmost piece of information on the card and thus becomes the filing element. The number of subject entries will vary from one item to another but in a card catalogue are usually added sparingly because of the additional bulk and the work involved in creating the cards.

An examination of the tracings for the book in Example 1 shows that two subject entries have been made for this book. The two subject entry cards are shown in Examples below. These subject entry cards are duplicates of the main entry card with the addition of a subject heading at the top of each card. In this case, the catalogue user can find a book titled “Trade Growth and Technical Change” edited by Daniele by checking under the subject of “International trade” or the subject of “Research industrial –Economic aspect”.

Traditionally subject headings assigned to individual catalogue entries serve as the main subject retrieval tool in library card catalogue. In an on-line catalogue, subject headings are usually still assigned to the catalogue record but many on-line catalogue have the capability to search the catalogue record using a keyword or key phrase. This capability means that a searcher no longer needs to know the first word of a subject heading in order to find it, because any word in the subject heading becomes an access point.

The use of subject headings need not be restricted to non-fiction material. Subject headings can also be assigned to fiction titles. Fiction subject headings are especially helpful when used on children's or young adult material to locate stories on a specific topic. Sports stories-Fiction; Physically handicapped children--Fiction; Adoption--Fiction; Fear of the dark-Fiction; Divorce-- Fiction and Christmas stories Fiction are examples of fiction subject headings .

Added Entry- Subject

INTERNATIONAL TRADE

HC79.
T4 T68 1990

Trade, growth and technical change/ edited by Daniele Archibugi and
Jonathan Michie. - Cambridge: Cambridge University Press, 1998.



Added Entry-Authors

MICHIE, Jonathan

HC79.
T4 T68 1990

Trade, growth and technical change/ edited by Daniele Archibugi and Jonathan Michie.- Cambridge: Cambridge University Press, 1998.

xvi, 276p. : ill. ; 24cm.

Includes bibliographical references: p. 226- 267, Index: p.268 – 276.

ISBN: 0521556414 (pb). Tshs 22,521/=

1.Technological change I. Archibugi, Daniele (ed.) II. Michie Jonathan (ed.) III. Title



Added Entry – Aauthor

ARCHIBUGI, Daniele

HC79.
T4 T68 1990

Trade, growth and technical change/ edited by Daniele Archibugi and Jonathan Michie.- Cambridge: Cambridge University Press, 1998.

xvi, 276p. : ill. ; 24cm.

Includes bibliographical references: p. 226- 267, Index: p.268 – 276.

ISBN: 0521556414 (pb). Tshs 22,521/=

1.Technological change I. Archibugi, Daniele (ed.) II. Michie Jonathan (ed.) III. Title.



Item No. 3: Main entry

HF1007

.J627 1977

Jones, Henry Leonard

Groundwork of commerce: the structure of business, Book 1/ H.L. Jones, and R.P. Jones. - 7th ed. - London: Edward Arnold, 1983.

vi, 243p. : ill. ; 22cm.

ISBN:0713107286 (pbk):

Tshs 43777/=

Includes index: p. 241- 243.

1. Commerce. I. Jones, R.P. II. Title.



Added Entry – Author

JONES, R. P.

HF1007

.J627 1977

Jones, Henry Leonard

Groundwork of commerce: the structure of business, Book 1/ H.L. Jones, and R.P. Jones. - 7th ed. - London: Edward Arnold, 1983.

vi, 243p. : ill. ; 22cm.

ISBN:0713107286 (pbk):

Tshs 43777/=

Includes index: p. 241- 243.

1. Commerce. I. Jones, R.P. II. Title.



Added Entry – Subject

COMMERCE	HF1007
	.J627 1977
Jones, Henry Leonard	
Groundwork of commerce: the structure of business, Book 1/ H.L. Jones, and R.P. Jones.- 7th ed. - London: Edward Arnold, 1983.	
vi,243p. : ill. ; 22cm.	
ISBN: 0713107286 (pbk):	Tshs 43777/=
Includes index: p. 241- 243.	

Added Entry – Title

Groundwork of commerce...	HF1007
	.J627 1977
Jones, Henry Leonard	
Groundwork of commerce: the structure of business, Book 1/ H.L. Jones, and R.P. Jones.- 7th ed. - London: Edward Arnold, 1983.	
vi,243p. : ill. ; 22cm.	
ISBN:0713107286 (pbk):	Tshs 43777/=

Cataloguing Serial Publications

AACR2 defines a serial publication as a publication in any medium issued in successive parts bearing numerical or chronological designations and intended to be continued indefinitely. AACR2 includes under serial publications newspapers, annuals, yearbooks proceedings etc.

Item No. 4 Journal

Main entry

PN4700

.C64

Columbia journalism review. - Vol. xxxv, No.6. March/April (1997). - New York:

Graduate School of Journalism of Columbia University, 1997.

v.: ill., 29 cm.

Bi-monthly, (March/April 1997).

Title from the cover.

ISSN: 0010-194X.

Notes: With supplements.

Published under auspicious of the faculty, alumni and friends of the

Graduate School of Journalism, Columbia University.

1. Journalism-Periodicals



Added Entry-Subjects

JOURNALISM-PERIODICALS

PN4700

.C64

Columbia journalism review. - Vol. xxxv, No.6. March/April (1997). - New
York: Graduate School of Journalism of Columbia University, 1997.



510
.5
TAN

TANZANIA, journal of mathematics.V.I, no.1 (1975).- Dar es Salaam : Dar es Salaam
University Press, 1975.
Two issues yearly.
v.,29cm.

Mathematics-periodical I. Dar es Salaam University II. Tanzania Mathematical Society
III. Title

Problems in Cataloguing of Periodical/Serial Publications

Cataloguing of these types of publications is problematic because of the peculiar nature of the publications, which poses the following problems:

- a) The physical characteristics associated with bibliographic descriptions of such publications change very often.
- b) Sometimes the sponsoring body of the publication changes and other agency becomes its sponsoring body, which create problem in cataloguing.
- c) Sometimes a single publication may split into two or more parts with different titles which becomes problematic

Due to above mentioned reasons, it is necessitated that periodical publication should be given special treatment for cataloguing purpose. The situation calls for special rules for cataloguing periodicals/serials.

Editorial Publications

Main Entry

025
.30285
APP

The application of systems in libraries and information centers/[edited by] Anne Morric.-
London: Anthony Rawe Ltd, 1992.
viii, 241p.:ill.; 26cm.
Includes bibliographical references and index.
ISBN: 086291276: Tshs 29500=

1. Expert systems (Computer Science) – Library application. I. Morric, Anne II. Title.

Subject Added Entry

EXPERT SYSTEMS (COMPUTER SCIENCE) – LIBRARY APPLICATION

025
.30285
APP

The application of systems in libraries and information centers/[edited by] Anne Morric.-London: Anthony Rawe Ltd, 1992.
viii, 241p.:ill.; 26cm.
Includes bibliographical references and index.
ISBN: 086291276: Tshs 29500=



Editor Added Entry

MORRIC, Anne

025
.30285
APP

The application of systems in libraries and information centers/[edited by] Anne Morric.-
London: Anthony Rawe Ltd, 1992.
viii, 241p.:ill.; 26cm.
Includes bibliographical references and index.
ISBN: 086291276: Tshs 29500=

1. Expert systems (Computer Science) – Library application. I. Morric, Anne II. Title.



Title Added Entry

The application of systems in libraries...

025

.30285

APP

The application of systems in libraries and information centers/[edited by] Anne Morric. -

London: Anthony Rawe Ltd, 1992.

viii, 241p.:ill.; 26cm.

Includes bibliographical references and index.

ISBN: 086291276:

Tshs 29500=

1. Expert systems (Computer Science) – Library application. I. Morric, Anne II. Title.



Example II Main Entry

025

.3

AAC

AACR, DDC, MARC and friends: the role of CIG in bibliographic control/edited by John Byford, Keith V. Trickey & Susi Woodhouse. - 1st ed. - London: Library Association Publishing, 1993.

xiii, 130p.:ill.; 22cm.

Includes bibliographical references and index.

ISBN 1856040232:

Tshs 45555 Tshs.

1. Cataloguing 2. Bibliographic control I. Byford, John II. Trickey, Keith V. III. Woodhouse, Susi, IV. Title.



025
.32
GOR

Gorman, Michael

The concise AACR2, 1998 revision / prepared by Michael Gorman. – Chicago : American Library Assoc., 1999.

xxi, 168 p. : ill. ; 23 cm.

Includes bibliographical references and index.

ISBN 0-8389-3494-3: Tshs 100,221/=

1. Anglo-American cataloguing rules. 2. Descriptive cataloging—Rules. I. Anglo-American cataloguing rules. II. Title. III. Title: Concise Anglo-American cataloguing Rules, 1998 revision.



1st Subject Added Entry

CATALOGUING

025
.3
AAC

AACR, DDC, MARC and friends: the role of CIG in bibliographic control/edited by John Byford, Keith V. Trickey & Susi Woodhouse. - 1st ed.-London: Library Association Publishing, 1993.

xiii, 130p.:ill.; 22cm.

Includes bibliographical references and index.

ISBN 1856040232:

Tshs 45555/=



1st Editor Added Entry

BYFORD, John

025
.3
AAC

AACR, DDC, MARC and friends: the role of CIG in bibliographic control/edited by John Byford, Keith V. Trickey & Susi Woodhouse.- 1st ed.-London: Library Association Publishing, 1993.

xiii, 130p.:ill.; 22cm.

Includes bibliographical references and index.

ISBN 1856040232:

Tshs 45555 Tshs.

1. Cataloguing 2. Bibliographic control I. Byford, John II. Trickey, Keith V. III. Woodhouse, Susi, IV. Title.



TRICKEY, Keith

025
.3
AAC

AACR, DDC, MARC and friends: the role of CIG in bibliographic control/edited by John Byford, Keith V. Trickey & Susi Woodhouse.- 1st ed.-London: Library Association Publishing, 1993.

xiii, 130p.:ill.; 22cm.

Includes bibliographical references and index.

ISBN 1856040232:

Tshs 45555 Tshs.

1. Cataloguing 2. Bibliographic control I. Byford, John II. Trickey, Keith V. III. Woodhouse, Susi, IV. Title.



2nd Subject Added Entry

CATALOGUING

025
.3
AAC

AACR, DDC, MARC and friends: the role of CIG in bibliographic control/edited by John Byford, Keith V. Trickey & Susi Woodhouse.- 1st ed.-London: Library Association Publishing, 1993.

xiii, 130p.:ill.; 22cm.

Includes bibliographical references and index.

ISBN 1856040232:

Tshs 45555 Tshs.



BIBLIOGRAPHIC CONTROL

025
.3
AAC

AACR, DDC, MARC and friends: the role of CIG in bibliographic control/edited by John Byford, Keith V. Trickey & Susi Woodhouse. - 1st ed. - London: Library Association Publishing, 1993.

xiii, 130p.:ill.; 22cm.

Includes bibliographical references and index.

ISBN 1856040232:

Tshs 45555 Tshs.



2nd Editor Added Entry

Trickey, Keith

025
.3
AAC

AACR, DDC, MARC and friends: the role of CIG in bibliographic control/edited by John Byford, Keith V. Trickey & Susi Woodhouse. - 1st ed. - London: Library Association Publishing, 1993.

xiii, 130p.:ill., 22cm.

Includes bibliographical references and index.

ISBN 1856040232: Tshs 45555 Tshs.



3rd Editor Added Entry

WOODHOUSE, Susi,	025 .3 AAC
AACR, DDC, MARC and friends: the role of CIG in bibliographic control/edited by John Byford, Keith V. Trickey & Susi Woodhouse.- 1 st ed.-London: Library Association Publishing, 1993.	
xiii, 130p.:ill.; 22cm.	
Includes bibliographical references and index.	
ISBN 1856040232:	Tshs 45555 Tshs.
1. Cataloguing 2. Bibliographic control I. Byford, John II. Trickey, Keith V. III. Woodhouse, Susi, IV. Title.	

Reference

Most libraries will have a reference section for materials such as encyclopaedias, dictionaries, atlases, and almanacs. These items are housed in a separate section for materials which normally do not circulate. To indicate an item as a reference book includes the notation “REF” with the call number.

Reference (Card Example)

	REF 370 .3 INT
International encyclopedia of education: the aim of education Vol 1 / R.C.Misra, Promila Sharma and Harish Bansal. - New Delhi: APH publishing, 2009.	
v, 340p ; 22cm.	
Includes bibliographical references and index.	
ISBN 813130132x : Tshs 56881/=	
1. Education I. MISHRA, R.C II. SHARMA, Promila III. BANSAL, Harish, IV. Title.	

Fiction (Card Example)

As with fiction materials, the classification number is completed with the first three letters of the author's last name. If there is no author, the first three letters of the title are used omitting "a," "an," and "the."

Example of the Non-fiction Classification

F/CLA	
CLARKE, Shaum	
Knight rider/Shaum Clarke.-London: Hodder and Stoughton, c2002.	
407p.:ill.; 18cm.	
. ISBN 0-8389-3494-3: Tshs 5000/=	
1. Adult fiction I. Title	○

3.6 Cataloguing Thesis and Dissertations

A dissertation or thesis is a document submitted in support of candidature for an academic degree or professional qualification presenting the author's research and findings. In some countries/universities, the word "thesis" or a cognate is used as part of a bachelor's or master's course, while "dissertation" is normally applied to a doctorate, while in others, the reverse is true.

Academic theses are actually manuscript books. On the one hand, they are unique, unpublished materials; on the other, they are in the form of a book. Because of this dual nature, there is a need of applying cataloguing rules pertaining to manuscripts (AACR2R chapter 4) and books (AACR2R chapter 2).

We describe typescripts of academic theses and copies thereof according to the rules for manuscripts (AACR2R chapter 4). For theses, these rules result in similar descriptions as to the rules for books, with one notable exception – the publication area (260 fields). Because theses are generally unpublished materials, they are given only the date of the manuscript, with place and publisher being omitted.

1 = Thesis
note for
doctoral
work

2= Institution
granting the
degree

	REF
	332
	.109678
	CHO
CHONJO, Andrew .Harry.	
The segmentation effects on banking business performance in Tanzania: a case study of NMB Tanzania/by Andrew Harry Chonjo.- Mzumbe : Mzumbe university, 2010.	
xviii,591 Leaves, 29cm.	
Thesis (PhD)- Mzumbe University	2
Includes bibliography leaves 586 – 591.	
1.Banking performance-Tanzania I. Title.	

1 Thesis note
for Master's

2= Institution
granting the
degree

	REF
	025
	.52409678
	SIY
SIYAO, Onauphoo Peter	
Agricultural information needs and information -seeking behaviour of small- scale sugar cane growers in Tanzania with a gender perspective: a case study of Kilombero district / by Peter Onauphoo Siyao. - Dar- es-Salaam: University of Dar es salaam, 2010.	
xvi,132 leaves. : ill.; 29cm	
Dissertation (MA)- University of Dar es Salaam	
Includes references leaves 128 -132	

3.7 Guidelines for Cataloguing Theses

Author

Use the form of personal name found on the title page of the dissertation or thesis

Title and Statement of Responsibility

Transcribe title, subtitle and statement of responsibility exactly as they appear on the title page. Do **not** capitalize every word in the title. Follow the rules of English grammar; capitalize proper nouns when transcribing title information. If in doubt, check the text to see how it is written in context. When there is a title within the title (a reference to another work), capitalize only the first letter of that title as well. Double check your spelling. Insert spaces and other punctuation as shown in the examples above.

Physical Description

Record the last numbered page in each sequence. Record illustrations in the subfield: enter either “ill. or map(s) (or both). Use col. ill. (or col. maps) if the illustrations are in colour. Record size as if it were already bound (29 cm.).

Bibliography Note

Use the following standard format. Use brackets to indicate unnumbered pages. Includes bibliographical references (leaves. 171-219), or Includes references (leaves. [55]-60) where applicable.

Subject Headings

Each dissertation and thesis gets a local subject heading for the graduate’s program. Subject heading can be obtained from the sears subject list:

Date of Publication

Since some dissertations or thesis are unpublished material the date of publication will be the date the thesis was produced.

Place of Publication

The Place of publication code is derived from the place where the institution granting the degree is located as named in the dissertation/thesis note. In some cases, libraries use the date of conferring of the degree. If this is the case, it should also be indicated by a general note

General Note

If known, include a note to indicate if the thesis is by Coursework, Some libraries may choose to use the *General Note* field to further describe the type of thesis: e.g. Honours Thesis or submitted in fulfilment of requirements for the degree of Doctor of Philosophy – Department of Constitution and Administrative Law.

Note: *The General Note should supplement, not replace, the dissertation note.*

Dissertation Note

The Dissertation Note includes the word Thesis, qualified by the degree (in parentheses) and the name of the institution in a single subfield, e.g. Thesis (Ph.D.) – Mzumbe University, 2010.

Corporate Author Added Entry

If information about the school or faculty is required, this should be included in an added entry:

The Use of AACR2R and MARC to Make a Descriptive Record Retrievable

One should note that AACR2R- Anglo-American Cataloguing Rules, 2nd revision, 2002 is the widely accepted rules for cataloguing information packages in the bibliographic universe. ISBD is the abbreviation of the term International Standard Book Description. It is the punctuation upon which AACR2R is based. MARC- (Machine Readable Cataloguing Form) is an encoding system that allows information catalogued to be read and processed by a computer. Access Points this refers to the fields in bibliographic records that are searchable by users. Authority control-maintaining consistency in the verbal form (heading) of terms chosen as access points that is accomplished through the use of controlled vocabulary and rules

The cataloguing process consists of at least four broad activities: description; choosing access points; authority control; and encoding. All of these processes are interrelated and, in combination, ensure that a descriptive record will be retrievable.

The first required process in cataloguing is inspecting, analysing, and then describing an information package. A cataloguer uses the rules in AACR2R (which are based on ISBD punctuation) to describe an information package. Specifically, the cataloguer utilises for description AACR2R Chapter 1 (general rules for description), and one of the Chapters 2-12, depending upon the type of information package. If the item to be catalogued is a book, for example, the cataloguer will consult not only AACR2R Chapter 1, but also AACR2R Chapter 2, because this Chapter deals with the description of books. In describing an item, the cataloguer will also use AACR2R Appendixes which cover, for example, rules regarding the abbreviation and capitalization of terms catalogued. The cataloguer may also consult the AACR2R's glossary and index.

AACR2R prescribes three levels of description. The first level is least descriptive; the third level of description is exhaustive. The level of description chosen is dependent upon the size and type of the collection and the needs of the users. Information is taken from the chief source of information, when possible. Typically, author (more broadly, those responsible for intellectual content of the work); title; edition; publication, distribution, etc.; physical description; and any additional information deemed important by the cataloguer is described.

An item described by a cataloguer is described in such a way that its description is unique from all other entries in a catalogue. The standardization and type of information gathered, along with the fact that each item is described so that its entry is unique, helps to ensure that records will be retrievable by users.

After describing the information package, a cataloguer must choose access points. Access points are fields that are used by readers to search and get access to a given item/information package such as a book.

Typically, a cataloguer might determine that author, title proper, subject, series, added entries, and/or uniform title should be searchable. The cataloguer will use Chapter 21 of AACR2R to guide her/him in choosing access points. Traditionally, a cataloguer will choose one entry to be the main entry; other entries will be added entries. This step is very important in providing for the retrieval of records. If no access points are allowed, a record will not be available for access.

Once a cataloguer has chosen access points, she needs to make certain that headings in fields under authority control are entered in their authorized forms. Headings are authorized strings of characters that have been chosen according to rules described in chapters 22-24 (or something close to this) of the AACR2R. There are several steps to authority control work. First, a cataloguer will likely check local authority records to determine if a local authority record/name exists. If so, s/he will use the authorized form present in the local authority record. If no local authority record exists, the cataloguer will likely check OCLC and/or LC authority files to determine the authorized form of the heading. If these records provide no authority information, the cataloguer will need to consult the rules in AACR2R to construct a proper form of the name and then create a local authority file for the heading. The file will include not only the authorized name, but also related forms not used and any other related authorized names. By following the rules set forth in AACR2R and using an authorized and/or standardized form of headings, the cataloguer is further working to create records that are standardized, thus easily retrievable by users.

A final step of the cataloguing process, where a computerized catalogue is used, is encoding. In most libraries the encoding system used today is MARC21. A MARC record consists of a series of fields. These fields are identified by 3-digit tags. Descriptive information is input into related fields. Most fields can be further divided into subfields. Subfields are indicated by delimiters followed by single-character codes. Further, many fields are preceded by indicators that provide further processing information to the system.

For example, title proper and statement of responsibility information (described using the rules and punctuation of AACR2R) is input into the 245 MARC field. The 245 field can be divided into subfields, and is preceded by two indicators. A book entitled “The Adventures of Huckleberry Finn: My Favourite Story,” by Mark Twain and

illustrated by Henry Hammond, for example, will be punctuated and entered into a MARC form as follows: 245 14 The adventures of Huckleberry Finn: \$b my favourite story / \$c by Mark Twain; illustrated by Henry Hammond

The MARC field into which title and statement of responsibility information is entered is 245. “1” and “4” following the 245 are single digit indicators. The “1” indicates to the system that this field should be an access point.

The “4” indicates to the system the presence of 4 non-filing characters (t-h-e-space)—characters that should be ignored in processing. \$, before the characters “b” and “c,” are delimiters signifying to the system the beginning of subfields.

AACR2R and MARC are compatible and together foster the retrievability of descriptive records. MARC field types are consistent with information gathered in the descriptive process of cataloguing, as governed by the rules of AACR2R. Information is entered into MARC fields in the form it is punctuated as prescribed by AACR2R. MARC tags further organize this descriptive information so that records can be processed by the system and, in turn, will be quickly and easily be retrievable by users.

Study Questions

1. Define ‘Library catalogue/’ and describe its functions. How does it differ from a bibliography?
2. Explain the various physical forms of library catalogue.
3. What is a classified catalogue?
4. Explain the differences in rendering the names of personal authors as per AACR-2 and CCC.
5. What is meant by centralized cataloguing? What are its objectives? Describe its advantages and disadvantages.
6. Explain in brief the various methods of alphabetical arrangement of catalogue entries.
7. Give an account of International Standard Bibliographic Description (ISBD). What is meant by subject cataloguing? Explain the structure and use of ‘library of congress subject headings’.
8. What do you understand by descriptive cataloguing?
9. Mention and explain elements of descriptive cataloguing
10. Why is edition statement important in descriptive cataloguing?
11. What is the significance of ISBN in descriptive cataloguing?
12. In line with AACR2, prepare catalogue entry on a single authorship work
13. Describe chief sources of information in cataloguing
14. Why do you think tracings are important?
15. Prepare all necessary entries on a specific single authorship work
16. Prepare all necessary entries on a specific joint authorship work
17. Prepare main entry on a given anonymous work
18. What do you understand by corporate body work?
19. What is the importance of corporate body work?
20. Explain the procedures involved in cataloguing corporate body works
21. Who should be responsible for the intellectual content of a corporate body work and why?
22. What is anonymous work and how is it treated in cataloguing?

23. Cataloguing is a process of examining a book, pamphlet, periodical etc. and analysing its subject content for the purposes of assigning subject headings. Why do you need a library catalogue in a library?
24. Discuss the qualities of a library catalogue with reference to a library catalogue that you are familiar with.
25. What are the disadvantages of using a book catalogue in a Library?
26. Describe chief sources of information in cataloguing
27. Why do you think tracings are important?
28. Prepare all necessary entries on a specific single authorship work
29. Prepare all necessary entries on a specific joint authorship work

Practical Cataloguing Questions

1. Using the AACR2 R and Sears List of Subject Headings, prepare main catalogue and entry with the necessary notes and tracings for a divided dictionary catalogue for books whose titles and other relevant details is given following the second level of description.
 - **Title page:** Economic Policy and Rural Poverty in Tanzania: A Survey of Three Regions, By Longinus Rutasitara, edited by Muhusin, Nguvu, 2014. Published by Mkuki na Nyota, Dar es Salaam.
 - **Other Details:** This book belongs to the “Poverty Alleviation Series”. It measures 23.1 cm in height and 10.2 cm in width. Its ISBN is 1-872968-00-7. Preliminary pages marked in Roman numerals are 12 followed by text pages marked 13 – 231. The book has a bibliography covering pages 227-229. Some of the illustrations are in colours and it is accompanied by a CD-ROM in a Pocket. NB: Nguvu is pseudonym for Muhusin Muhunzi
2. Using the AACR2, the Library of Congress subject headings, the Dewey Decimal Classification scheme, and following the third level of description, prepare main catalogue entries with the necessary notes and tracings for a divided dictionary catalogue, and assign CALL NUMBERS to the titles whose details are given below:
 - **Title Page:** A Manual for Writers of Term Papers, Theses and Dissertations
Kate L. Turabian.
Fifth Edition
Revised and Expanded
by: Bonnie B. Henigslum
2014

University of Chicago Press
London, Chicago

- **Other Details:** Preliminary pages of this book are 9, marked in Roman numerals while text pages are in Arabic numerals from 1-300. The book has a select bibliography covering pages 281-284. Its ISBN is 0-226-81625-7 and its title number is 16 in “Chicago Guides to Writing, Editing and Publishing” series. It measures 22.2 cm in height and 17.1 cm in width. Kate L. Turabian designed this manual as a guide to suitable style in the presentation of term papers, theses and dissertations in both scientific and nonscientific fields. Written originally from Turabian’s perspective as dissertation secretary at the University of Chicago, the manual has always championed the cause of the individual producing a finished manuscript, often serving as researcher, writer, typist, graphic artist, proofreader and printer or photocopier operator, all in one. The current edition has retained the format of the previous editions. It remains a reference tool designed to help the writer use whatever methods, materials, or technologies that may be needed to assemble the final manuscript of a research paper.
3. Catalogue three titles provided below according to Anglo- American Cataloguing Rules II R . Catalogue entry for each publication should be prepared consecutively. Unit Card method should be followed for preparing added entries according to the AACRII R. Copies of Anglo-American Cataloguing Rules II and Sears List of Subject Heading are available in the MU Library for consultation.
- i. **Title number 1:** Sarkar Law of Evidence in India, Pakistan, Bangladesh, Burma, Cyclone, Malaysia and Singapore
Authors: M.C. Sakar and S.C. Sakar and Prahabas C. Sakar
Eighteen edition by Sundipto Sarkar
Volume I: Have sections 1-100, preliminary pages xxiv, text pages are 1894 and it contains a subject index
Volume II: By the same authors, have sections 101- 167 and Appendixes, preliminary pages are dlxi, text pages range from 1895 to 3064 pages and has a subject index.
The volumes were published in 2014 with the following ISBN: 978-93-5143-085-8 (for set of 2 volumes) the class number is 347.06 SAR whereas the accession number is 0078087 for volume 2 and 0078084 for volume one. The price of a set is 200,000 TZS.
 - ii. **Title number 2:** Selected Constitutions of the World (Including International Charters)
The book is authored by Acharya Dr. Durga Das Basu

Second edition 2009 (Thoroughly revised and enlarged)
Revising author is Honourable Judge Barnabas Sammatta along with
the publishers' Editorial Boards
Published in New Delhi India by LexisNexis
Preliminary pages are xiv text pages are 1015, ISBN is
9788180384318, Class number is 42.02 BAS and the book costs
Indian Rupee 1495/

- iii. **Title number 3:** International encyclopedia of education
Edited by R. C. Misra, Promila Sharma and Harish Bansal
15 Volumes
Call number: REF 370.3 INT
Set of 15 Volumes
Published by APH. Publishing, Mumbai India
ISBN 813130132X (for set)
Note – The Library does not have volume 1.

- iv. **Title Number 4:** THE GIFT OF A COW
A Translation of the Hindi Novel Godan
By Prem Chand
Translated by
William Robinson
HARPER & COMPANY
NEW YORK
1970
Other Information
Call No. 0152, 3M80, 2 N70 Pages 403
ACC No. 152040 Size 18.9 cm
Note: Prem Chand is Pseudonym of Dhanpat Rai

4. Using third level of the AACR II R, provide catalogue entries of the following
bibliographic information and please show the main entry and added entries

Abnormal psychology: the problem of maladaptive behavior

Edited by

Richard Shirima , Farbara R. Sarason and Muhusin Mukunzi

Published by

Kisaki Publishing House

ISBN 9788120326637

c2014

Additional Information:

- About 87% of the book is made up of pictures
 - It has xx, preliminary pages and 676 text pages
 - It includes an index and references
 - It is tenth edition
 - Publishing house is located at a small township called Sangasanga
 - ISBN 9788120326637
5. Catalogue the following publications. Give main entries, added entries and references where these are applicable.
- a) An introduction to /animal behaviour /Fifth Edition /Aubrey Manning/ and Marian Stamp Dawkins/ Cambridge/ University press.
v.t.p. published by the Press Syndicate of the University of Cambridge .First, second and third editions first published by Edward Arnold and copyright by Edward Arnold 1967, 1972. Fourth edition, first published by Cambridge University press 1992. Fifth edition 1998. Book is 23.5 cm high with nine preliminary pages and 450 pages Arabic numbered. There are illustrations, graphs, and photographs, some in colours. Includes bibliographical references and indexes.
- b) Republic of Tanzania / Ministry of Agriculture/ and / Water Development / Analysis of/ tractor hire rates /charged by / Lands Development Services/ a PLANNING Division special report / produced by the /Production and Marketing Section/Planning Division/ Dar es Salaam /Government PRINTER/2014. Authors: Julius Shawa, Edward Rawson, Fred Mooney.

Booklet has three pages, Roman numbered and twenty five pages Arabic numbered. There are illustrations interspersed throughout the text. Height 30 cm. this is number seven of the planning division special study series.

Note: The ministry of the Agriculture and Water Development changed its name to the Ministry of Agriculture, Food and Fishers in 1991 and then to the Ministry of Agriculture and cooperatives in 2002.

- c) Report/ of the first/ National Workshop/ on Traditional MEDICINE AND ITS Role/ in the Development of Primary Health Care / in Tanzania / Bilcana Hotel, Roon 9-13 May 1977/ Sponsored by/ Ministry of Health / UNICEF/ WHO/ Printed by the Government printer Dar es Salaam / 1979. A book has seventeen pages Roman numbered and four hundred and sixty one Arabic numbered. There are illustrations, tables and a photograph. It also has a bibliography and index, and the size is 26 cm.
 - d) Poultry Diseases/ Second Edition/ Edited by/ the late R.F. Gordon/ James Decook/ and F.T.W. Jordan/ Bailliere Tindal/ London. v.t.p. is 24.5 cm high and has twelve pages roman numbered , four hundred and one page Arabic numbered and two pages of colour plates and numerous illustrations. Bibliographical references at end of chapters. There is also an index.
[v.t.p. means “Verso of the Title Page”]
 - e) Ten tales from / William Shakespeare/ by/ Charles and Mary Lamb/ pictures by Al Grabianski. v.t.p. 1969 J. M. Dent. London. A book is 23.5 cm high and has 223 Arabic numbered pages. There are illustrations: some in colours. NOTE: Al Grabianski is the pseudonym for Peter Smith.
 - f) Drought and man/the 1972 case history/ volume 1: Nature Pleads not guilty/ by Ronaldo V. Garcia/ with a section on climatic variability/ by /J. Smgorinsky/ and special contributions from/ M.Ellman / H. Gambarotta/ S. Ruttenberg/ j. Siots / prepared at the Graduate Institute for/ International Studies, Geneva, 1976-1979/ Pergamon Press/ Oxford. New York. Sydney. Paris. v.t.p. Copyright 1988 International Federation of Institutes for Advanced Study. Book has fourteen pages roman numbered and three hundred pages Arabic numbered. There are tables and diagrams. It has also an index. Size 23.5 cm.
- 6. With vivid examples explain the principles that should be observed in practical book cataloguing.
 - 7. Concisely explain the following areas of description in cataloguing (support your answers with examples):
 - a) Title and statement of responsibility
 - b) Publication and distribution area
 - c) Note area
 - d) Physical description area

- e) Series
8. Using Sears List of Subject Heading (SLSH), provide subject headings to the following titles
 - a) Vegetable gardening
 - b) Marijuana
 - c) Climatic change and global warming
 - d) Mars, Jupiter, and Earth
 - e) Poverty alleviation
 - f) Market gardening
 9. What types of references are used in a library catalogue? Give examples of their use
 10. Distinguish between descriptive cataloguing and subject cataloguing clearly showing the role played by each
 11. With vivid examples, explain how and where the principle of a uniform title is applicable in cataloguing
 12. With examples write short notes on the following practical cataloguing jargons:
 - a) Mixed responsibility
 - b) Shared responsibility
 - c) Authority file
 - d) Chief source of information
 - e) Added entries
 13. "Canons of cataloguing combined with Laws of Library Science provide a conceptual framework and a practical basis for the study and evaluation of cataloguing practice". Justify with examples.
 14. Examine the various factors necessary for organising the Cataloguing Department in a large library. Give a plan in brief, explaining the organisational set-up for a Cataloguing Department in a University Library.
 15. Describe in brief with suitable examples the rules and entries in AACR-II for cataloguing of multi-volume books.
 16. Explain the need and importance of Subject Cataloguing for a University Library. Name various tools and procedures developed for this purpose. Discuss in brief any one of computerised techniques of Subject indexing with examples.
 17. Disentangle the term Non-Book Material. Discuss the problems in cataloguing of NBM in a University Library. Explain with examples the rules for cataloguing of Microfilms and video recordings in AACR-II Rp.
 18. What is a Unit Card System? Describe with examples various entries in a Dictionary Catalogue.
 19. Describe the rule for cataloguing anonymous works in AACR II R with suitable examples
 20. Compare and contrast the AACR II R with the RDA

21. Discuss the various ways in which users access library materials via the catalogue. How has the AACRII facilitated this process

CHAPTER FOUR

SUBJECT HEADINGS ANALYSIS

4.0 Introduction and Definitions

Subject heading is a heading that summarises the content of an item, and it consists of words, groups of words, or acronyms that are used to describe the subject of a work. As access points in the catalogue, these headings are extremely important in communicating the holdings of a library. Adding subject headings provide access to the intellectual content of the material. In selecting subject headings, the cataloguer decides what index terms appear in the controlled vocabulary tools mentioned above. The chosen headings are numbered with Arabic numerals and are recorded.

4.1 Analysis of Subject Headings

An activity of analysing subject headings is carried out as part of cataloguing and classification of library materials. In carrying out this work, a library staff is advised to analyse different parts of an item and to consult recommended subject heading tools such as the Library of Congress Subject Heading (LCSH) and Sears List of Subject Headings (SLSH) for determination of an appropriate subject heading for a given library material. The LCSH and SLSH are vocabulary control tools recommended to be used so as to assign internationally recognized subject headings for maintenance of consistence in selection of subjects that facilitate retrieval of desired documents by library users. This concurs with the argument that uses of controlled vocabulary terms in LCSH and SLSH that have been standardized are important for providing access to library materials through subject entries; otherwise our information retrieval system will be chaotic and inefficient.

4.2 Subject Headings Lists in a Nutshell

It is therefore, wise to provide brief snapshot about existing Subject Heading Lists so as to equip new readers with prior knowledge before using the tools in question in information organisation activity.

4.2.1 Sears List of Subject Headings (SLSH)

The SLSH is based on the principles of the Library of Congress Subject Headings (LCSH) with modifications instituted for simplification. The principles of the SLSH are three fold:

- i. **Specific and direct entry:** This means that a subject should be entered under its most specific heading, not under the class to which it belongs. For example, Rose should be entered under “Rose” and not under flowers”. Penguin should be is entered under “Penguins, but not under “Birds” or even under “Water birds. But specificity is a matter of relativity depending upon the strength of collection, levels of the users and on the policy of the library.

- ii. **Direct entry:** It means that the specific heading chosen should be entered directly as the lead point, instead of a subdivision. For example, Penguins is entered as such instead of Water birds-- Penguins. Similarly use "Barbie doll" instead of "Dolls—Barbie doll".
- iii. **Common usage:** The terms chosen as preferred headings should reflect common usage. If a word has more than one spelling, then the most popular one is chosen for this purpose. This may happen because Sears uses American spellings. But the Tanzanian libraries should use British spellings). Sears also uses common and popular terms which are easily understandable among lay user, instead of scientific or technical terms or jargons. For example, Sear uses "Dinners" instead of "Banquets"; "Birds" instead of "Ornithology"; and "Renaissance" instead of Renascence.
- iv. **Uniformity and consistency.** This is the main reason for compiling such tools. It means that a heading once chosen should be consistently and uniformly applied in its scope, meaning and spellings until a decision is taken to the contrary. It, however, does not mean that old terms cannot be changed or deleted, or new terms cannot be added. The Sears continuously does it. Structure of the Sears List alphabetical and is suitable for use in small and medium size libraries. It provides subject headings for the entire range of knowledge (Satija, 2007).

Knowledge organisers are therefore, advised to consult either of the two vocabulary control tools in generating subject headings for their library materials, as they cover entire range of knowledge in this world. As previously stated, these tools including thesauri are very powerful in improving searching of both manual and online information as most search engines have been designed basing on the principles of these tools.

How to Determine Preferred and Non-preferred Headings from the SLSH?

All the headings are of two types:

- **Non-preferred Headings:** These headings are those which are not supposed be used. Such headings are given the leading word "USE" to direct cataloguers to the preferred heading, e.g.
 - For Cyclopedias: Use Encyclopedias and dictionaries
 - For Cytology: Use Cells
 - For Dairy farming: Use Dairying. The directing word "USE" is often bolded.

Preferred Headings: These are words which can be assigned to a document including their class numbers or subdivision that can be added as deemed necessary. They are also in bold face to be easily identified by readers. These headings broadly categorized are: Ideas, Objects, Places, Processes and Relationships.

Included are also instructions for further subdivision, such as Narrower Term (NT), Broader Term (BT) and Related Term (RT). For example examine the following simple entry:

- Dairying (May subdiv. geog.) 636.2; 637.
- Use for (UF) materials on the production and marketing of milk products and for general materials on dairy farming as exemplified below.

UF Dairies

Dairy farming

Dairy industry

The word “UF” stands for “used for” as hinted above. It means that the three terms shown against UF are not preferred headings, i.e. (Dairies, Dairy farming and Dairy industry). These are equivalent to Dairying in meaning. This means that any library material that will have a title of any of the three words above will have to be assigned “Dairying” as its appropriate subject heading as per the SLSH. In other words, the word Dairying is the general term that covers all terms dealing with issues related to dairy farming.

The Word (May subdiv. geog.) given in the parentheses means that the heading may be further subdivided geographically (by a place name), e.g.

- Dairying - Kenya
- Dairying - Tanga

The aim of subdivisions is to make headings more specific and to make class of headings smaller. For instance the Broader Term (BT) are subdivided to Narrower Terms (NT) to “prepare see also” so as to direct cataloguers to the more specific heading, as exemplified below.

- Agriculture, see also Dairying
- Livestock industry, see also Dairying
- Dairying, see also Dairy cattle, Milk

Key Headings

In the SLSHs, all subjects have not been listed. For some subjects, models have been given to enable cataloguers to coin other analogous subjects on that pattern. Some of the major model headings are as categorized below:

- Author : Shakespeare, William, 1564-1616
- Country : United States
- State : Ohio
- City : Chicago
- Language : English language
- Literature : English literature

- Ethnic : Native American
- Public figures : President United States
- Wars : World war, 1939-1945

It means, if there is a subject pertaining to any country, a cataloguer has to look under the United States for a similar subject heading (SH) for that country, and then adapt the heading accordingly. For example, if a subject is Geography of Tanzania, a cataloguer has to look under the United States where an analogous heading is United States – Geography. So the appropriate subject heading for Geography of Tanzania will be “Tanzania-Geography”, following the same format as the one found in the SLSHs.

Categories Omitted

As said earlier, the Sears is a list of headings as well as it provides patterns and instructions on how to coin headings for new and old subjects.

Some of the unlisted but coinable headings mostly pertain to:

Specific names of individuals, corporate bodies, associations, institutions, commercial organizations, processes, events, natural and geographical entities such as (mountains, rivers and lakes), flowers, vegetables, fruits, animals and all creatures (living, extinct, or mythical). All these can form subject headings and therefore, have to be supplied by cataloguers as per the instructions (Satija, 2007).

4.2.2 Library of Congress Subject Headings

The Library of Congress Subject Headings (LCSH) comprises a thesaurus of subject headings, maintained by the United States Library of Congress for use in bibliographic records.

LCSHs are applied to every item within a library collection, and facilitate a user's access to items in the catalogue that pertain to similar subject matter.

Use term in LCSH

- UF (Used For) refers to related subject headings.
 - BT (Broader Topic) refers to more general subject headings. These headings would be useful if you need to broaden your topic.
 - RT (Related Topic). These terms can provide ideas of other topics to investigate.
- SA (See Also) refers you to other ways of looking up the same topic.
- NT (Narrower Topic) refers to more specific headings than the boldface heading

Purpose of Subject Analysis

Subject analysis is part of cataloguing and classification activity that deals with conceptual analysis of a library such as a book to determine what it is about, and then use that “aboutness” to find appropriate subject and assign a class number (Taylor,

2004). In going through this process, the information organiser accomplishes the following purpose:

- Provide a meaningful subject access to a library item through a retrieval tool;
- Provide collocation of items of like nature;
- Provide a logical location to a similar items;
- Saves users time (Taylor, 2004).

All this is aimed at enabling a user to find not only a known work on a certain subject but also all the works that the library can offer on a particular subject (Taylor, 2004).

4.3 Determining the Subject of a Book

Before assigning a subject heading, an item has to be examined. This is done by examining the title, table of contents, description on the dust jacket, preface, text, and illustrations. This in line with the observation that, “to assign subject headings as specific as possible to an item, cataloguers typically need to spend some time reading information from the item, such as introduction, foreword, table of contents, and thereafter to construct appropriate subject headings to best reflect the subject matter of the item (Wong and Dellit, 2009).

Once the task of examining the document has been completed, the next step is to write down the subject and check to see if that choice is permitted in the standardized list. If the subject selected is not in the list, the related subjects must be consulted. It is possible, although not advisable, to add a local subject heading. This should be done only when all other avenues have been exhausted. The standard subject lists represent a controlled vocabulary that has been carefully constructed over a number of years. Local subject creativity — if taken to excess — results in a garbled catalogue. If local headings are added to the catalogue, write them in your copy of Sears or LCSH for future reference.

Typically, two subject headings per item is sufficient for most school libraries, although there are occasions when three or more may be required to cover the scope of the item.

4.4 Steps in Assigning Subject Headings

There various steps in selecting and assigning them to items as shown below:

- i. Select appropriate and currently valid subject headings from Library of Congress Subject Heading (LCSH) or Sears Subject Heading and the name authority file.
- ii. Be specific and objective.
- iii. Consult the Subject Cataloguing Manual: Subject Headings for instructions on types of subject matter and materials.
- iv. Use subdivisions to express subtopics, place, time, and form, as appropriate.
- v. Put the elements of the heading together in the prescribed order.

- vi. Make sure the subject headings match the cataloguing treatment of the work in the case of collected sets vs. analytics, text vs. commentaries, and that editions of a work are treated similarly.
- vii. Consult works already catalogued on the same subject to see how they have been treated.
- viii. Input the headings in descending rank order with correct content designation and accurate spelling and punctuation.
- ix. Test the results:
 - x. Do the assigned headings group this work with similar works?
 - xi. Do the headings capture the essence and spirit of the work?
 - xii. Do they indicate what is special or unique about this work?
- xiii. Imagine you are a reader and ask yourself:
- xiv. Would you look under these headings to find this type of material?
- xv. Would you be satisfied if you wanted material on this topic and found this work

Taine (1951) has observed that there are three themes running through the literature relating to subject headings. They are:

- i. The assertion that subject headings should be designed to meet the specific requirements of a given bibliographical function,
- ii. The principle that subject headings should be as specific as possible, as observed that,
- iii. The argument that subject catalogues, subject heading lists, and subject indexes should not attempt to be all things to all men. The rest of the literature, he says, is largely devoted to discussions of detail-whether headings should be singular or plural in form, directly specific or indirectly so, and how subject headings have been misused.

Standards for Subject Headings

Doris (1951) suggests certain standards for subject headings in special library catalogues. She suggests that:

- i. The heading should be as specific as the subject matter of the material to which it is being applied,
- ii. New headings should be introduced as rapidly as the need for them is recognised,
- iii. Headings should be defined as necessary and distinctions between terms clearly described,
- iv. Headings should reflect the use habits of the clientele served and popular or scientific terms chosen according to the preference of the clientele,
- v. headings should be consistent in form,
- vi. Inverted and subdivided headings should be held to a minimum,
- vii. Every cross reference should serve a specific function,

- viii. Standard subdivisions should be utilized where they are appropriate, as observed that, “assign one or more subject headings that best summarize the overall contents of the work and provide access to its most important topics” (Robare, 2011).
- ix. Large blocks of headings should not begin with the noun or nouns representing the chief subject interest of the library.

4.5 Authority Control and Files

Many things have changed in libraries over the last hundred years and in particular, the last decade has seen a large-scale transition from card catalogues to online public access catalogues. However, one thing that has not changed is the commitment displayed by libraries and their staff to provide continued ease of access to information for all users. Libraries do this through authority control. This is a process that organizes library catalogue and bibliographic information by using a single, distinct name for each topic. This heading is applied consistently throughout the catalogue and works well in providing linkages and cross references. Each heading is described briefly in terms of its scope and usage. This organization helps the library staff to maintain the catalogue and make it user-friendly for researchers (Mason, 2013).

Authority records can be combined into a database and called an authority file. This file (s) can be on cards or machine-readable format, on which decisions involving bibliographic records, particularly for form of entry, are recorded to establish a precedent or rule for subsequent decisions and to provide for consistency of entries (Online Dictionary, 2013). Authority control is an example of controlled vocabulary and of bibliographic control.

While in theory any piece of information is amenable to authority control such as personal and corporate names, uniform titles, series, and subjects, library cataloguers typically focus on author names and book titles, because they are the main entries for locating library materials. Subject headings from the Library of Congress fulfil a function similar to authority records, although they are usually considered separately.

Aims of Authority Control

The word authority in authority control is derived from authors of library materials who are recognized to have authority in ownerships of their books. And so it is used to identify authors, and does not have the usual meaning of authority as a power relationship, although both senses of the word authority are related etymologically (Wikipedia encyclopedia).

The aim of authority control in organizing library materials is not about creating a perfect system but rather to try to:

- Bring structure and order to the task of helping users find information.
- To select the form that subject headings, titles, and names will take as headings for bibliographic records and to choose the references needed to

support those forms. Since the headings function as access points, making sure that they are distinct and not in conflict with existing entries is important. For example, the English novelist William Collins (1824-89), whose works include the *Moonstone* and *The Woman in White* is better known as Wilkie Collins. Cataloguers have to decide which name the public would most likely look under, and whether to use a *see also* reference to link alternative forms of an individual's name. Another example is the Greek hero *Odysseus*, whom is also known by his Latin name *Ulysses*. This is an essential part of authority work because if it is omitted, an author's work will be split, information scattered, and materials inaccessible unless a user is knowledgeable enough to enter an alternative form (Wynar, 1992c: 475).

Since the objective of the authority file is to maintain a controlled vocabulary in the catalogue, the library staff needs to decide how the bibliographic headings will appear. This involves establishing the form that names, titles, and subject headings will take, and often demands research in sources such as biographical dictionaries. The results are recorded into files called authority files and used for preserving and promoting authority control in a library catalogue. A detailed authority record will sometimes list the sources researched to arrive upon a heading. This can be seen in the National Library of Canada's authority file called the NLC Canadiana Files (Mason, 2013).

Benefits of Authority Control

There are various benefits of strengthening authority in libraries as depicted below:

- **Better researching.** Authority control helps researchers get a handle on a specific subject with less wasted effort. A well-designed digital catalogue/database enables a researcher to query a few words of an entry to bring up the already established term or phrase, thus improving accuracy and saving time.
- **Makes searching more predictable.** It can be used in conjunction with keyword searching using "and" or "not" or "or" or other Boolean operators on a web browser. It increases chances that a given search will return relevant items.
- **Consistency of records.**
- **Organization and structure of information.**
- **Efficiency for cataloguers.** The process of authority control is not only of great help to researchers searching for a particular subject to study, but it can help cataloguers organize information as well. Cataloguers can use authority records when trying to categorize new items, since they can see which records have already been catalogued and can therefore avoid unnecessary work.
- **Maximises library resources.**

- **Easier to maintain the catalogue.** It enables cataloguers to detect and correct errors. In some instances, software programs support workers tasked with maintaining the catalogue to do on going tasks such as automated clean-up. It helps creators and users of metadata.
- **Fewer errors.** It can help catch errors caused by typos or misspellings which can sometimes accumulate over time, sometimes known as *quality drift*. For example, machines can catch misspellings such as "Elementary school teachers" and "Pumpkins" which can then be corrected by library staff. (Wikipedia encyclopaedia).

Authority control is an integral part of information organization, by which the individual cataloguing records for information objects in a collection are created and maintained following a set of standardized cataloguing and input rules. It is maintained through an authority file that contains the terms used as access points in the catalogue. The access points that determine the structure of the catalogue may be real entry headings on bibliographic records or cross references as explained above

There are two types of authority files, i.e., the name authority file and the subject authority file. The name authority file is essentially an alphabetical list of personal, geographic, corporate, and conference names that are found in a library catalogue. (Wynar, 1992c: 520).

The Subject Authority File deals with control of subjects of library materials. In addition to these files, a Supplementary Authority Files for uniform titles, subject headings, and series may be developed separately, or the entire collection may exist in a single authority file. Their purpose is central to the integrity of a library catalogue because they provide standardized forms for names, subject headings, titles, and the appropriate cross references -- they provide authority control (Wynar, 1992c: 4-5).

Personal names are not the only ones checked: there are corporate names to consider as well. To illustrate, AACR2R suggests using Franciscans, instead of Order of St. Francis, and the acronym UNESCO rather than United Nations Educational, Scientific, and Cultural Organization (AACR2R, 1988: 447). There is an official LC authority file (LCAF) that cataloguers can consult, which is coded in AACR2R form. To make a library's materials as easily and completely accessible as possible, it is always a good practice to use the form of the name that is most commonly seen. Other problems may arise with non-unique names, especially when neither date of birth is available, nor any other helpful information that could be used for verification or differentiation. The standard solution is to list all the works of the author on his or her authority record in single-spaces (Clack, 1990: 76).

The same is true for titles such as *Mother Goose Nursery Rhymes*, originally entitled *Tales of Mother Goose*. Provisions have to be made to tie together or develop a

synthetic structure by using linking references. Another book that has variations in its title is Frank Baum's *Wonderful Wizard of Oz*.

It has also been called *The Adventures in Oz*, and *The Wizard of Oz*, and needs references to link the titles. In addition, authority work demands that the proper forms be used for the names of series. If a library decides to use the series as an access point, the cataloguer will check the authority files to see how the library has chosen to deal with it in the past, and may "group them all under the series title, classify them together as a collection, or disperse them throughout the collection" (Clack, 1990: 5). Sometimes a series is used as a point of access, and at other times it is not seen as advantageous for users. If there is no series statement on file, an authority record is created and decisions made concerning its structure (Clack, 1992: 32).

The verification of subject headings is part of the process of maintaining standardized and consistent forms used in catalogue. Once subject headings have been determined for a particular work, the authority file is consulted to match them with their valid forms. If the library is using LCSH, it must continually revise and update its records by integrating LC Weekly Lists and the quarterly reports into its authority files. In that way, it is known when any headings are revised or completely omitted, and the proper forms of controlled vocabulary are in place to be retrieved by library patrons (Clack, 1990: 33).

As can be seen, authority work involves creation of authority records, the formation of such records into an authority file, the linking of that file to the bibliographic file to form a system, the maintenance of the authority file and system, and the evaluation of the file and system." (Vermont, 2013). Another critical component of authority files, and therefore authority work, is the inclusion of references to support the respective records. Authority records have a list of appropriate references that direct users to the authorized forms of names, titles, series, and subject headings. Catalogue headings need references included in the authority record because that is what brings together related items. There are four major categories of references, including, see references that direct a user to an author's pseudonyms or to the proper form of a name (Clack, 1990: 52).

See also references, link bibliographic records and provide direction from one heading to another to show relationships (Clack, 1990:53). They also connect titles to newer titles, especially for series. Information references are used by cataloguers when important information must be documented, requiring more than a see/see also explanation. These are constructed by staff members and provide instructions for users to go "from one access point to several different ones" (Clack, 1990:55). Also composed by the cataloguers are explanatory references that offer explanations for such things as pseudonyms, acronyms, and multiple names.

To sum up, in the library community there are two types of authority files, that is:

- The Name Authority File governs the headings for persons, corporate bodies (including conference headings), uniform titles, and those geographic entities capable of authorship.
- Some of the uniform title authority records consist of a combination of a name plus a title. All the control numbers for these records begin with the letter “n” and can be viewed in Fig 1. at (<http://goo.gl/eg5iZR>).
- The Subject Authority File governs topical subject terms of items or entities that are not capable of authorship such as mountains. Topical headings are those that use a word or phrase to describe the content, or topic of the library material. They may also be used as a subdivision of another heading. The control numbers for these records all begin with the letter “s” and can be viewed in Fig. 2 at (<http://goo.gl/eg5iZR>). Guidelines exist for certain ambiguous entities, telling cataloguers in which authority file to establish a heading. At various times, LC has spoken of combining the records into a single authority file.
- The machine-readable version of the LC Classification schedules would constitute a third authority file, one that has not yet been made widely available.) (Riemer, 1998).

Construction of Authority Files

There are a series of steps involved in the construction of authority files. The most basic one is to check all available data for the form that is to be used, e.g. titles, subject headings, series, names. Decide upon a form that the headings and cross references will take, and then check if the library has already assigned them. If so, that form is used for the cataloguing process. If not, the LC, NLC, or other authority files are consulted. If the name, title, and so on is found, it will be copied for the library's files and used for future entries. When the information is not found, it is best to examine sources to see what form they use. Once a form or forms is established, an authority record is made, with inclusion of references and source verifications. The final step is to enter the authority records into an authority file and link it to the bibliographic file. Sometimes this is an implicit linkage, and in other catalogue "a direct internal linkage exists between a heading stored in the authority file and the same heading stored in the bibliographic file" (Wynar, 1992c: 483).

Relationship between Authority Control and the Functions of Library Catalogues

Library catalogue is an organised set of bibliographic records that represents the holdings of a collection. Traditionally, bibliographic records of a library catalogue were limited to holdings of a particular collection at a specific location. Today, a library catalogue may also contain information regarding the holdings of other libraries in which the library has cooperative interlibrary agreements and/or information regarding materials that are not owned, but to which the library has access (such as materials available through the Internet).

Library catalogues provide a variety of functions. The following five functions of library catalogues are described below: finding/locating; collocating; selecting; resource sharing; and inventory.

- i. Finding/locating function. A user typically searches a catalogue in an attempt to match a desired item with an entry in the catalogue. (This process, of course, is limited by the scope of the collection and catalogue.) Once a user has found a desired item, s/he also will find information in the catalogue regarding the location of the item in the collection. Authority control allows for uniformity of names and titles. If authority control and a uniform title have been used in creating records, for example, a user's search for "Huckleberry Finn" will find all the like and closely related items in the collection. A user not only will find items in which the title proper is "Huckleberry Finn," but also will find items in which the title proper is "The Adventures of Huckleberry Finn." Thus, the user will have a greater opportunity of finding the item s/he desires.
- ii. Collocation. This involves gathering of like and closely related items in a catalogue, and is accomplished in large part through authority control. Collocation also serves to show the relationship between related items, through the use of see and see also references in authority work. A search by the authorized form of a heading will find all records in which the authorized form has been used. If standardized (the authorized form) headings of names, corporations, titles, etc. are used in creating records, in the same search as above, a user will find not only books related to "Huckleberry Finn" by Mark Twain, but she will also find all related records including records for videocassettes, books on tape etc. related to the same title. Further, she will find all editions of this and closely related titles, and so forth.
- iii. Opportunity to select among like and related items. If authority control has been used in the creation of bibliographic records, a search for "Huckleberry Finn" will find all related titles, editions, forms, etc. With all of this information at hand, user/patrons can select the item that most closely matches her needs from all available options.
- iv. A resource sharing function. Records that are built according to widely accepted standards, and that use authorized forms of headings, will be more easily shared among libraries.
- v. An inventory function. A catalogue can provide records not only of items currently held in a collection, but also can track items acquired, missing, removed from the collection, etc. Again, authority control allows like and related records to be linked; thus, inventory in a catalogue in which authority

control has been practiced will be more closely controlled and more accurately measured.

Authority control, generally, ensures that a library catalogue is more than a series of related bibliographic records. It functions to standardize catalogue entries so that items in a collection are more easily accessible to enable the like and related items to be gathered and/or linked.

Without Authority control catalogue will have many heading of the same author as shown below:

1. Diana. (1)
2. Diana, Princess of Wales. (1)
3. Diana, Princess of Wales, 1961- (13)
4. Diana, Princess of Wales 1961- (1)
5. Diana, Princess of Wales, 1961- (2)
6. DIANA, PRINCESS OF WALES, 1961-1997. (1)
7. Diana, Princess of Wales, 1961-1997. (2)
8. Diana, Princess of Wales, 1961- -- Juvenile literature. (2)
9. Diana, Princess of Wales, 1961- -- Marriage -- Juvenile literature. (1)
10. Diana, Princess of Wales--Biography. (1)
11. Diana, Princess of Wales, -- Iconography. (2)

The problem of having many heading of the same author is that readers may not locate information they need as it would be difficult to determine the actual book being searched for. With authority control only the proper heading will be displayed as shown below:

Diana, Princess of Wales, 1961- (Vermont Government, 2013).

Study Questions

1. Describe Sears' List of Subject Headings
2. Explain the techniques involved in using Sears' list to determine subjects
3. Using Sears' list of subject headings, determine a subject in science
4. Using Sears' list of subject headings, determine a subject in art
5. Using Sears' list of subject headings, determine a subject in any social science class
6. Why do you think it is imperative to determine subjects using Sears List of Subject Heading (SLSH)?
7. Who do you think uses SLSH most? The classifiers or cataloguers and why?
8. Explain the features of SLSH
9. Compare SLSH and Library of Congress Scheme
10. What are the advantages of SLSH?

CHAPTER FIVE

CLASSIFICATION

5.0 Introduction

Classification means grouping together of items having common features. It is done not only in libraries but also in everyday life, in areas such as in kitchens at home, in shops and supermarkets. The purpose is to group similar items for ease of identification in the future when needed. This is in line with the observation that “the purposes of classification is to collocate or cluster like items by subject, preserve context (discipline, topics, form) in one "term," and resolve language issues (Kipp, 2010). Classification is based on a philosophical view of knowledge as something that can be subdivided into a series of disciplinary classes, which can further be subdivided into topics. It is used as a system for organising knowledge into a hierarchy of related items (often called an ontology), which can result into a call numbers for items in a library (Kipp, 2010). You can imagine how difficult it could be to get an item if things were not properly arranged. In libraries, as elsewhere, having a classification system helps people to easily find items. Books about a particular field of knowledge shelved together or near each other can easily be found.

Definitions of Classification

In the New Encyclopedia Britannica (2008) classification is defined as a system of arrangement adopted by a library to enable its patron to find its materials quickly and easily. Scott (2005) defined classification as the arts of assigning books to their proper places in a system with various subjects of human inquiry. For Stefik (1995), to classify is to identify a member of known class. Hence, classification can be seen as the problem of finding the solution (class) which best explains a certain set of known facts (observables) about an unknown object, according to some criterion.

Wynar (1976a) defined classification as an orderly arrangement of categories of classes, a class being any group of entities sharing the same characteristics, where a characteristic is an attribute by which concepts may be separated into groups or further subdivided by subjects. Classification is therefore a grouping together of like objects and their separation from unlike objects. The term objects in the context of library include library materials such as: books, journals, research materials and reports.

5.1 Types of Classification Schemes

There are several different types of classification schemes around, varying in scope, methodology and other characteristics. However, the most frequently used types of classification schemes include: Universal, national, subject specific schemes, most often international, home grown systems and, local adaptations of all types (Kipp, 2010).

5.1.1 Universal Schemes

The term 'universal schemes' is used for schemes that are globally accepted, multilingual and multidisciplinary in nature. Examples of these systems are such as, UDC, DDC and LC. The use of a universal, multidisciplinary classification scheme in an Internet context could result in the following advantages:

- They cover major subject areas.
- They are widely supported.
- Continuously updated.
- User familiarity.
- Multilingual access to a collection.
- Available in machine-readable form (Kipp, 2010).

However, these universal classification schemes have been criticised as shown below:

- Rigid or false ontology: The limitations of enumerated classification numbers had given birth to more flexible analytico-synthetic classification schemes like Colon Classification (CC).
- Delay in updating and adding new subject areas.
- Difficulty to fully represent the Universe of Knowledge

5.1.2 Specific Subject Schemes

Specific subject schemes are usually created for special collections and for abstracting services in a scientific discipline. They do have the potential to provide a structure and terminology much closer to the discipline and can be more up-to-date, compared to universal schemes. They could be used mostly in subject-based services.

5.1.3 Home-Grown Schemes

Some Web sites have tried to organize knowledge on the Internet by devising their own classification schemes like Yahoo. Home-grown schemes do have some theoretical advantages over library universal classification schemes as shown below:

- Relatively flexible and easy to change.
- They can very quickly absorb new areas of interests.

However, there are some shortcomings of these systems as listed below:

- Lack of consistency
- Unlikely to be well known
- Not so economical (Kipp, 2010).

5.2 Purpose of Classification

The purpose of any classification is to organise knowledge so that:

- Properties of objects may be remembered and their relationships may be understood most easily for a specific objective of creating order out of disorder (Kumar, 1978), so as to serve a given purpose (Cline, 1949).

This involves formation of classes by grouping the objects on the basis of their common properties.

This is the main objective of any library whose essence is to adhere to the five laws of library science listed below:

- Books are for use (first law)
- Every reader his/her book (second law)
- Every book its reader (third law)
- Save the time of the reader (fourth law)
- Save the time of the library staff (corollary to the fourth law)
- Library is a growing organism (fifth law) Ranganathan, 1972).

5.3 Role of Library Classification

The role of the library classification is to:

- Enable arrangement of documents in a systematic order, which is most convenient to the reader and the library staff. It brings related subjects in close proximity,
- Assist in identification and location of a document on a given subject wanted by a reader. Documents can be quickly retrieved from and returned to their original positions.
- Enable book displays and exhibitions.
- Facilitate withdrawal of certain documents from the main collection for special purposes and occasions such as book talks, seminars, symposia, conferences and special exhibitions, on a given topic.
- Facilitate through stock verification of library holdings.
- To separate subjects on the bases of likeness and unlikeness.
- To make grouping and sub-grouping of subjects.
- To arrange things in the most convenient order
- To make books available to every reader.
- To enable a reader receive his/her book
- To arrange books in classified order.
- To retrieve the information whenever it is needed.
- To make available the whole library stock to readers by publishers, date of publication, title, and author or by subjects. The proper way is to arrange by contents of the materials (Sharma and Sharma, 2007).
- To act as a bridge that fills the gap between:
 - User need and expressed user need
 - Expressed user need and represented document content

- Represented document content and actual thought content of documents
- Works as a User Interface to the collection
- Directs the user to the right shelf and to the right book.
- Lays out the collection in a **spectrum** progressively from “unlikeness” to “likeness” and again till “unlikeness” is reached.

5.4 Principles of Book Classification

Most of the literature and famous authors like Merrill (1939) and Scott (2005) argues that classification is not an easy task and calls for cataloguers and book classifiers to be knowledgeable people who are able to apply and adhere to principles outlined in different classification systems (Scott, 2005: 2729) recommended that cataloguers should use the following principles when selecting a class number:

- i. Class a book, or any other material, where it will be **most useful** to the library patron. This can usually be accomplished by placing similar materials together. This may also be accomplished by use of broad or close classification depending on library needs.
- ii. Class a book first by **subject** and second by **form**, except in the field of literature. For example, an encyclopaedia of arts will be classed in arts and not with general encyclopedias. The subject arts, is more important than the form, an encyclopedia.
- iii. Class a work of **literature** first by its **original language** and second by its **form**. For example, a work on French poetry translated into English will be classed in the number for French poetry, not for English poetry, because the original language is French. After original language of the work has been determined, it is then classed by **form** (drama, poetry, fiction, essays, speeches and letters).
- iv. If two subjects receive equal treatment, and are not used to introduce or explain one another, class the work with subject whose number comes first in the DDC schedules. This is called the *First of two rules*. Therefore class a book that **covers two** subjects which are equally treated in the document under the **first subject** treated in the schedule unless another **subject receives more prominent attention**. A book that treat first chemistry and then physics but that gives equal treatment to each is classed with the first subject treated, physics this is because chemistry is 540 while physics is 530.
- v. Class a book that covers more than **three subjects** in a **general subject embracing** all of the **subjects**. For example, a book treating mathematics, astronomy, physics and chemistry will be classed with comprehensive work on science. A work treating arithmetic, algebra, trigonometry, and geometry is classed with comprehensive works on mathematics.

- vi. Class a book in the **most specific number possible** in the **classification scheme**. For example, a history of the American Civil War will be classed in a specific number for Civil War and not in a more general number. A work on the banjo is classed in the specific number for banjo and not in a general number string instruments. Classifying a book in too general number **defeats the purpose of classification**, because it places books on specific topics in **meaningless order**.
- vii. In general, class a book first by **subject** if there is a choice between **subject** and **geographical location**. For example a book on German architecture is classed in the number for architecture, not in the number for German.
- viii. Class **biographies, autographies, diaries and reminiscences** either together in a **general biography** number or with **specific disciplines**. For example, a biography of a lawyer is classed either in a general number covering biographies of people regardless of occupation or in a number in law used for biographies of lawyers, judges, etc.
- ix. Class a book according to the author's intent in writing it. For example, if an author produces a book or drawings of dogs the cataloguer must examine the book to see if it means to emphasise the drawing of different breeds, or techniques of drawing dogs. Depending on the authors' intent, the book could be classed in a number for dogs or a number for techniques of drawing. (Bloomer and Weber, 1976: 39-40).

5.5 Application of the Five Laws of Library Sciences on Library Classification

Shiyali Ramamrita Ranganathan (1892-1972) was considered the father of Library Science in India. He developed what has been widely accepted as the definitive statement of ideal library service. His Five Laws of Library Science formulated in 1931 is a classic of library science literature, as fresh today as it was in 1931. These brief statements remain as valid -in substance if not in expression- today as when they were promulgated, concisely representing the ideal service and organizational philosophy of most libraries today these laws are:

- a) Books are for use.
- b) Every reader his or her book.
- c) Every book its reader.
- d) Save the time of the reader.
- e) The Library is a growing organism.

These five laws are capable of resolving any problem arising in library science, library service and library practice.

In the discipline of library classification, the laws of library science help in resolving the conflict between Canons and/or Principles. If a problem in classifying exceeds the capacity of the Canons and Principles, the Five Laws provide the solution. The five Laws are like the Head of the State, whose authority is to be accepted as final and binding (Gorman, 1995).

First Law: Books are for use

In 1957 the term 'Books' has been replaced by 'Documents' or "information". The demand of the First Law is that the arrangement of documents and the main entries should primarily be based on the characteristics of the subjects embodied in the documents. The study of these characteristics is, therefore essential for the efficient classification, search, and retrieval of subjects and service to the readers (Lal and Kumar, 2009).

Second Law: Every Reader his/her Book

To fulfil the demand of this Law it is necessary for a classifier to satisfy all types of users:

- i. Users, who are unable to pinpoint the specific subject and usually approach by broader subject;
- ii. Users, who may pinpoint the exact subject but what they want is more specialized subject than their request suggest.

Sayers (1957) emphasised that the second law suggests that:

- a) The arrangement provided by the class numbers should be such that all books on one subject are arranged together;
- b) The sequence of the subject should be from broad to specific;
- c) The books on different subjects should be arranged according to their degree of affiliations. In other words, the shelf arrangement should display the full field of user's interest, unexpressed or expressed.

Third Law: Every Book its Reader

The forth law "Every book its reader" implies that the time of retrieval, no document relevant to the interest of the reader at the moment should be missed, irrespective of his/her approach. To fulfil the demand of this Law, it is necessary that each document should get its user. The probability for getting proper users for every document would be higher if subjects are arranged among themselves in the degree of mutual relationship.

Fourth Law: Save the Time of the Reader

The fifth law "Library is growing organism" implies that the universe of subjects is ever growing and, therefore, library science is ever growing .Hence, that arrangement of documents should not be such which may consume and waste the precious time of the users. However, the demand of the Forth Law is inherent in the demand of Second and Third Laws.

That is, the arrangement of documents should be according to the degree of mutual relationship of subjects; within each subject documents should be arranged first by language in which these are written; then by year of their publication; that the alphabetical arrangement would be unhelpful, as it is not capable to provide filiatory sequence and therefore, would be time consuming.

Fifth Law: Library is a Growing Organism

There is direct impact of the scientific and technological developments on the growth of documents, users and manpower vis-à-vis the infrastructure of the library. The documents in a library should be arranged to facilitate the pin-pointed, exhaustive and expeditious service to the users, irrespective of its growth in size, number of documents or emergence of new subject. This is the demand of fifth law.

Classification Process

In order to classify a book, a classifier has to analyse it to determine its appropriate subject that can enable fixation of its proper class number. Analysis involves going through various areas of a book as the:

- i. Title page, table of contents, preface, forward, introduction, bibliography and back of the book index.
- ii. Author to determine his/her field of specialization. E.g. Michael Porter (a management guru) Julius Nyerere (politics especially socialism) Issa Shivji (Law), etc.
- iii. Title of the book and its sub-title, if any as these may indicate the subject area the book deals with.
- iv. Form of the work, such as fiction, encyclopaedia, bibliography, special features or format, maps, illustrations and tables
- v. Ask questions such as:
 - ◆ What is this work about?
 - ◆ Is one topic discussed, or are several?
 - ◆ If several, are the topics discussed in relation to each other, or separately?
 - If separately, is one topic predominant? Which one? ,
 - Is there a specific object, product, condition, or phenomenon?
 - Is an action or process involved?
 - Is the focus on an agent or object of the action?
 - Is there a particular means of accomplishing the action? Are any variables involved?
 - Is a particular place covered?
 - Is a particular time period covered? Are any particular persons covered? Any other named entities? ()
- vi. **Mentally compose:** A statement beginning: "This work is about..."

It is only very obscure cases that the cataloguer reaches this step before determining the subject, if this is the case then, reading part of the book or looking for the book's reviews in review sources.

5.6 Functions of Classification

Sharma and Sharma (ibid) noted that books are the foundation of library while classification is a foundation of librarianship. The functions of the classification in a library are to:

- Arrange books and other materials in helpful sequence
- Ensure speedy location of library materials
- Replacement of books for next user
- Reveals the strength and weakness of the stock of the books in the library
- Helps the librarian and information officer to put new books with the related books when added in the library
- Helps to provide the "right book to the right man/user and fulfil the law "Every book find its reader".

Criteria for a Successful Classification Scheme

Taylor (2006) listed few criteria that may be generally applied to judge a successful classification system:

It must be inclusive as well as comprehensive: It must encompass the whole area of knowledge in the field of knowledge that it claims to represent. It must therefore include all subjects that are, have been or may be recognised, allowing for possible future additions to the particular body of knowledge being covered.

It must be systematic: Division of subjects must be exhaustive and must bring together related topics in logical, comprehensive fashion, allowing its users to locate easily whatever they want that is available. It must be so arranged that each aspect of a subject can be considered a separated, yet related, part of the scheme, and it must be so arranged that new topics and aspects can be added in a systematic manner.

It must be flexible and expansive: It must be constructed so that new subject in its knowledge area may be inserted without dislocating the general sequence of classification.

It must employ terminology that is clear and descriptive, with consistent meaning for both the user and the classifier:

Problems in Classifying Library Materials

The universe of subject is dynamic and new subjects in various forms are always coming up, at an accelerated speed. Not only the number of subject in existence is

extremely large but relationships between various subjects are varied in nature. There is an increase in complexity of subjects.

This has created tremendous problems for researchers as well as those dealing with organisation of documents or information. Library classification is one technique which helps in the organisation of documents or information so that the users can use sources of information effectively. It helps in creating order out of chaos.

Kumar (1978) argues that the nature of the universe of subjects is multi-dimensional. It is the job of classification to map the multi-dimensional universe of subjects along one line. This is very difficult task.

5.7 Notation in Classification

Notation is the system of symbols used to represent the classes in a classification system. A notation can be of letters, numbers or combination of both. Notation can be pure or mixed. In the Dewey Decimal Classification, the notation is expressed in Arabic numerals. The notation gives both the unique meaning of the class and its relation to other classes. The notation provides a universal language to identify the class and related classes, regardless of the fact that different words or languages may be used to describe the class.

Notation is a very important feature in classification. Aitcison (1982) noted that poor notation can reduce the value of even the best constructed scheme

A Pure Notation

Is the one with only one type of symbol is use.

Mixed Notation

Is the one which uses more than one type of symbols. It uses letters in the Roman alphabet and Arabic numbers.

Qualities (Features) of Notation

1. Simplicity

Notation should be easy to read, remember, say, write, type and file. A pure notation is generally simpler than a mixed one

2. Brevity

Notation should be brief as possible (not be too long if it uses numerals and letters in facilitation of mnemonic.) A long class number is hard/ difficulty to remember, file and to fit on the spine label.

Cases where notation become long:

- i. If scheme is very specific (it accommodate specific and detailed subjects) for example in engineering discipline, the subject of Alkali and alkaline on earth metal testing and measuring its class number is 620.189 602 87
- ii. If the subject need number building its notation will be long, for example in DDC for the case of International relation of two countries needs combination of two different area notation.

For example international relation between Tanzania and United States its class number is 327.678 073.

- iii. If notation uses Arabic numerals, instead of Roman letters. This is because there is only 10 Arabic numerals, but 26 or 52 (if upper cases and lower cases are applied).

3. Expressiveness

Notation should be expressive, showing the hierarchical arrangement and relationship structure of the scheme in the notation. For example , class number 616.842 expresses or represents flow of numbers in hierarchy as follows:

6.....	Technology
61.....	Medicine
616.....	Diseases
616.8.....	Diseases of nervous system
616.84.....	Symptoms neurology system
616.842.....	Paralysis

4. Hospitality

Should have the ability to accommodate new concepts or subjects as necessary. The ability of notation to allow for insertion of new subject can be noted in:

- i. DDC in number building after decimal point as numbers taken from tables
- ii. In some occasions where gaps have been left to allow insertion of new emerging subjects

5. Mnemonic

Notation should be mnemonic to facilitate easy memory or to remember for example

- 03 Stands for dictionaries and encyclopaedia
- 09 Represents historical and geographical areas

In other words, mnemonic is intended to facilitate easy memory.

5.8 Nature Facetted Classification System

The word facet means a clearly defined mutually exclusive and collectively exhaustive aspects properties or characteristics of a specific subject. This system was developed by R. N Ranganathan, a librarian with mathematics background at the Madras University in India in 1930. In coming with an idea of facet, Ranganathan wanted to classify knowledge into broad classes that were then broken down into basic concepts or elements according to certain characteristics, which he termed them facets as already explained. He proposed five basic types of facets that may occur in many subject fields: personality, matter, energy, space and time. Facets of any specific

collection, however, are determined by an evaluation of the nature of the items in that collection. Other examples of facets include:

- Subjects: general or specific
- Language: multilingual or individual language
- Geography: global or national
- Creating/supporting body
- User environment: home, school, office
- Format: book, photograph, MP3file

If one is having difficulty grasping the term "facet," think of it as a characteristic or an attribute. A simple example might help. Think of a toy ball. How would you describe it? "Round," "soft," "red," "smooth," "large," "striped" might be some of the words you would use. Or perhaps "hard," "white," "small," "dimpled." These sets of terms can be generalized to form a set of mutually exclusive characteristics (facets):

- Colour
- Shape
- Size
- Texture
- Weight
- Use

This faceted classification is a bottom-up system; that is, it starts with objects being classified and use it as a basis for description. Ranganathan recognised that the world of knowledge is growing quickly, with new areas of knowledge being discovered and existing classification systems being improved and probably the new ones may also emerge.

Ranganathan understood that any classification that attempted to enumerate a finite number of subjects without full capabilities for expansion to allow for new areas of knowledge could never meet the needs of the future.

Since the 1960s, all major classification schemes (with the exception of LCC) either have been partially restructured on a faceted analysis or display a fully faceted structure (Taylor, 2000). For example, the 21st edition of DDC offers facets not only for its traditional "standard subdivisions" and areas, but also for individual literature and languages, for racial, ethnic, and national groups, for persons, and in completely revised schedules for areas such as music and biology. In addition, special faceted classifications have been designed for fields such as business management (London Classification of Business Studies) and the construction industry (Unified Classification for the Construction Industry).

Why Ranganathan Developed Faceted Classification Scheme?

Ranganathan developed the theory of facet analysis because he was dissatisfied with the inability of traditional enumerative classification systems. These traditional schemes such as DDC, UDC and LCC that were unable to accommodate compound subjects. He also recognised that since the world of knowledge is growing faster there is a need of developing a system which can grow with it, and a system needed to be developed that could grow with it. This system according to him should be able to incorporate all types of material in particular the electronic ones and to present them easily to the users (Glassel, 1998). In this way the faceted was seen to be a solution of accommodating compound subjects because of its advantages shown below:

Advantages of Faceted Classification

- **It offers flexibility for interdisciplinary subjects:** Since only the basic concepts are given in the schedules of a faceted scheme even if a document has an interdisciplinary approach, the classifier can combine any concept with another to produce a tailored call number for the specific item.
- **It can easily accommodate new concepts:** When a new subject develops, a classifier of an enumerative scheme will have to wait until the scheme provides a term for that particular subject. In faceted classification system it is easier to combine already-existing terms to form a new subject.
- **Citation order is not essential:** The citation order of the class number is not relevant as the user can retrieve the documents with any combination of the facets. This is especially useful on Internet, where the topics are widely scattered.
- **Extra facets can be added:** Extra facets indicating the scope of the document, its target group, language, point of view can be easily added.
- According to (Broughton, 2006) other benefits includes:
 - Possibility of full and accurate cross-referencing;
 - It facilitate application of useful generic relationships;
 - It establishes rules for compounding and appropriate notation
 - The scheme is easy to compile.
 - It allows classification of both simple and complex subjects.

Colon Classification

A good example of faceted classification scheme is a Colon Classification Scheme because it uses colon (:) and other punctuation marks to separate facet as shown below:

- , (comma) – is for **Personality**
- ; (semi colon) – is for **Matter**
- : (colon) – is for **Energy**
- . (Full stop) – is for **Space**

' (apostrophe) – is for **Time**

NB: The above five main primary categories are often written in short form as PMEST, in which:

- **P** – stands for Personality, the connecting digit is “comma” (,)
- **M**- for Matter ,the connecting digit is “ semi colon” (;)
- **E**- for Energy, the connecting digit is “ colon” (:)
- **S** – for Space, the connecting digit is “ dot” (.)
- **T** – for Time , the connecting digit is “ single inverted comma” (‘)

Application of digits: Notation J, 381; 4:5.42’N70 symbolize a book on Eradication of virus in rice plants in Japan 1971 in which punctuations in between shows separating digits where:

J = Agriculture (main subject)
381 = Rice plant (**P**ersonality)
4 = Virus disease (**M**atter)
5 = Eradication (**E**nergy)
42 = Japan (**S**pace)
N70 = 1971 (**T**ime)

Comparison of CC and UDC

- i. CC can be compared only with UDC. It is like UDC in that it is a Faceted Scheme. But it differs from UDC in the following respects:
- ii. CC is a Freely Faceted Classification, whereas UDC is only a Nearly Faceted Classification;
- iii. CC starts with a short schedule of Basic Classes, whereas UDC has not yet escaped from the grip of the rigid DC core and giving a Schedule of Compound Classes running to several hundred pages;
- iv. CC is guided by definite objectively applicable principles and the need for flair is reduced to an enormous extent, whereas UDC still depends a good deal on subjective decisions instead of objective ones based on stated principles;
- v. CC has the advantage of six schedules of Common Isolates and of several Special Isolates for the Compound Subjects going with the respective Basic Subjects, whereas UDC has only three distinctive schedules of Common Isolates and its Schedules of Special Isolates are far too few and they very much mix up different kinds of isolates;
- vi. CC has made full use of the advantages of a Mixed Notation, whereas UDC is still essentially in the grip of Indo-Arabic numerals;
- vii. In CC, the sequence of the isolates in a schedule, the sequence of facets in a Compound Subject, and the sequence of the Compound Subjects going with

the respective Basic Subjects conform much more to a common pattern than the subjects of UDC do;

- viii. The Canonical Subjects of CC include the various Systems of Development of each Basic Subject and also the Specials going with each Basic Subject. This feature is rarely found in UDC; and
- ix. On account of the large base of its Notational System and provision for any number of facets that may be determined by the Idea Plane, the average number of digits in CC numbers is smaller by 50 per cent than the average number of digits in a UDC which is (66) (Krishnamurthy and Ranganathan, 2006).

In comparison most users prefer CC to UDC due to advantages mentioned above. For details about UDC refer to Chapter Seven.

Application of Faceted Classification

It is widely used in the construction of thesauri for indexing purposes, as it is an analytico-synthetic scheme. The word analytico-synthetic originates from two main words as described below:

- a) **Analysis:** Breaking down each subject into its basic concepts.
- b) **Synthesis:** Combining the relevant units and concepts to describe the subject matter of the information package in hand.

Things to Consider when Applying Facet Concepts in Indexing

Since faceted classification helps in analysing text and capturing items that are relevant in indexing, a user needs to consider the following before indexing:

Take time to think about the facets that are important as you work through documents. For instance, you are working on a document about biography. In this instance you might consider the following as important facets: Family, Other relationships, Training/Education, Travels, and Places lived, Career and his/her publications. And if you are indexing a cookbook, your important facets might be: Ingredients, Techniques of cooking and recipe ingredients.

Challenges of Applying Faceted Schemes

- The notation can become long and complex and may be unsuitable for the arrangement of document on shelves as in a library.
- Unlike DDC and LCC, they are very unfamiliar to most of the users.
- They are very complex and are difficult to use without experience. It is difficult to integrate browsable hierarchy of the schedules. But these problems can be solved by providing an interactive user interface, which can explain the

facets to the user; which will prompt the user with queries to enter one topic at a time (from the broader to the specific); and it can also have different levels of interfaces for different kinds of users (expert search, easy search, etc.).

- Because of their familiarity with enumerative classification systems such as LCC and DDC, Library and Information Studies students often find it a challenge to be introduced to the principles of facet analysis.
- The semantic and syntactic structure of Ranganathan's language may serve to hinder easy comprehension of his principles of facet analysis. Sentences such as *“The denotation of a term ... should be determined in the light of the different classes or ranked isolates of lower order (upper links) belonging to the same primary chain as the class or the ranked isolate denoted by the term in question”* (Ranganathan 1967, 208) tend to leave some doubt as to what Ranganathan is trying to say (i.e., that a term's meaning and context depend upon its location in the classification schedules). It is often necessary to read such sentences several times before they can be understood, and even then, one may not be certain that full comprehension has occurred and;
- Ranganathan's theory of facet analysis is presented as a detailed series of 46 canons, 13 postulates and 22 principles, which many Library and Information Studies students and classifiers tend to find rather intimidating.
- Faceted classification schemes do not respond well to the requirement for easy grasp of the scope of the knowledge base or quick access to popular topics
- Most people do not want to be bothered with learning new systems, and advanced systems of classification - faceted and otherwise -certainly seem painfully abstract and artificial to most people.
- Not good at responding to the requirement for easy grasp of the scope of the knowledge base or quick access to popular topics.

Comparison between Enumerative and Faceted Classifications

s/n	Enumerative	Faceted
1	It is more or less a systematic list of basic, compound and a few complex subjects of the past, present and foreseeable future. It means all the class numbers are available readymade.	No class number is available readymade for compound and complex subjects. It is a list of basic subjects and their special isolates and a few schedules 'of common isolates.
2	It is the first species of classification in the line of evolution. Library of Congress Classification is the best prototype of this specie.	It is the latest stage in the evolution of classification systems. Ranganathan's Colon Classification is the best example of this species.

s/n	Enumerative	Faceted
3	It is a classification of the past and is unable to meet the challenges of the present revolution in information processing and organization. Class numbers are not co-extensive.	It is a classification of present and of near future and is fully equipped to meet the challenges of information revolution. Their class numbers are co-extensive.
4	Enumerative systems usually do not have' any explicit theory and guiding norms. Therefore, they are not able to accommodate new subjects. The structure is rigid, and soon becomes outmoded and outdated.	These are based on an explicit theory guided by postulates and principles. By virtue of these guiding principles these are able to accommodate new subjects. These are very resilient, and, thus, enduring and can be easily kept up-to-date.
5	Notation is simple, class numbers are monolithic.	Notation is mixed and seems complex at times. Class numbers are polythitic.
6	Schedules are lengthy; system is difficult to design but easy to use.	Schedules are short, so easy to design, comparatively complex to use.
7	Index is indispensable.	Schedules being slim. The index is less used.

Faceted classification is highly effective in the system of storage and retrieval. Faceted analysis can be used to create deeper and more complex knowledge structures by extending the range of categories and by exploring variants of combination. The formulae developed for the combination of terms and concepts will generate n-dimensional structures that seem appropriate to a hypertext environment. Structures generated from the expanded category base may be particularly useful in handling digital objects (Broughton, 2002).

Shiyali Ramamrita Ranganathan (1872-1972) is one of the most influential figures in the field of library and information sciences. In this question one can argue that Ranganathan is a thinker ahead of his time. The fact that his ideas and his Colon Classification scheme are not well received and practiced can probably be attributed to his vision being too advanced for his contemporary world of technology. Considering

the progress that has been made since his times, Ranganathan's ideas deserve another investigation. Upon comparing the nature of his classification scheme with the various technologies like relational databases, online retrieval systems, or the World Wide Web, it is quite evident that Ranganathan's ideas of classification are more applicable now than before.

In order for reading materials in a library to be accessed or retrieved by patrons they must be arranged according to a system and arrangement which is generally referred to as "classification." A basic familiarity with those systems is vital for any library user so that they can find materials efficiently within the collection.

Library classification forms part of the field of library and information science. It goes hand in hand with library (descriptive) cataloguing under the rubric of cataloguing and classification, sometimes grouped together as technical services. The library professional who engages in the process of cataloguing and classifying library materials is called a cataloguer or catalogue librarian. Library classification systems are one of the two tools used to facilitate subject access. The other is alphabetical indexing languages such as Thesauri and Subject Headings systems.

Collins (2009) noted that since the time of the Library of Alexandria during the Hellenic period, some logical order has been imposed upon library collections. It is only in the last century and a half that a number of modern notations for library classification have been developed. Such classifications contain letters, numbers, or a combination of the two, to indicate subjects and subtopics; and additional marks to aid alphabetical shelving within the subject.

Classifications may be natural (e.g., by subject), artificial (e.g., by alphabet, form, or numerical order), or accidental (e.g., chronological or geographic). They also vary in degree; some have minute subdivisions while others are broader. Widely used systems include the Dewey Decimal Classification, the Library of Congress Classification,

the Bliss Classification, and the Colon Classification; special libraries may devise their own unique systems.

NB: The Bibliographic Classification is the leading example of a fully faceted classification scheme. It provides a detailed classification for use in libraries and information services of all kinds, having a broad and detailed structure and order.

The vocabulary in each class is comprehensive and complemented by an exceptionally brief faceted notation considering the detail available, providing indexing to any depth the classifier wishes.

The structure of the subject within each class is clearly and simply laid out with rules provided for the quick and consistent placing of any item. A thorough A-Z index is provided in each volume. Users can access a subject catalogue record via any part of the whole, depending upon the primary interest of the user

Division of Classes

A class may be divided into a number of subclasses, where each subclass is subset of the original class (Cann, 1997). The members of a subclass share a set of properties that are specialized version of the set of properties shared by the original class. The subclass is also said to be subordinate to the original class. This process may be repeated and subclasses divided into the lower of subclasses that is sub-sub classes. Equally classes may be grouped together into higher level classes which are superordinate to the original classes. Classes at the same level of division are described as coordinate. The structure: superordinate classes-coordinate classes-subordinate classes are known as a hierarchy.

Principle of Division

A class is divided into a particular set of subclasses according to a particular **principle of division** (also called a **characteristic**). For an example if you divide the class Literature by the Language principle of division you obtain the subclasses English Literature, French Literature, German Literature, etc.; if you divide the class Literature by the Form principle of division you will obtain the subclasses Prose and Poetry.

Contrasting Types of Classification Systems

i). Special Classifications Contrasted with General Classifications

Classification may be **special** – concentrating on, or biased towards a particular subject (that is limited to a specific subject) or **general** covering the universe of information (that is: aiming to cover all subjects equally ('the universe of information') e.g. UDC.

UDC is a general scheme. At the broadest level the structure of general classification schemes is based on disciplines which are recognised fundamental fields of study, such as Philosophy, Social sciences, Science, Technology, the Arts. Disciplines have their sub-disciplines, e.g. sciences include

Physics and Chemistry, and social sciences include Sociology and Economics. These areas of study are familiar because they tend to be represented in teaching departments, professional societies, specialized information services etc., and it can be useful for a classification scheme to follow this pattern.

ii). Analytical Classifications Contracted with Document Classifications

Classification may be analytical–systematising physical phenomena (often of the natural world) and thus providing the basis for explanations, protection and understanding (also known as scientific classifications or taxonomies) or documentary- an aid to the management of documents or other kinds of information, with the aim of making information locatable. UDC (Universal Decimal Classification) and DDC are documentary classifications; the classification of the animal kingdom into different phyla, genera and species is an analytical classification. Documentary classifications are generally based on an arrangement by discipline /subject, whereas analytical classifications isolate actual objects/phenomena. For example in analytical classification one might have a class “minerals” and divide this class into a number of subclasses, one of which will be “coal”. In contrast, UDC (a documentary classification), coal has no one place-aspects of it appear under subjects petrology, economic geology, mining, fuel, etc. However, the above categories are not mutually exclusive – UDC incorporates small sections of analytical classifications.

iii). Enumerative Classifications Contrasted with Faceted Classifications

In an enumerated classification attempt is made to list exhaustively all possible subclasses (including compound subclasses) of interest in a particular class; or faced – only simple subclasses generated by a single principle of division are listed, compound subclasses may then be synthesized from these simple subclasses. In a faceted classification the simple subclasses are grouped into facets, each facet being the total of subclasses obtained by applying a particular principle of division. To be useful and consistent it is necessary to simplify an order in which facets are combined when synthesising a compound sub-class –this is the citation order. A facet classification will have the general facets which are applicable to main class such as the facets of Time and Place.

5.9 General Principles of Classification

The following principles of classification generally apply when classifying works according to the Library of Congress classification system:

- i. Class works according to their subject matter.
- ii. Unless instructions to the contrary are printed in the schedules, class a work by its specific subject, not by its form under a broader topic. Within a given topical area, class by subject, ignoring form unless form captions have been established under the subject.

- iii. Within a given topical area, if a choice must be made between classing by specific subject and classing by place, prefer classification by the subject, unless instructions to the contrary exist or unless precedent, as reflected in the shelf list, clearly indicates otherwise.
- iv. Use the most specific number available. Use a broader number only if no specific number is available and it is not feasible to establish one.
- v. Where several subjects are discussed in a work, choose the classification number according to the most appropriate of the following guidelines:
 - Class according to instructions printed in the schedules.
 - Class according to dominant subject.
 - If no subject is dominant, class under the first one mentioned in the work being catalogued.
 - Class with a broader subject, if the work deals with several subjects that, taken together, constitute a major part of a larger subject.
- vi. In problematic cases where several numbers appear satisfactory, class according to the intent of the author or where it appears that the work would be most usefully located.
- vii. Unless instructions in the schedules or past practice dictate otherwise, class works on the influence of one subject on another with the subject influenced.
- viii. Editions:
 - a. If content is essentially the same, use same call number, editions are distinguished by date.
 - b. If new edition focuses on a later period and there is a call number for the later period, use it.
 - c. If the main entry changes (e.g., from author to title), but the contents remain basically the same, use the same class and cutter numbers. The editions are distinguished by date.
 - d. If the main entry has changed from an edition published before AACR2, but the contents remain basically the same, the same class number is assigned with a new cutter number based on the new form of the name.
 - e. If the later edition of a work entered under title has a new title, the cutter number is based on the new title.
 - f. A new edition of a work catalogued under AACR2 is assigned the appropriate class number without regard to where the pre-AACR2 edition was classed.
 - g. Guidelines for simultaneously published editions:
 - Treat as the original edition the item published in the United States if there is one.
 - For editions published simultaneously in different languages, designate the original according to the following order of preference: English, French, German, Spanish, and Russian.

If none of the above languages applies, the first item catalogued is designated as the original edition.

Study Questions

1. Ranganathan's definition of library classification involves three important concepts, viz., artificial language, ordinal numbers and specific subject. Elaborate these concepts and also discuss the functions of library classification.
2. Discuss with suitable examples the different modes of formation of subjects.
3. Discuss the different species of library classification. Why freely faceted classification is also called analytico-synthetic classification?
4. Define facet analysis and discuss its application in DDC and UDC.
5. What is the nature and importance of common isolates in library classification? Briefly explain their provision in Colon Classification.
6. What is meant by mnemonics? Discuss the various types of mnemonics used in the schemes of library classification.
7. Explain the concept of phase relation with appropriate examples from different schemes of classification.
8. Highlight the major developments that have taken place in the LCC, DDC and UDC schemes in recent years.
9. Name the various species of classification.
10. Compare the features of enumerative and faceted classification system.
11. What is classification? Discuss the need for and purpose of library classification.
12. Discuss the five fundamental categories used in Colon classification.
13. Explain the principles of facet sequence with suitable examples.
14. Define notation. What are its functions? Explain the various types of notation.
15. What is meant by Call Number? Explain the different parts of The Call Number.
16. Discuss the structure and salient features of colour classification.
17. Discuss the developments in the field of Library Classification.

CHAPTER SIX

DEWEY DECIMAL CLASSIFICATION SCHEME

6.0 Introduction to the Dewey Decimal Classification

The Dewey Decimal Classification (DDC) system is a general knowledge organization tool that is continuously revised to keep pace with changing environment. The system was conceived by Melvil Dewey in 1873 and first published in 1876. The DDC is published by OCLC Online Computer Library Centre, Inc. OCLC owns all copyright rights in the Dewey Decimal Classification, and licenses the system for a variety of uses.

Brief History of DDC

The Dewey Decimal Classification is the most widely used classification system in the world. Libraries in more than 135 countries use the DDC to organize and provide access to their collections, and DDC numbers are featured in the national bibliographies of sixty countries. Libraries of every type apply Dewey numbers on a daily basis and share these numbers through a variety of means (including World Cat, the OCLC Online Union Catalogue). Dewey is also used for other purposes, e.g., as a browsing mechanism for resources on the Web.

The DDC has been translated into over thirty languages. Translations of the latest full and abridged editions of the DDC are completed or underway in Arabic, Chinese, French, Greek, Hebrew, Icelandic, Italian, Korean, Norwegian, Russian, and Spanish.

Development

One of Dewey's great strengths is that the system is developed and maintained in a national bibliographic agency, the Library of Congress. The Dewey editorial office is located in the Decimal Classification Division of the Library of Congress, where annually the classification specialists assign over 110,000 DDC numbers to records for works catalogued by the Library. Having the editorial office within the Decimal Classification Division enables the editors to detect trends in the literature that must be incorporated into the Classification. The editors prepare proposed schedule revisions and expansions, and forward the proposals to the Decimal Classification Editorial Policy Committee (EPC) for review and recommended action.

EPC is a ten-member international board whose main function is to advise the editors and OCLC Forest Press on matters relating to changes, innovations, and the general development of the Classification. EPC represents the interests of DDC users.

Its members come from public, special, academic libraries and school libraries.

Editions

The Dewey Decimal classification is published in two editions, full and abridged. The Classification is kept up-to-date electronically through electronic versions: Dewey for Windows, a CD-ROM product that is updated annually and released in January; and WebDewey in CORC, a Web-based product that is updated quarterly. They also post selected updates to the Classification on the OCLC Forest Press Web site <http://www.oclc.org/fp>, new and changed entries on the first day of each month, and LC subject headings--selected from recent LC Subject Headings, Weekly Lists and accompanied by candidate DDC numbers from Edition 21- every two weeks. These updates are incorporated into the Dewey for Windows and WebDewey each time those products are released.

Structure and Notation

The DDC is built on sound principles that make it ideal as a general knowledge organization tool: i.e. meaningful notation in universally recognised Arabic numerals, well-defined categories, well-developed hierarchies, and a rich network of relationships among topics. In the DDC, basic classes are organized by disciplines or fields of study. At the broadest level, the DDC is divided into ten main classes, which together cover the entire world of knowledge. Each main class is further divided into ten divisions, and each division into ten sections (not all the numbers for the divisions and sections have been used). The three summaries of the DDC follow this introduction.

The **first summary** contains the ten main classes. The first digit in each three-digit number represents the main class. For example, 500 represent natural sciences and mathematics.

The **second summary** contains the hundred divisions. The second digit in each three-digit number indicates the division. For example, 500 is used for general works on the sciences, 510 for mathematics, 520 for astronomy, 530 for physics.

The **third summary** contains the thousand sections. The third digit in each three-digit number indicates the section. Thus, 530 is used for general works on physics, 531 for classical mechanics, 532 for fluid mechanics, 533 for gas mechanics.

Arabic numerals are used to represent each class in the DDC. A decimal point follows the third digit in a class number, after which division by ten continues to the specific degree of classification needed.

A subject may appear in more than one discipline. For example, "clothing" has aspects that fall under several disciplines. The psychological influence of clothing belongs in 155.95 as part of the discipline of psychology; customs associated with clothing belong in 391 as part of the discipline of customs; and clothing in the sense of fashion design belongs in 746.92 as part of the discipline of the arts.

Hierarchy

Hierarchy in the DDC is expressed through structure and notation. *Structural hierarchy* means that all topics (aside from the ten main classes) are part of all the broader topics above them. Any note regarding the nature of a class holds true for all the subordinate classes, including logically subordinate topics classed at coordinate numbers.

Notational hierarchy is expressed by length of notation. Numbers at any given level are usually *subordinate* to a class whose notation is one digit shorter; *coordinate* with a class whose notation has the same number of significant digits; and *superordinate* to a class with numbers one or more digits longer. The underlined digits in the following example demonstrate this notational hierarchy:

- 600 Technology (Applied sciences)
 - 630 Agriculture and related technologies
 - 636 Animal husbandry
 - 636.7 Dogs
 - 636.8 Cats

"Dogs" and "Cats" are more specific than (i.e., are subordinate to) "Animal husbandry"; they are equally specific as (i.e., are coordinate with) each other; and "Animal husbandry" is less specific than (i.e., is superordinate to) "Dogs" and "Cats." Sometimes, other devices must be used to express the hierarchy when it is not possible or desirable to do so through the notation. Relationships among topics that violate notational hierarchy are indicated by special types of headings, notes, and entries.

6.1Arrangement of the DDC

The print version of Edition 21 is composed of nine major parts in four volumes as follows:

Volume 1:

- (A) New Features: A brief explanation of the special features and changes in Edition 21
- (B) Introduction: A description of the DDC and how to use it
- (C) Glossary: Short definitions of terms used in the DDC
- (D) Index to the Introduction and Glossary
- (E) Tables: Seven numbered tables of notation that can be added to class numbers to provide greater specificity:

- T1 Standard Subdivisions
- T2 Geographic Areas, Historical Periods, Persons
- T3 Subdivisions for the Arts, for Individual Literatures, for Specific Literary Forms
 - T3-A Subdivisions for Works by or about Individual Authors
 - T3-B Subdivisions for Works by or about More than One Author
 - T3-C Notation to Be Added Where Instructed in Table 3-B, 700.4, 791.4, 808–809
- T4 Subdivisions of Individual Languages and Language Families
- T5 Racial, Ethnic, National Groups
- T6 Languages
- T7 Groups of Persons

Except for notation from Table 1 (which may be added to any number unless there is an instruction in the schedules or tables to the contrary), table notation may be added only as instructed in the schedules and tables

- (F) Lists that compare the previous edition with the new edition: Relocations and Reductions; Comparative and Equivalence Tables; Reused Numbers.

Volumes 2 and 3:

- (G) Schedules: The organization of knowledge from 000–999

Volume 4:

- (H) Relative Index: An alphabetical list of subjects with the disciplines in which they are treated sub - arranged alphabetically under each entry
- (I) Manual: A guide to classifying in difficult areas, information on new schedules, and an explanation of the policies and practices of the Decimal Classification Division at the Library of Congress. Information in the Manual is arranged by the numbers in the tables and schedules

Entries

Entries in the schedules and tables are composed of a DDC number in the number column (the column at the left margin), a heading describing the class that the number represents, and often one or more notes. All entries (numbers, headings, and notes) should be read in the context of the hierarchy.

The first three digits of schedule numbers (main classes, divisions, sections) appear only once in the number column, when first used. They are repeated at the top of each page where their subdivisions continue.

Subordinate numbers appear in the number column, beginning with a decimal point, with the initial three digits understood.

Options

Numbers and notes in parentheses provide options to standard practice. These options enable the Classification to serve needs beyond those represented in the standard English-language edition.

Unused Numbers

Numbers in square brackets represent topics that have been relocated or discontinued, or are unassigned. Square brackets are also used for standard subdivision concepts that are represented in another location. Numbers in square brackets are not used.

Number Building

Only a fraction of potential DDC numbers are included in the schedules. The classifier will often find that to arrive at a precise number for a work it is necessary to build (synthesize) a number that is not specifically printed in the schedules. There are four sources of notation from which to build numbers: (A) Table 1 Standard Subdivisions; (B) Tables 2 - 7; (C) other parts of the schedules; and (D) add tables in the schedules. Number building is initiated only upon instructions in the schedules (except for the addition of standard subdivisions, which may be added anywhere unless there is an instruction to the contrary). Number building begins with a base number (always stated in the instruction note) to which another number is added.

More Information

For more information about the Dewey Decimal Classification, consult the introduction in volume 1 of Edition 21 (or the DDC Introduction in the online versions). A more in-depth discussion of the DDC may be found in *Dewey Decimal Classification: A Practical Guide*, 2nd ed., by Lois Mai Chan, John P. Comaromi, Joan S. Mitchell, and Mohinder Satija (Albany, N.Y.: OCLC Forest Press, 1996). The OCLC Forest Press Web site contains up-to-date information about the DDC, licensing opportunities, and OCLC Forest Press publications.

Changes Made in the DDC 22 Revisions

Since the knowledge is growing and expanding the following changes were made in the DDC 22nd ed. As noted by Scott (2005):

- i. Data processing and **computer science** (004-006) has been updated and reflect the rapid changes in technology.
- ii. The last planned changes have been made to **religion** (200) to reduce the **Christian** bias.

- iii. Medicine and health (610) has been updated and expanded.
- iv. **Historical periods** have been updated in 930-990.
- v. American native peoples and languages have been expanded (Table 5 and 6).
- vi. Table seven (7) has been eliminated and replaced with notations from 08 in Table 1 and in other places in the Schedules.
- vii. The Manual have been revised and condensed and reduced in size from 303 pages in Edition 21st to 181 pages in 22nd edition.
- viii. Table 2 (Geographic Areas, Historical Periods, Persons) has major changes that reflect the dynamics of today's world.
- ix. Major revisions are found in Social Groups (305), Culture and Institutions (306), Law (341-44), Mathematics (510-519), Chemistry and Allied Sciences (540), and Earth Sciences (550).

More Information

The Dewey web site (www.oclc.org/dewey) contains up-to-date information about the DDC, DDC products and services, and DDC licensing. For more information about the structure and application of the Dewey Decimal Classification, consult the introduction in volume 1 of DDC 22 (also available online in WebDewey and on the Dewey web site). A more in-depth introduction to the Dewey Decimal Classification may be found in *Dewey Decimal Classification: Principles and Application*, 3d ed., by Lois Mai Chan and Joan S. Mitchell (Dublin, Ohio: OCLC, 2003).

Summaries

First Summary

The Ten Main Classes

- 000 Computer science, information & general works
- 100 Philosophy & psychology
- 200 Religion
- 300 Social sciences
- 400 Language
- 500 Pure Sciences
- 600 Technology (Applied sciences)
- 700 Arts & recreation
- 800 Literature
- 900 History & geography

6.2 Principles of DDC

Dewey's system made relative location possible and did away with all the inherent problems of rigidly fixed location methods (Evans & Heft, 1994:431 -33). Books could be shelved anywhere a librarian wanted them without altering their order. This was an extremely progressive advancement since knowledge is always growing. The continually increasing base of knowledge is the foremost consideration in employing a catalogue system because it is the one constant that can be relied upon (Abrera,

1974:30). Examples would be the fast growing fields of genetics and computer technologies. Also, Sociology used to be 301, now it is 301 307 (DDC20 1989, xiii). It needed a broader range to reflect new societal concerns.

The DDC20 can incorporate any new areas developed, since its structure of decimals allows for infinite additional notations. It does so with 'hospitality' (Abrera, 1974:33), having the ability to include any additions easily and quickly. The DDC20 is very adaptable to expanding horizons of information. As Richmond cited in (Bengtson & Hill, 1990:18).

The system must be hospitable to all knowledge, including things that never were, such as phlogiston; things that never shall be, like utopias; and things that are impossible, like the square root of minus one.

Next to consider is the common procedure of beginning with general knowledge and working towards specific, in an hierarchical system of ordering. This can be traced primarily to Aristotle, who identified classes and sub classes. By arranging them in an hierarchy, he was able to see relationships between objects or concepts (Abrera, 1974:21 -29). He moved from the general to the specific or from the extension to the intention. This had great possibilities for library classification and is actually what lies behind Dewey's whole system. As Wynar stresses, "[n]o matter what scheme is chosen, or how large the library, the purpose of classification is to bring related items together in a helpful sequence from the general to the specific" (Wynar, 1992:317). For example, 700 represents the Arts, while 702 is Miscellany of fine and decorative arts, and 735.21 is Sculpture from 1400 1799. With Dewey, one can get as specific as needed, with the infinite notation system, just by adding another number. Remember, when using hierarchical classifications, one must always make natural and logical decisions in sub-dividing (Wynar, 1992:317).

Number Building in DDC

A premise in working with DDC is that all possible numbers are not specifically printed in the schedules, but more precise numbers than those printed can be built or synthesized using tables or other parts of the schedules.

Adding from Auxiliary Tables

Auxiliary tables 1 through 6, found in volume 1 of DDC22, give the classifier one way to expand existing numbers in the schedules. Each number in these tables is preceded by a dash to show that it cannot stand alone as a classification number. The dash should be omitted when the number is attached to a class notation.

Table 1. Standard Subdivisions

As was noted under the "General Principles of Classifying" section of chapter 14, all shelf classifications provide a dual approach. Some items are grouped on the basis of

their subject content, while others are placed according to their form or genre. The standard subdivisions supplied in auxiliary Table 1 derive from what was called in earlier editions as table that “form divisions.”

The present-day “standard subdivisions” include examples other than form. Some actually do treat form (e.g., dictionaries, encyclopaedias, periodicals, etc.). Others represent “modes of treatment,” covering theoretical or historical aspects of the subject, such as philosophy and theory, history, etc. The following illustrates some of the categories to be found in Table 1. NOTE: Numbers from the table cannot stand alone as a subject but should be preceded by the number from the schedule to make the subject more specific. That is why are preceded by a dash sign (-).

- 01 Philosophy and theory.** An exposition of any subject treated from the theoretical point of view.
Example: 701 Philosophies of the Arts
- 03 Dictionaries, encyclopaedias, concordances.**
Example: 720.3 Dictionary of Architecture
- 05 Serial publications.** Used for publications in which the subject is treated in articles, papers, etc.
Example: 720.5 Architectural Record
- 08 History and description** with respect to kinds of persons.
Example: 720.8 Architectural Adaptations for People with Specific Needs
- 09 Historical, geographic, persons treatment.**
Example: 720.9 Fletcher’s History of Architecture

Most of the standard subdivisions are further subdivided in Table 1. For example, under “-01

Philosophy and theory” the following subtopics are listed:

- 011 Systems
- 012 Classification
- 014 Language and communication
- 015 Scientific principles
- 019 Psychological principles

The -09 standard subdivisions can be geographically divided, through the addition of area digits from Table 2, e.g., “720.973 History of Architecture in the United States.” This is explained in detail below in the section titled “Table 2. Geographic Areas, Historical Periods, Persons.”

Unless specific instructions indicate otherwise, standard subdivisions may be used with any number if such application is meaningful. One specific instruction not to add standard subdivisions is found only in the introduction in volume 1 and is often overlooked. When a work does not “approximate the whole of the subject of the number,” the standard subdivision usually should not be added. This was mentioned above in the discussion of notes that identify topics in “standing room.”

If, for example, a resource is about research on corporate name headings, it should be given the number “025.322” for “Choice of entry and form of heading.” Because the resource is not about research on forms of all kinds of headings, and because there is no specific number for corporate headings, the standard subdivision “-072” for research should not be attached to the number.

Although in the table each number is preceded by a single zero, e.g., “-03 Dictionaries, etc.,” it is sometimes necessary in the schedules to apply a double or triple zero to introduce the subdivision. This happens when single zero subdivisions are already appropriated in the schedules for special purposes. The instructions that cover such situations are explicit and should be followed carefully. A few examples illustrate certain basic principles as noted by Chan and Mitchell (2003):

i) Standard Subdivisions Printed in the Schedules

In some parts of the schedules a concept that is ordinarily expressed as a standard subdivision is printed with its own number. For example, “805 Serial publications” is printed in the schedule following “800 Literature . . .” Therefore, this is the number used for a serial about literature, not 800.5 or 800.05. Likewise, “501 Philosophy and theory” is printed after “500 Natural sciences and mathematics.” None of the standard subdivision breakdown for -01 found in Table 1 is printed after “501,” but one can use this breakdown at this number if appropriate. Thus, a work on the concept of theoretical classification in the natural sciences would be classed “501.2.”

ii) Standard Subdivisions not Printed and no Instructions Given

The most common situation is that if standard subdivisions are not printed and no instructions are given, then a single-0 introduces the standard subdivision. For example, the schedules give the number “371.4” for student guidance and counselling. A work on the philosophy and theory of student guidance and counselling would be given the class number “371.401.”

iii) 0-divisions is used for a specific purpose and standard subdivision is introduced by a double-0 as it appears at “271 Religious congregations and orders in church history.” Single-0 subdivisions are used for specific kinds of religious congregations, e.g., “271.01 Contemplative religious orders,” “271.03 Teaching orders,” “271.04 preaching orders,” etc. Here the instruction is to use 271.001–271.009 for standard subdivisions. Therefore, an encyclopaedia of religious congregations and orders in general is classed in 271.003.

iv) 00-divisions used for special purposes; standard subdivisions to be introduced by a triple-0

An example of the triple-0 appears at “230 Christianity Christian theology.” Single-0 numbers 230.1–230.9 are reserved for “Doctrines of specific denominations and sects.

Double-0 numbers 230.01–230.09 are reserved for “Standard subdivisions of Christian theology.” Therefore 230.001-230.009 (triple-0) are used for “Standard subdivisions of Christianity.” An encyclopedia of Christianity would be classed as 230.003.

Table 2. Geographic Areas, Historical Periods, Persons

When a given heading can be subdivided geographically and the library has many books dealing with that subject, it is recommended that the classifier use Table 2 (the area table), which allows one to expand the number systematically by region or site. It is by far the bulkiest of the six auxiliary tables accompanying the DDC schedules. Its general arrangement is as follows:

- 01–05 Historical periods
- 1 Areas, regions, places in general; oceans and seas
- 2 Persons (Regardless of area, region, place)
- 3 The ancient world
- 4 Europe Western Europe
- 5 Asia Orient Far East
- 6 Africa
- 7 North America
- 8 South America
- 9 Other parts of world and extra-terrestrial worlds Pacific Ocean islands

Area –1 is used for the treatment of any subject geographically but not limited by continent, country, or locality. It allows diverse elements that have natural ties to regions or groups (e.g., frigid zones, temperate zones, land forms, or types of vegetation) to be brought together under certain subjects. Area –2 permits subdivision by biography, diaries, reminiscences, correspondence, etc., of persons associated with any subject for which the schedule instructions say to add the “areas” notation directly instead of adding “standard subdivision” notation –092 from Table 1. Area –3 offers specific subdivisions for ancient countries and areas up to the fall of the Roman Empire. Area notations –4 through –9 are for specific continents and modern countries. For example, area number “–4 Europe” has the following summary subtopic:

- 41 British Isles
- 42 England and Wales
- 43 Central Europe Germany
- 44 France and Monaco
- 45 Italian Peninsula and adjacent islands Italy
- 46 Iberian Peninsula and adjacent islands Spain
- 47 Eastern Europe Russia
- 48 Scandinavia
- 49 Other parts of Europe

The area notations –41 and –42 were extensively revised in the nineteenth edition to reflect a thorough reorganization of British local administration.

The area concepts of “British Isles,” “United Kingdom,” and “Great Britain” were at the same time relocated from area –42 to area –41. Area notation –47 was extensively revised in the twenty-first edition in order to make a more logical organization for the countries of the former Soviet Union. The area notations for several areas were revised and expanded for the twenty-second edition, e.g., —682-687 Republic of South Africa, and —74 Quebec.

Area notations may be added directly to schedule numbers where so instructed. For example, a general treatise on higher education in Dundee, Scotland, is classified in 378 in the Dewey Decimal Classification. The schedule at 378.4–.9 instructs “adding to base number 378 notation 4–9 from Table 2.” In Table 2 one finds “–412 7” as the number for “Dundee City” (under —412 North-eastern Scotland). This number is therefore applied to 378, giving 378.4127, as the following analysis shows:

378	Higher education
378.4	Europe
378.41	British Isles
378.412	North eastern Scotland
378.4127	Dundee City

Where specific instructions (as in 378.4–.9) are not given for geographical treatment in the schedules the classifier can apply the Table 1 standard subdivision “–09 Historical, geographic persons treatment” to any number that lends itself to that approach, unless localized instructions mandate a double- or triple-0 in place of the single-0. For example, the specific DDC number for savings bank is 332.21. To classify a work on savings banks in London, the schedule gives no specific direction to use Table 2, nor does it give any direction for specific subdivisions. So the standard subdivision –09 may be used directly. In Table 1 a note under “–093–099 Treatment by specific continents, countries, localities; extra-terrestrial worlds” says to “Add to base number –09 notation 3 –9 from Table 2.” So works on savings banks in London are classified in 332.2109421. The number may be analysed to show:

332.21	Savings banks
332.2109	Standard subdivision for historical and geographical treatment
332.21094	In Europe
332.210942	In England and Wales
332.2109421	In Greater London

Table 3. Individual Literatures and the Arts

Table 3, “Subdivisions for the Arts, for Individual Literatures, for Specific Literary Forms,” is actually three tables: Table 3A, “Subdivisions for Works by or about Individual Authors,” Table 3B, “Subdivisions for Works by or about More than One Author,” and Table 3C, “Notation to be Added Where Instructed in

Table 3B, 700.4, 791.4, 808–809.” The titles of these tables are descriptive of their uses. They are never used alone, but are used following specific instructions. Numbers “–1–8 Specific forms” in Tables 3A and 3B develop and expand the summary form numbers that appear in the full schedules under 810, 820, 830, 840, 850, and 860. These mnemonic that form divisions for kinds of literature are:

- 1 Poetry (e.g., 831 German poetry)
- 2 Drama (e.g., 839.12 Yiddish drama)
- 3 Fiction (e.g., 839.313 Dutch fiction)
- 4 Essays (e.g., 869.4 Portuguese essays)
- 5 Speeches (e.g., 891.865 Czech speeches)
- 6 Letters (e.g., 895.16 Chinese letters)
- 7 Humor and satire (e.g., 896.3927 Swahili humour & satire)
- [—7 does not appear in Table 3-A, and is not used for individual authors.]
- 8 Miscellaneous writings (e.g., 899.2118 Tagalog (Filipino) miscellaneous writings)

Flow charts for building literature numbers can be found at the Table 3 instructions in the manual in volume 1 of DDC22. These are of great assistance in following the massive amount of instructions found in the literature schedules and with Table 3.

Table 4. Individual Languages

Table 4, “Subdivisions of Individual Languages and Language Families,” is used with base numbers for individual languages, as explained under 420–490. In a fashion similar to that of Table 3 it provides mnemonic form divisions for languages, e.g.:

- 1 Writing systems, phonology, phonetics of the standard form of the language (e.g., 431 Writing systems and phonology of standard German)
- 2 Etymology of the standard form of the language (e.g., 439.12 Etymology of the standard form of Yiddish)
- 3 Dictionaries of the standard form of the language. (e.g., 439.313 Dictionaries of the standard form of Dutch) etc.

Table 5. Ethnic and National Groups

Table 5, “Ethnic and National Groups,” is used according to specific instructions at certain places in the schedules or in other tables, or through the interposition of “–089 [History and description with respect to] Ethnic and national groups” from Table 1. These applications are exactly parallel to the use of Table 2, which is used either on direct instructions in the schedule or on interposition of “–09 Historical, geographic, persons treatment” from Table 1. The Table 5 summary includes:

- 05 Persons of mixed ancestry with ethnic origins from more than one continent
- 09 Europeans and people of European descent
- 1 North Americans
- 2 British, English, Anglo-Saxons
- 3 Germanic peoples
- 4 Modern Latin peoples etc.

Table 6. Languages

Table 6, “Languages,” is a basic mnemonic table used to indicate the particular language of a work or the language that is the subject matter of a work. It is used as instructed in the schedules or other tables. The summary includes:

- 1 Indo-European languages
- 2 English and Old English (Anglo-Saxon)
- 3 Germanic languages
- 4 Romance languages etc.

To illustrate, in order to classify a Bible in French, one would start with the entry given in index and schedules, “220.5 Modern versions and translations [of the Bible].” For “220.53–59 Versions in other languages [than English]” the schedule direction says, “Add to base number 220.5 notation 3–9 from Table 6.” The notation for French in Table 6 is –41. The resulting whole number for a modern French Bible may be analysed as follows:

220	The Bible
220.5	Modern versions and translations
220.54	In the Roman languages
220.541	In modern French

6.3 The DDC Relative Index

The “relative” index is so called because it is claimed to show relationships of each specific topic to one or more disciplines and to other topics. It contains terms found in the schedules and tables, and synonyms for those terms; names of countries, states, provinces, major cities, and important geographic features; and some names of persons. It does not have phrases that contain concepts represented by standard subdivisions (e.g., “Medical education”). Many ‘see also references’ are given (e.g., “Organizations . . . see also Religious organizations”). Geographic name entries usually refer the user to the appropriate area table [e.g., “Macerata (Italy: Province) T2–456 73”].

A few referrals occur to the standard subdivisions and to other auxiliary tables (e.g., “Repairs ...T1–028 8”).

The DDC relative index enumerates alphabetically all the main headings in the classification schedules, plus certain other specific entries not actually listed in the schedules. In other places index terminology varies from that found in the schedules for the same class number, although the general meanings coincide. For example, the schedule entry “612.792 1 Glands and glandular secretions... Including perspiration” is a generalized representation of the index entry “Sebaceous glands–human physiology 612.792 1.”

DDC Merits and Weaknesses

1. Merits:

- i. It is a practical system. It has been used for more than 120 years and it is the most widely used classification system in the world.
- ii. Relative location was invented by Dewey and it is now taken for granted.
- iii. The relative index brings together different aspects of the same subject scattered in different disciplines.
- iv. The pure notation of Arabic numbers is universally recognizable. People from many cultures and languages can adapt to the system easily.
- v. The self-evident numerical sequence facilitates filing and shelving.
- vi. The hierarchical nature of the notation expresses the relationship between and among the class numbers. This characteristic particularly facilitates online searching. The searcher can broaden or narrow a search by reducing or adding a digit to the class number.
- vii. Use of the decimal system enables infinite expansion and subdivision.
- viii. The mnemonic nature of the notation helps library users to navigate within the system.
- ix. The continuous revision and publication of the schedules at regular intervals ensure the currency of the scheme.

2. Weaknesses:

- i. The Anglo-American bias is obvious. (900 geography, 800 literature, 200 religion)
- ii. Related disciplines are often separated, e.g., 300 (social sciences) from 900 (geography and history) and 400 (languages) from 800 (literature).
- iii. The proper placements of certain subjects also have been questioned, e.g. library science in general works (000s), Psychology as a subdivision under philosophy (100s), and sports and amusement in the arts (700s).
- iv. In 800, literary works by the same author are scattered according to literary form when most scholars would prefer to have them grouped together.

- v. The base of 10 limits the hospitality of the notational system by restricting the capacity for accommodating subjects on the same level of a hierarchy to 9 divisions.
- vi. The different rate of growth in various disciplines has resulted in a uneven structure. Some classes, such as 300 (social sciences), 500 (natural sciences), and 600 (technology), have become overcrowded.
- vii. Even though an existing subject can be expanded indefinitely by virtue of the decimal system, no new numbers can be inserted between coordinate numbers -- e.g., between 610 and 620 -- even required for the accommodation of new subjects. The present method of introducing a new subject is to include it as a subdivision under an existing subject.
- viii. While capacity for expansion is infinite, it also results in lengthy numbers for specific and minute subjects. The long numbers have been found inconvenient, particularly when the system is used as a shelving device.
- ix. Relocations and completely revised (i.e., phoenix) schedules while necessary to keep up with knowledge, create practical problems in terms of reclassification for libraries using the scheme.

The Dewey Decimal system has like most things, good and bad parts. It is very adaptable for small libraries because "it stresses hierarchies of subject matter..." (Wynar 1992:323), but its numbers can become long, making them difficult to remember, and even more difficult to fit on book spines (Evans & Heft 1994:433). Also, Wynar makes the point that along with all the positives of being flexible enough to accept new topic areas, there is the work and expense of making those changes in a library setting (Wynar 1992::25). Overall, the DDC20 has a long history because it is a valuable tool in the classification of knowledge; it is used extensively throughout world, and is flexible enough to make it the only choice for many institutions.

6.4 Number Building Practices

Adding standard subdivision from table 1

Notation from table 1 may be added to the number in the schedules to make subject more specific, unless there is a specific instruction to the contrary.

Example:

150.5 - periodical on psychology
230.002 3 – Christianity for Christians

In class 230 the add note suggest to use Standard Subdivision (S.S.) with double zero. Therefore to add S.S. 023 which stands for subject as a hobby, occupation or professional the add note propose to zero in order to be 002 3 instead of 023.

Further you may find add notes in the table which suggests using other table to make the subject more precise. For instance in the same title "Christianity for Christians" if you add specific country of location, table 1 provide add note to accommodate that.

Example

Christianity for Christians in Tanzania is 230.002 367 8. This means that, the add notes in table one allows to add area notation from table 2 to make the subject more specific. So when analysing the subject from general to specific is as follows:

- 2 – Stands for Religion
- 3 - Stands for Christian theology
- 0 – facet indicator
- 0 – facet indicator
- 0 – facet indicator
- 2 - Stands for Miscellany
- 3 - Stands for subject as a profession, occupation or hobby
- 6 - Stands for Africa continent
- 7 - Stands for central Africa and offshore islands
- 8 - Stands for Tanzania

Study Questions

1. Identify the ten (10) main classes of Dewey Decimal Classification Scheme
2. What is the general class number for agriculture using DDC?
3. Mention and explain any of the schemes that gives more room for expansion
4. Enumerate and explain the advantages of DDC
5. Why do you think DDC has its own disadvantages?
6. Demonstrate the usage of DDC to determine classification numbers?
7. What do you understand by classification?
8. Differentiate between DDC and LC schemes
9. Which of the schemes is most appropriate to academic library and why?
10. Explain NINE principles that should be observed in library book classification.
11. Give in a logical order the steps that should be taken in practical book classification in a library.
12. Discuss the importance of study of universe of subjects in library classification and explain the different modes of formation of subjects.
13. What are the different ways in which documents can be arranged in a library? Which will be the best way suited for an academic library? Justify your answer.

CHAPTER SEVEN

UNIVERSAL DECIMAL CLASSIFICATION SCHEME

7.0 Introduction

Universal Decimal Classification (UDC) is the first internationally classified retrieval tool designed for bibliographic information and documentation.

The Universal Decimal Classification (UDC) is known by many names such as *European Dewey*, *Brussels Classification*, and the *International Decimal Classification* Satija (2008). Since it was based on the Dewey's System, it was called *Expanded Dewey* in the beginning. Nevertheless, it is the first truly international classification designed for bibliographic information and documentation work. All earlier systems were purely library classifications with the purpose of shelf arrangement. Though a retrieval tool, it is equally efficient as a library classification, and tool for organising other entities and objects. It has become a highly flexible and effective system for organising bibliographic records for all kinds of information in any medium, especially multimedia packages.

UDC is a general classification scheme for all fields of knowledge available in various languages. All branches of knowledge have a place in UDC, though traditionally it is considered stronger in science and technology subjects.

7.1 Brief History of UDC

In 1895, some system of classification was required by the then newly established International Institute of Bibliography (IIB). It was rechristened as International Institute for Documentation in 1914; International Federation for Documentation in 1958; and International Federation of Information and Documentation (FID) in 1986. FID was closed down in 2000 due to financial failures. Task of the IIB was to compile a universal bibliography, (a Repertoire Bibliographique Universel). It needed a system for arrangement of entries in this universal bibliography, i.e. systematic list of technical literature published anywhere in any subject and language, and since antiquity. This bibliography could only be in a classified order to transcend the language barrier. By 1921, the IIB had collected 12 million references on cards. Two Belgians, founders of the IIB, Paul Otlet (1868-1944) and Nobel laureate Hernri La Fontaine (1864-1943) sought permission from Melvil Dewey (1851-1931) to use and expand Dewey Decimal Classification (DDC) for arranging items in the bibliography. They then developed an expanded and powerful classification equipped with more details, and added synthetic equipment for class-number synthesis for micro documents. They gave dimension, depth, and flexibility to the DDC. It was credited as the first faceted classification, a harbinger of the Colon Classification (CC) in 1933. However, Ranganathan claimed his classification is independent of the UDC. It has

proved an apt classification for information analysis and retrieval, especially for highly specific subjects in documentation work.

First edition according to Satija (2008) was based on the 5th edition of DDC (1894), appeared in French between 1905-1907 under the title *Manual du Reperoire Universale*. It comprised 33,000 classes. The 2nd edition, again in French, was published during 1923-1933 and was titled *Classification Decimal Universalle*. The 3rd German, and 4th English editions were published in 1933 and 1936, respectively. Development of the UDC has been divided into the following three historical periods by Reyward as cited by Satija (2008):

French Period: Foundation and grammar 1895-1933

German Period: Details and expansion 1933-1952

English Period: Research and practice 1936-1975

International Period: Technical and organisational 1990- improvement

The completed English edition, published in numerous small fascicules, took half-a-century to publish because of alleged neglect.

How to use UDC

McIlwaine (2000) noted that originally intended for organizing documentation on everything that had ever been written, UDC has exceeded its parent, the Dewey Decimal Classification, both in the size of its vocabulary and its indexing capabilities. Its main strength however is that it preserves a logical structure and works equally well whether it is used only at an abridged level or applied to the fullest extent. UDC can be used for organizing and recording different kinds of objects, files, books or information resources. The scheme has been used to classify motion pictures by subject; map collections by place; and cataloguing collections of stamps, coins and model soldiers. In fact, UDC can be used to index anything to exploit a field of interest to the full and for enabling efficient retrieval of information. UDC is now being used to arrange directories on the Internet.

Application of UDC spreads almost universally across:

Libraries

- Shelf arrangement
- Information retrieval (classified catalogue)
- Collection management (acquisition, circulation statistics, weeding)

Museums and archives

- Collection management
- Objects indexing and retrieval
- Collection display

Bibliographies and bibliographic databases

- Subject information navigation
- Information retrieval

Information services

- Selective dissemination of information (user's profile description)

Internet

- Subject gateways (information presentation)

Other Editions of UDC

Throughout its history, it has been made available in editions of varied details. Till 1990, there were full, medium, and abridged editions. Full edition comprised over 200,000 terms, medium had 60,000 terms (about 30 per cent of the full) and abridged had up to 20,000 terms (about 10 per cent of the full edition). In addition to the earlier available full, medium and abridged editions, abridged and pocket editions in French, English, and Spanish were published in 1998, 1999, and 2004, respectively. This format was subsequently published in other languages like Russian and Croatian also. Now, only standard printed version of 67,000 terms, the pocket version (also published as 'abridged') of 4100 classes and the Spanish edition of 20,000 are officially available

A standard version of the UDC, containing 67,000 classes, is maintained by the UDC Consortium and is available in a database format. It is called the UDC Master Reference File (UDC-MRF). Currently, the main language of UDC-MRF is English, though 31,000 records are also available in German. The UDC Consortium planned to introduce a German translation by 2010, to be followed by translation in other languages such as Spanish, French, or Russian. UDC -MRF database was created in 1993 in CDS/ISIS software. Since then, UDC database exports (in ISO 2709), and simple text exports have been distributed to the users in a file format. The UDC Consortium does not publish or distribute the UDC-MRF in printed format. The printed format as well as CD-ROM or Web editions come only as products from different publishers who are either members of the UDC Consortium or pay-publishing license.

Since 1993, there had been a number of editions in various languages both in printed and in electronic which can be found at: <http://dlist.sir.arizona.edu/649>).

The last printed editions in English, French and Spanish containing complete UDC MRF data are:

- English: UDC: Universal Decimal Classification. Standard edition. 2 volumes. London: British Standards Institution, 2005. ISBN 0 580 45469 X (Volume 1 – Systematic tables); ISBN 0 580 45470 3 (Volume 2 – Alphabetical Index).
- French: Classification décimale universelle. Édition moyenne internationale en 3 volumes. Liège, Éditions du C.E.F.A.L., 2004. ISBN 2-87130-152-2.

- Spanish: Clasificación Decimal Universal. Norma UNE 50001:2000 CDU (Tablas sistemáticas. 3 volúmenes), Madrid: AENOR (Asociación Española de Normalización y Certificación), 2000. ISBN 84-8143-255-5.

Relationship with Dewey Decimal Classification

Otlet and LaFontaine began their enterprise by basing the organization of their bibliographic listing on the fifth edition of Dewey's Decimal Classification, but they rapidly found that its structure was not sufficiently flexible to accommodate all the concepts that they wished to express (McIlwaine, 2000). It is not surprising that they were quick to see the advantage of the identification of the recurring concepts intellectually and notationally, in the manner that Dewey demonstrated as a possibility, in a rudimentary way in his classification scheme as well as the benefits of using a decimal notation to reflect the hierarchical structure of knowledge. These factors were particularly appealing for multi-lingual enterprise. Otlet and LaFontaine developed these and other of Dewey's idea and produced the system that was originally referred to as "Brussels expansion". It was so called because the body set up by the Otlet to undertake this enterprise, the Institut International de Bibliographie (IIB), was the outcome of the conference of bibliographers held at Brussels in 1895. The first edition of the classification was completed and published in 1907 (Manuel du Répertoire, 1907). The whole enterprise was housed in Brussels and received financial assistance from the Belgium government until the 1920s.

Structure of UDC

UDC is structured according to traditional discipline of study, but is highly flexible to allow for constant revision in order to keep pace with development of knowledge. The UDC Master Reference File (MRF) is updated yearly. UDC's most innovative and influential feature is its ability to express not just simple subjects but relation between subjects. This facility is added to a hierarchy structure, in which knowledge is divided into ten classes, then each class is subdivided into its logical parts, each subdivision is further subdivided, and so on.

7.2 Main Features of Universal Decimal Classification

Slavic (2006) noted that UDC is owned, managed, maintained, and distributed by an international consortium of publishers with its headquarters in The Hague. Its editorial team comprises six Associate Editors lead by an Editor-in-Chief and supported by the UDC's Advisory Board of over 20 members. Salient features of UDC are:

- i. UDC is a practical bibliographic classification, truly international in efforts and exposition of contents. It is considered as the first faceted classification and a synthetic classification which is able to specify minute subjects, aspects, formats and their varied viewpoints.
- ii. It is the first officially and internationally used classification system being published in French, German and English.

- iii. Its notation is independent of any particular language or script, and its translations have appeared in about 39 languages.
- iv. It lays more emphasis on subject analysis and document specification.
- v. Its auxiliary apparatus of relations and synthesis is quite powerful. This makes the UDC a truly multidimensional scheme.
- vi. It is more suitable for micro-documents, electronic information and information retrieval in online and networked databases, and websites. Its structure is flexible to accommodate new subjects, and change citation order for flexibility of shelf arrangement and searching.

7.3 UDC- Main Classes

- a) Science and Knowledge. Organization. Computer Science. Information. Documentation. Librarianship. Institutions. Publications Philosophy. Psychology.
- b) Religions. Theology
- c) Social Sciences
- d) Vacant
- e) Mathematics. Natural Sciences
- f) Applied Sciences. Medicine, Technology
- g) The Arts. Recreation. Entertainment. Sport
- h) Language, Linguistics, Literature
- i) Geography, Biography, History

The vacant class 4 is the result of a planned schedule expansion. This class was freed by moving linguistics into class 8 in 1960s to make space for future developments in the rapidly expanding fields of knowledge; primarily natural sciences and technology.

UDC Notation

In chapter ten of this text book, notation is taken as a code representing the concepts in a classification scheme and generally expressing their order.

The UDC notation consists of the following sets of symbols:

- The ten Indo-Arabic numerals: 0, 1. to 9.
- The Roman alphabets both capital and lower case.
- Punctuation marks like point, semi-colon, colon and inverted commas.
- Mathematical signs: the plus and the equals.
- Besides these, it includes parentheses, square brackets, the stroke and the apostrophe.

This, then, is the complete system of symbols used in UDC as its notation. The numerals are used to divide the whole of human knowledge into ten broad classes each of which has been further divided to form ten theoretical classes. Roman letters are

used in such places where the subject can be better identified by their use, for example, in the class Literature.

The punctuation marks and mathematical signs are used as connecting symbols to build compound numbers by adding to the base numbers from the auxiliary tables. The numbers carry ordinal value and not arithmetical value, meaning that they are decimal fractions and not integers. This facilitates division of a class at any point in the order without disturbing it. The other qualities of UDC notation are explained in the following sub-sections.

Hospitality

Because the UDC notation consists of numbers, which are taken as decimal fractions, it can accommodate emerging new ideas, where appropriate, ad infinitum. This is so in the case of not only main numbers but auxiliaries as well. The notation is, thus, Mispitable and capable of reaching the required level of detail. 'Since it is hierarchic, moving from the general to the particular, it expresses the order of classes. Take the following example;

- 6 Technology
- 62 Engineering
- 621 Mechanical Engineering... Electric* Engineering. Machinery
- 611.3 Electrical engineering
- 621.39 Telecommunication. Telecontrol
- 621.396 Radiocommunication apparatus and methods (Radio).
- 621.396.7. Radio stations

At any place in this hierarchic chain any new concept can be accommodated without disturbing the order of existing concepts. The division on the basis of decreasing extension clearly expresses the order of classes in the hierarchy.

Facetisation and Synthesis

The editors of UDC claim that the scheme is faceted. Every recurrent category is a facet and "the best example of facetisation is presented by its tables of common auxiliaries. The UDC's ' on order for facets is flexible to a great extent. It also uses a device called intercalation to change, as required, the citation order of facets with a view to create a more helpful sequence (see 12.4.3). The UDC is, therefore, a faceted classification.

It is also a highly synthetic scheme. Ordinarily, every faceted scheme is synthetic in structure. However, in addition to facetisation in the form of common auxiliary subdivisions, UDC also contains a number of other synthetic devices such as:

- a) The use of signs (+9 : , [], ::) to connect two or more numbers, as indicated in sub-section 12.3.3. .
- b) The use of the apostrophe (') in special auxiliaries (see 12.3.4).
- c) The facility to combine, in a single number, two special auxiliaries, as seen in sub-section 12.3.4.

In short, if the main tables of UDC display its hierarchical enumerative character, the auxiliary tables represent its faceted and synthetic structure.

Mnemonics

The common auxiliary sub-divisions and the parallel division are two principal mnemonic devices used in UDC. Both these devices have been discussed in detail in sub-sections 12.3.3. and 12.3.5. Mnemonics results from the use of the same notation representing a given concept wherever that concept occurs in the scheme.

Evaluation

The UDC notation is hospitable and expressive. It is basically enumerative, moving from the general to the particular, and contains synthetic devices. As a result, the numbers are at times very long. A scheme that attempts to attain the required degree of detail for bibliographic purposes and computerisation is bound to produce long numbers with a host of symbols. The notation has achieved the necessary specificity and particularity, but, in the process, has become clumsy. The common auxiliary sub-divisions and parallel division lend a mnemonic character to IM notation, and, Above all, the device of intercalation brings flexibility in facet order to make it versatile.

As we have seen, the UDC notation-is decimal and can accommodate emerging new concepts wherever necessary, In addition to this in-built provision, UDC has resorted to what is called gap device. These gaps in the notation are meant for incommoding a large number of subdivisions and are left where future expansion is envisaged. We find the following vacant numbers in the notation:

142 - 159.8	in Philosophy and Psychology
365 – 367	in social welfare
375	in Education
4	the class philology transferred to 8 Literature
538.1- 538.8	in Physics
544 – 545	in Chemistry

This is how UDC has provided for future expansion.

Merits and-Demerits of UDC

Although UDC has certain drawbacks inherited from DDC, it certainly has more merits to its credit. Since its beginning, attempts have been made to adapt the scheme to universal needs in pursuance of its initial objective of establishing and maintaining a universal bibliography. It is worthwhile to understand the merits of UDC. Raju (1991) listed the following merits and demerits.

- Since UDC is a general scheme of classification, it covers the whole field of human knowledge. The process of dividing a class into ten subclasses is carried to the required degree of specificity.

The required degree of detail is achieved with the help of common and special auxiliaries. The resultant subject description is of utmost precision.

- Its notation consists of numerals and signs, which are understood internationally. The decimal notation allows maximum hospitality for the admission of new terms.
- The UDC is an analytico-synthetic classification, because of the use of an auxiliary apparatus of connection.
- It is extremely flexible, i.e., adjustments to local needs can be made with relative ease. This is because the citation order in any given class often allows several alternative treatments (intercalation and reversible relation).
- It is ideally suited to special libraries, as its full edition contains subject schedules of minute description. Special subject editions are also 'separately available. The medium edition can take care of almost all subjects.
- It forms a carefully organised and comprehensive vocabulary of terms (in its index) for indexing and retrieval. It may be used as a thesaurus.
- It is amenable to computerisation.
- The users are able to participate in its revision.

As against the above, it also has certain drawbacks. These are:

- The notation often tends to be long and appears clumsy. As a result, its use on the shelves becomes difficult.
- User participation in revision has created unevenness in the scheme at places. It also delays revision of schedules until they become out of date.
- The revision involves publication of several different editions and their different language versions for which RD finds its funds inadequate.

Study Questions:

1. What do you understand by classification?
2. Differentiate between DDC and LC schemes
3. Differentiate between UDC and Colon Classification schemes
4. Which of the schemes is most appropriate to academic library and why?
5. List and explain the ten main classes of Dewey Decimal Classification Scheme
6. Mention advantages of UDC over other classification systems.
7. State at least five reasons for UDC being regarded as truly universal.
8. State briefly in what respects UDC differs from DDC.
9. Write a paragraph on the qualities evident in the UDC notation
10. You are required to recommend UDC for use in your library. What reasons would you give to justify your recommendation?
11. What is meant by 'mnemonics'? Discuss the different types of mnemonics found in Colon Classification Scheme
12. Discuss the different devices employed in Colon Classification System with the help of suitable examples.

13. "Notation in UDC system is hospitable, expressive and highly synthetic."
Explain the statement with examples.
14. Differentiate between UDC and Colon Classification schemes
15. Dr. S R Ranganathan's definition of library classification involves three important concepts, viz., artificial language, ordinal numbers and specific subject. Elaborate these concepts and also discuss the functions of library classification.
16. Highlight the major developments that have taken place in the CC, DDC and UDC schemes in recent years.

CHAPTER EIGHT

LIBRARY OF CONGRESS CLASSIFICATION SCHEME (LCC)

8.0 Introduction

The Library of Congress classification system “uses a subset of the alphabet to divide its topmost level, providing 21 branches” (O’Neill, Dillon and Vizine-Goetz, 1987: 197) creating “a systematic and hierarchical arrangement of subject classes” (Bland and Stoffan, 2008: 55) which Bland and Stoffan (2008) also state have four levels to progressively specify a subject. (Bland and Stoffan 2008: 55 - 56). The LCC is the system used by the Library of Congress to organize and classify their materials. Many academic libraries also use the LCC for their collections.

Purpose and Implications of LCC

In LCC, “ordering is alphabetic.” (O’Neill, 1987: 197) Subrahmanyam (2006) asserts that “the LCC scheme is widely used in academic libraries and, as an enumerative scheme, provides little idiosyncrasy in assigning class number” (p.112) for the purpose of creating call numbers in the libraries. Unfortunately, the LCC does allow for some inconsistencies in classification for cataloguing amongst different libraries because some of the subjects occur in more than one schedule, or subject class. For example, “classical philosophy exist(s) in both the B and PA schedules.” (Subrahmanyam, 2006: 115) Subrahmanyam (2006) also states, within the same paragraph, that libraries use both schedules because some of the texts are original copies (PA) while others are translations and thus belong in B for religion. This explains why Bland and Stoffan (2008) indicate that the LCC “has not really been tested as an online retrieval tool in a live catalogue” (p.56) because the “relationships between (subject) headings are often idiosyncratic, and potentially meaningless.” (Jacob, 2004:536) Jacob (2004) believes this partly because “the supposed nesting structure is circular” (p.536) which prevents a system based on the LCC from accurately obtaining all the information for a patron who does not understand the system. If the reader agrees with Jacob, then the LCC cannot be used for searching live catalogues. In this scenario, the LCC remains as the classification system for a number of libraries including the Library of Congress and many university libraries, but is never available as a search option. Bland and Stoffan as well as Subrahmanyam think that searchers of online catalogues benefit greatly from a system that includes the subject headings of the LCC especially when used like the Western North Carolina Library Network that Bland and Stoffan cite in their article. The WNCLN allows patrons to search the catalogue by clicking on the Class, which has a description of its content, and then further narrowing the search by selecting subclasses.

Most of the books in the library are arranged on the shelves according to the classification System of the Library of Congress in Washington, D.C. This separates knowledge into 21 different classes.

Each class is identified by a letter of the alphabet. Classes are broken into subclass by combinations of additional letters. Example T = Technology, with TK = Electrical Engineering (technology). Sub classes are further broken down using numbers. This system puts books on the same topic together, side by side on the shelves.

LC Classification Summary

A - General Works	N - Fine Arts
B - Philosophy. Psychology. Religion	P - Language and Literature
C- Auxiliary Sciences of History	Q – Science
D- History: General and Old World	R – Medicine
E – History: America and U.S., general	S – Agriculture
F - History: America and U.S., Local	T – Technology
G - Geography. Anthropology. Recreation	U – Military Science
H - Social Sciences	V – Naval Science
J - Political Science	Z – Bibliography. Library Science.
K – Law	Information Resources
	(General)
L – Education	
M – Music	

Examples

The Library of Congress classification system utilizes 21 letters of the alphabet as its Classes or main subject headings stated in the introductory part of this chapter. The classes are further divided into subclasses and specific class numbers that indicate specific subjects.

Example 1: P321.324.5

The first example points out the specific subject of etymology within the LCC. P321.324.5 identifies etymology under Class P for language and literature and the subclass P for linguistics and other related topics. (Pietris, 2003: 78).

Example 2: Z657-659

The specific subject in this example is freedom of the press and censorship. Z657-659 identifies this subject under Class Z for bibliography, library science and information resources (general). It fits under the subclass Z that pertains to books and writing. (Pietris, 2003: 122).

Example 3: HQ450-472

This example has the specific subject of erotica. HQ450-472 identifies erotica under Class H for Social Sciences and the subclass that includes life, gender, sex, family, marriage and children HQ. (Pietris, 2003: 42).

Example 4: BF1444-1486

The specific subject for this example is ghosts, apparitions, and hauntings. BF1444-1486 identifies these under Class B for philosophy, psychology and religion. The subclass for this specific subject is BF which includes matters of psychology. (Pietris, 2003:4)

8.1 Notation in LCC

Most of literatures on classification have noted the following issues related to notation in LCC. These are:

- i. LCC uses mixed notation that is both letters and numbers
- ii. LCC is brief and simple. LCC is ended by use of letter rather than numbers.
- iii. Notation should be memorable; LCC is not consistent since some have one letter others more than one.
- iv. Notation must be hospitable (ability to insert new subjects): In LCC all topics are listed and therefore it assumes that all new topics are accommodated. This means that there is no room to accommodate new/emerging knowledge.
- v. Any classification system must be hierarchical and expressiveness (notation should express itself). LCC assumes it knows each and every thing why? Because the system was created to organise a national materials, that is Library of Congress but because of demand they opened it to others
- vi. Flexibility: LCC is lacking flexibility, It is not having faceted features and at the same time LCC is rigid in nature.

LCC Overview

- vii. Mixed system: using letters in the Roman alphabet and Arabic numbers
- viii. Main classes are denoted by single capital letters with double or triple letters used for subclasses.
- ix. Within each main class or subclass, the integers 1-9999 are used for subdivisions, with many breaks (unused numbers) left for future needs.
- x. After the 1st set of letter(s) and number(s), another set follows. The latter is called a Cutter number, always preceded by a period (or full stop), and may be used as an extension of the class number or as an item number.

8.2 Enumeration Display in LCC

- i. LCC is essentially enumerative; aspects of a subject explicitly provided for in the Schedules.
- ii. Common subdivisions and many form subdivisions listed explicitly under each subject
- iii. Include many auxiliary tables that allow for increased specificity
- iv. LCC is different from other systems, e.g. DDC—providing additional notational segments to be attached to a main number to render it more specific.

- v. LCC—pinpointing specific numbers within ranges of numbers provided in the schedules themselves.
- vi. Little notational synthesis in the LCC and as a result its schedules are more voluminous than other systems.

LCC Merits and Weaknesses

Merits:

- i. It is a practical system that has proved to be satisfactory. "It is a triumph for pragmatism."
- ii. It is based in the literary warrant of the materials in the LC collection, the nature and content of which are a reasonable parallel to those in academic and research libraries.
- iii. It is largely an enumerative system that requires minimal notational synthesis.
- iv. Each schedule was developed by subject specialists rather than by a "generalist" who cannot be an expert in every field.
- v. Its notation is compact and hospitable.
- vi. There are frequent additions and changes, stemming for most part from what are needed in the day-to-day cataloguing work at LC, and these are made readily available to the cataloguing community.
- vii. The need for reclassification of large blocks of materials is kept to a minimum because, to ensure stability of class numbers, few structural changes have been made over the years

Weaknesses:

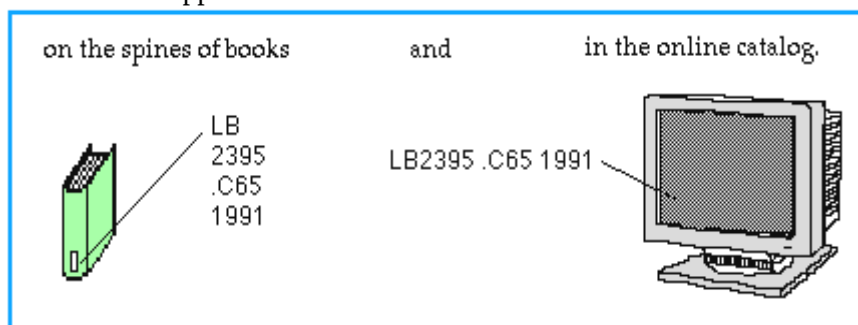
- i. Its scope notes are inferior to those of DDC.
- ii. There is much national bias in emphasis and terminology.
- iii. Too few subjects are seen as compounds. Multi topical or multi-element works for which specific provisions have not yet been made cannot be classified with precision.
- iv. Alphabetical arrangements are often used in place of logical hierarchies.
- v. There is no clear and predictable theoretical basis for subject analysis.
- vi. As a result of maintaining stability, parts of the classification are obsolete in the sense that structure and collocation do not reflect current conditions.
- vii. It is expensive to keep an up-to-date working collection of schedules, supplements, new announcements of changes, and accumulations of additions and changes.
- viii. No clear and predictable basis for subject analysis based on class
- ix. As a result of maintaining stability, parts of the classification are obsolete - like photography is under technology; cookery is in engineering
- x. Keeping an up-to-date set of all the schedules is expensive
- xi. Table structure more arcane than DDC

Understanding Call Numbers in LCC

What are call numbers for?

Each book in the library has a unique call number. A call number is like an address: it tells us where the book is located in the library.

Call numbers appears:



Note that the same call number can be written from top-to-bottom, or left-to-right.

Reading Call Numbers

Read call numbers line by line:

LB	Read the first line in alphabetical order: A, B, BF, C, D ... L, LA, LB, LC, M, ML ...
2395	Read the second line as a whole number: 1, 2, 3, 45, 100, 101, 1000, 2000, 2430 ...
.C65	The third line is a combination of a letter and numbers. Read the letter alphabetically. Read the number as a decimal, e.g. .C65 = .65 .C724 = .724 (Some call numbers have more than one combination letter-number line.)
1991	This is the year the book was published. Chronological order: 1985, 1987, 1991, 1992 ...

What does the call number mean?

Remember that Library of Congress Classification arranges materials by subjects.

- The first sections of the call number represent the subject of the book.
- The letter-and-decimal section of the call number often represents the author's last name.
- And, as you recall, the last section of a call number is often the date of publication.

Example:



Title: *What You Need to Know About Developing Study Skills, Taking Notes & Tests, Using Dictionaries & Libraries*
Author: Coman, Marcia J.
Call number LB2395 .C65 1991

The first two lines describe the subject of the book.
LB2395 = Methods of Study, in Higher Education

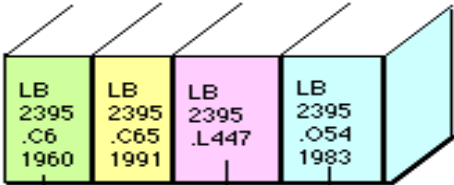
This line often represents the author's last name.
C65 = Coman

The year the book was published.

LB
2395
.C65
1991

Why is this important to know?

Because books are classified by subject, you can often find several helpful books on the same shelf, or nearby. For example, within the same call number LB2395, there are other guides for college study.



Call Number	Title
LB 2395 .C6 1960	A Student's Guide to Efficient Study, by Luella Cole
LB 2395 .C65 1991	Keys to College Success, by Minnette Lenier
LB 2395 .L447	
LB 2395 .O54 1983	A Successful Student's Handbook, by Rita Phipps

How are the call numbers arranged?

- When you are looking for an item, always start with the top line of the call number.
- Items are arranged alphabetically. All BR numbers are together, after BP and before BS, and all B's come after all combinations of A and before all combinations of C.

Since Library of Congress Classification arranges materials by subjects, knowing the letter(s) for your subject area gives you a place to start browsing the shelves. Which letters represent your subject? View the Library of Congress Classification Table.

Generally LCC provides organization for books and other materials through the use of multi-tiered subject headings. The system causes concern for some people in regards to its use for access and retrieval in online catalogues, but the authors of this book

believes that the LCC is applicable for use as an access point into library collections as well as a system for classification in the Library of Congress.

The idiosyncrasies caused by cross topic materials and secondary class numbers (Subrahmanyam, 2006) provide additional specification to the call number of each item. If librarians at the Library of Congress standardise some of these secondary class numbers, they allow a broader range of search terms for patrons. Any collection that uses the LCC subjects as an access point needs to include the contents of each subject next to the letter for the ease of inexperienced patrons, but catalogue searching gains flexibility with more access points, which enables more patrons to find the answers they are seeking.

8.3 Cutter Numbers

Following the initial combination of one or more letters with a whole number, you will find a further group composed of a single capital letter followed by one or more digits. This letter (called the Cutter number) is used to represent the author's last name in most cases or it may represent a further subdivision of one subject

PN
494
.H37 ← **Cutter Number**
2013

“H” in the cutter number above represents the first letter of the author's name

Uses of Cutter numbers

- Used to create call numbers for individual library collections.
- Provides the link between the surrogate record and the actual item in the collection.
- Alpha-numeric representation of main entry
- Sub-arranges works in the same class
- After the class notation is determined, then the cuttering process begins.
- Use a cutter table:
 - C. A. Cutter's Two-Figure Author Table
 - C. A. Cutter's Three-Figure Author Table
 - Cutter-Sanborn Three-Figure Author Table
 - OCLC Dewey Cutter Macro (four-figure)

Cuttering is a flexible process; only use table as a guide

Steps for Cuttering

- Determine first letter of main entry (most often taken from 100 tag; but could be 245 tag)
- Use number associated with second letter of main entry
- Add additional numbers until call number is unique
- Add date

- (1) After initial vowels
for the second letter: b d l-m n p r s-t u-y
use number: 2 3 4 5 6 7 8 9
- (2) After initial letter S
for the second letter: a ch e h-i m-p t u w-z
use number: 2 3 4 5 6 7 8 9
- (3) After initial letters Qu
for the second letter: a e i o r t y
use number: 3 4 5 6 7 8 9
For initial letters Qa-Qt, use: 2-29
- (4) After other initial consonants
for the second letter: a e i o r u y
use number: 3 4 5 6 7 8 9
- (5) For expansion
for the letter: a-d e-h i-l m-o p-s t-v w-z
use number: 3 4 5 6 7 8 9

For authors or titles starting with Arabic numbers use A 12-19.

Class numbers may contain:

- single Cutter number extension
HN79.M3 Social conditions in Maryland
HV5824.C42 Drug use by celebrities
- double Cutter number extension
TD883.5.I4 C4 Air pollution in Chicago, IL
N6530.N72 C646 History of art in Columbia
County, New York

By putting the Cutter numbers in order within any particular subject number, the books are arranged alphabetically by their author

Study Questions:

1. Trace the history of cataloguing codes to AACR2
2. Explain different types of entries in cataloguing
3. Describe the contributions of Antonie Panizzi to the development of cataloguing codes
4. Explain the roles of Seymour Lubesky to development of cataloguing codes
5. Compare the contributions of Charles Ammi Cutter and Antonie Panizzi towards the development of earlier cataloguing codes.
6. Differentiate between types and forms of library catalogue
7. Critically examine forms of library catalogue and give reasons why you think computerized catalogue system is advantageous to others.
8. Which form of library catalogue is most appropriate to academic library and why?
9. Why do you think adjustable sheaf catalogue is best for university library?

10. What is your understanding of dictionary catalogue?
11. What do you understand by descriptive cataloguing?
12. Mention and explain elements of descriptive cataloguing
13. Why is edition statement important in descriptive cataloguing?
14. What is the significance of ISBN in descriptive cataloguing?
15. In line with AACR2, prepare catalogue entry on a single authorship work

Assignment

Examine the contributions of any three notable scholars towards the development of catalogue codes

8.4 Comparison Between LCC & DDC

Introduction

Library of Congress Classification (LCC) and Dewey Decimal Classification (DDC) are the king and queen that have been reigning over the kingdom of classification for several decades in America. Both of them originated in the U. S. A.; but they are different in nature and structure. Since LCC and DDC have been widely adopted by libraries outside their mother country, a comparison between them may be of interest to librarians especially those who are doing cataloguing and classification, library users (patrons) and students pursuing courses in librarianship.

Comparing Classification Systems

As a result of differences in Notation, history, use of enumeration, hierarchy, facets, classification systems can differ in the following ways

- Type of Notation: Notation can be pure (consisting of only numerals/numbers or mixed (consisting of letters, numerals, and other symbols).
- Expressiveness: This is the degree in which the notation can express relationship between concepts or structure.
- Whether they support mnemonics: For example the number 44 in DDC notation usually means it concerns some aspect of France. For example 598.0944 concerns "Birds in France" the 09 signify country code, and 44 represents France.
- Hospitality: The degree in which the system is able to accommodate new subjects
- Brevity: Length of the notation to express the same concept
- Speed of updates and degree of support: The best classification systems are constantly being reviewed and improved.
- Consistency
- Simplicity
- Usability

Mann (1943) noted that a good classification scheme cannot do without an index which is an alphabetical list of the terms used in the schedule, with the corresponding notations attached; and it serves as an aid to classification.

Unfortunately, LCC has no general index to the whole scheme. Instead, most classes have their own alphabetical indexes, the fullness of each varying from class to class. Each index is meant for that particular class to which it is appended; occasionally there are references to related topics in other classes. The list of subject headings used by the Library of Congress can also be used to supplement the indexes as class numbers are given with many of the headings. DDC, however, has a relative index which provides references in alphabetical order to all subjects and terms appearing in the schedule.

It was for a unique library that LCC was formulated. The special nature of the Library of Congress influenced the whole structure of the scheme. The Congress library consists of several collections, each housed separately; the resulting scheme is a series of individual classifications designed separately by subject specialists (Mills, 1960).

On the contrary, DDC is intended for use in all sorts of libraries of various sizes with abridged editions specially constructed for relatively small libraries of any type: public, school, and junior college libraries. It is the invention of one man, Melvil Dewey.

The most important feature in the classification is the notation, which is defined as "a series of symbols which stand for the names of a class or any division or subdivision of a class, and forms a convenient means of reference to the arrangement of a classification Phillips (1961)." LCC notation is a mixed one, consisting of capital letters and Arabic numerals. Single capital letters are used for main classes (e.g. M for Music), and double letters are used for main divisions (e.g. ML for Literature of Music). These capital letters are combined with numerals, used integrally in conventional sequence, e.g.

- T Technology
- TJ Mechanical engineering
 - 248 Mechanical models
 - 249 Erecting work
 - 250 Prime movers in general

On the other hand, DDC notation is a pure one, consisting of Arabic numerals with decimals. A 'three-figure minimum' is used consistently, e.g. Social Sciences is always numbered 300 not: 3 or 30. The first three figures act as a numerical guide to the arrangement order before further decimal arrangement is consulted, e.g.

- 600 Technology (applied science)
- 620 Engineering
 - 621 Mechanical engineering
 - 621.3 Electrical engineering
 - 621.32 Electric lighting

Typically, LCC is a utilitarian classification with only one objects in view, the arrangement of the stock of the Library of Congress.

The schemes are compiled by specialists with constant attention given to the needs of the LC collections. The order and the extent of the subdivisions are conditioned by the character of book and, as a result, the notation is distributed over subjects as written in books rather than subject-in-the-abstract.

Differing from LCC, DDC is a hierarchical classification, applying the principle of development from the general to the specific in disciplinary and subject relationships. Notations display the hierarchical features in the lengthening of the basic number by one digit for successive divisions:

- 620 Engineering.

- 621 Applied physics (mechanical, electrical, electronic, magnetic, heat, light, nuclear engineering).

- 621.1 Steam

- 621.13 locomotives

- 621.132 specific types

This hierarchical structure means, for instance, that whatever applies to or is true of 620 applies to or is true of all its subdivisions.

DDC arranges all branches of knowledge as represented in books into ten broad subject classes numbered from 0 to 9. Each class may be divided into ten subclasses, each of which may further be divided into ten divisions and so forth. The numbers can be expanded for special aspects of general subjects by adding digits (1 to 9) after the decimal point. Thus it is possible for a closely classified book to carry a Dewey number of 12 or more digits. Such a number, though not wrong, is most unwieldy. It is hard to place it on the spine and it is also hard for a reader to locate a long number such as 016.91009171242 (which means: Commonwealth of Nations-Description and Travel-Bibliography).

To make this comparison more absolute, some remarks on both classifications are necessary. The LCC schedules are kept up to date. Individual schedules are frequently reviewed by special committees who make revisions if needed. By this process, the system is readily adaptable and can absorb new subjects particularly in the sciences. Additions and changes in the schedules are published in the LC Quarterly and supplementary pages to individual schedules are available periodically. Classes of LCC are published separately and complete in themselves, making it invaluable for special libraries. Furthermore, Needham (1964) emphasise that LCC is a very detailed and comprehensive classification. There is flexibility in structure with potential for possible future expansion.

Dewey schedule, on the other hand many mnemonic devices which are applicable from one class to another; for example, 03 indicates dictionary of a subject; and once the classifier learns the system he/she can remember it easily.

The first volume of DDC includes a guide, "How to use DC" and "Editor's introduction"; so the use of the schedule is facilitated (Dewey, 1965).

As an arrangement for the Congress collections, the efficiency of LCC is nearly beyond doubt. As a system for use in other libraries, it may suffer from the detailed enumeration of topics, the uneven size of its classes, and the lack of a complete alphabetical index to the whole scheme. Many libraries will find the bulk of certain classes disadvantageous. Class H (Social Sciences) for instance, accommodates almost one-sixth of the total stock. Moreover, the absence of printed instructions may create some difficulties to practising classifiers.

The notational qualities in DDC illustrate well some faults of the scheme. We may note that the choice of numerals places a great barrier on its capacity to house subjects. As we have seen, DDC attempts to reveal hierarchy in the notation and this restricts it to nine places at each stage of division (assuming that the zero is used to introduce form divisions). Because of this restriction, in the light of modern needs, many scientific and technological subjects and other rapidly developed subject fields are burdened with long numbers-a direct result of the overcrowding in the classes concerned.

Unlike LCC, DDC provides an area table which can be applied to any class whenever it is required. The general arrangement of the area table is as follows:

- 3 the ancient world
- 4 Europe
- 5 Asia
- 6 Africa
- 7 North America
- 8 South America
- 9 other parts of the world

A book about the economic conditions in Tanzania will have the class number **330.9678**

This number **9678** is assigned to Tanzania.

One of the distinctions between LCC and DDC is the arrangement of literary works. In LCC all literary forms are ignored, differentiation by language comes first, then period, afterwards author, the stages being:

- P Literature
- PR English literature
- PR1804-2165 Anglo-Norman, early English
- PR1850-1954 Chaucer

At PR1850-1954, therefore, are grouped the whole of Chaucer's works (origins, adaptations, translations, selections), miscellanies about them (periodicals, dictionaries, indexes, etc.), biography, authorship, sources of his works, his influence, criticism and interpretation, language and style—every printed item by or about him is grouped in one place on the shelves. A Chaucer collection is thus formed, and so, for every major English writer, a collection within his period and under his name is formed.

Other differences between DDC & LCC is as summarised by Beall (2006) in the table below

s/n	DDC	LCC
1	DDC: 10 main classes Each with up to 10 subclasses	LCC: 21 main classes Each with up to 20+ subclasses
2	DDC class numbers - Decimal numbers - Logically, the decimal point belongs at the start of the number, though for ease of reading it is placed after the third digit - Only rare, optional recommendations to sub-arrange alphabetically, e.g., for name or make of specific named passenger automobiles	LCC class numbers 1-3 letters - Followed by whole numbers 1-9999 - Followed in many cases by decimal extensions - Followed in many cases by subject Cutter numbers
3	Abridgment in DDC DDC class numbers can be abridged at many levels to fit different sized collections	Abridgment in DDC LCC notation cannot easily be abridged (except to cut back to the initial 1-3 letters)
4	DDC and book numbers - Methods of sub-arranging alphabetically by author are not part of DDC proper - Many different methods are used by Dewey libraries; no	LCC and book numbers A specific kind of Cutter number is prescribed for sub-arranging alphabetically by author

s/n	DDC	LCC
	one method is prescribed	
5	Users of DDC - Used by a wide range of sizes and types of libraries in 138 countries - School libraries - Public libraries - Special libraries - College and university libraries	Users of LCC - Primarily large and medium-sized academic and research libraries in English-speaking countries - Some specialized collections that are part of a larger general library, e.g., a university law library, may be classed in LCC when the rest of the collection is not.
6	Up to date Both DDC and LCC are actively being kept up to date	Up to date Both DDC and LCC are actively being kept up to date
7	Translations - DDC has been translated into more than thirty languages (not all of these are current). - There is a current German translation of the full edition, but no German translation of the abridged edition - There is a web version of the German full edition	Translations - There is no translation of all LCC - There are translations of some parts into a few languages (e.g., Spanish), and probably of other languages in the future.
	Editions of DDC 4 volumes in full edition 1 volume abridged edition - Full and abridged web versions	Editions of LCC 41 volumes - No abridged edition - Full web version
	Individual literary authors and works in DDC (1) Classed by language, form, and	Individual literary authors and works in LCC (1) LCC has specific class numbers

s/n	DDC	LCC
	literary period; no class numbers devoted to specific authors. Examples: - 831.914 German poetry—1945-1990 - 832.914 German drama—1945-1990 - 833.914 German fiction—1945-1990 Individual literary authors and works in DDC (2) • Individual works by the same author in more than one form are separated according to form. • Comprehensive collections of an author's works are classed with the author's predominant form, if there is a predominant form Individual literary authors and works in DDC (3) • If there is no predominant form, comprehensive works are classed in a special number for individual authors not limited to or chiefly identifiable with one specific form. Example: • 838.91409 German authors of the period 1945-1990 not identified with a specific form	devoted to specific authors • Works in all forms by the author are classed in subdivisions of the number Individual literary authors and works in LCC (2) Example: • German literature—Individual authors or works—1860/70-1960—B-Bz—Böll, Heinrich, 1917- • PT2603.O394 • PT2603.O394Z45 1973

Both schemes, as noted above, have advantages, but neither of them is perfect. It is up to the librarian and administrator to evaluate the two schemes and to select the one that suits the particular needs of readers or library user community.

Study Questions:

1. Compare L.C. scheme and D.D.C. scheme
2. Can we confidently say that Africa collections are adequately taken care of in DDC?
3. Mention and explain any of the schemes that give more room for expansion

4. Which area of knowledge is given more attention in DDC and why?
5. Freely criticize the DDC schemes

6. Differentiate between pure and mixed notation. Support your answer with examples
7. State the purpose of library classification
8. What are the two chief aspects of library classification?
9. Differentiate between pure and mixed notation. Support your answer with examples
10. Describe call number and discuss its role in library classification
11. Describe the main features of the Dewey Decimal Classification
12. Review the Dewey Decimal System. Can you identify biases or limitations in Mr. Dewey's system? Does his system tell you anything about his perspective on the world? What advantages does this system have?
13. Why do most academic libraries use the Library of Congress system?
14. Which academic fields would you consult for your research topic? What LC call numbers correspond to those fields?
15. Describe a classification system you use at home. This could be a very simple informal system, or it could be a formalized system. How does it help you? Could someone else use it as easily?
16. Arrange the following LC call numbers in the order that you would find them on the shelf.

LB	L	LB	LS	LB	L	L	LS	LS
212.14	4	212.14	1.5	2121	4.2	41	1.5	1
.A65	.A15	.A7	.B15	.D4	.A16	.M23	.M1	.A15

CHAPTER NINE

CARD FILING

9.0 Introduction

Card filing is the last activity after completion of book processing (cataloguing and classification). It is useful for cards of all processed books to be immediately filed to enable library users to search library materials effectively.

Meaning of Filing

Filing can be defined as the process of organising records and documents in a proper sequence.

9.1 Types of Filing

There are about eight types of filing rules currently in use that explain how files or cards can be filed sequentially for facilitation of information retrieval as depicted below.

i). Alphabetical filing

The most commonly used filing arrangement is the alphabetical system. In this system files are arranged in alphabetical order with a file guide for each letter of the alphabet. Alphabetical filing system is used for many library tasks. Most libraries arrange fiction books alphabetically on the shelves using the author's last name (sometimes called surname). It means that anyone who knows the alphabet can find any fiction book they want in any library. Alphabetical filing can also be used to arrange authors and title cards in the catalogue cabinets to organize index cards and borrowers' cards in a logical and easy-to-find order. This type of filling system is used because it is easy to understand.

ii). Alphabetical Topical Filing Systems

Alphabetical topical systems classify information according to topic, and then file the topic labels in alphabetical order. Related topics are not kept together in this system. Usually this type of system is best when small amount of information is involved. This type of filing and classification system is sometimes known as a "dictionary" system. When personal names are being filed, last names are used as the primary sorter, with first names used only in the case of identical last names.

iii). Alphabetical Encyclopaedia Filing Systems

In an "encyclopaedia" filing and classification system, information is first broken down by general category, with sub-categories being placed in alphabetical order. This type of filing system is particularly useful for handling large amounts of information because users of the system do not have to keep a particular file's name in mind to find it.

Instead, they can start by looking for the general category and search within it to find the specific file they need.

iv). Alphabetical Geographic Filing Systems

A subset of the encyclopaedia filing and classification system is the alphabetical geographic filing system. In a geographic system, the major categories are broken down by locations. You can use any size or type of location, from countries to cities to field offices. Users of this type of system start by choosing the geographic area relevant to their search, then search alphabetically within that topic to find the specific information they seek.

v). Straight Numeric Filing Systems

Straight numeric filing and classification systems are very simple to use, since they generally start at the number one and label each file with the subsequent number. However, the use of this type of system is limited, as it often requires an index to help users find the files they seek, and high-activity files can become congested around the same numeric area.

vi). Duplex Numeric Filing Systems

In duplex numeric filing systems, files are given numeric labels with several sets of numbers involved. This type of filing system can handle large amounts of data. The different sets of numbers can correspond to major categories and sub-categories, paralleling the encyclopaedia system of filing and classification. One drawback to such a system is that an index is required to understand what each grouping of numbers refers to. A very familiar type of duplex numeric system is the Dewey Decimal system, which most libraries use to catalogue their collections.

vii). Chronological Filing Systems

Another subcategory of numeric filing systems are chronological systems, in which files are arranged by date. Typically files are first grouped by year, then by month, then by day. Correspondence files, such as email lists, are typically organized in this fashion, with the most recent pieces of data listed first.

viii). Alphanumeric Filing Systems

In alphanumeric filing systems, information is classified by category in an encyclopaedic system, but using both letters and numbers to denote categories. The use of both letters and numbers allows for a much greater field of categories than does the use of numbers alone. Thus the Library of Congress filing and classification system, which is alphanumeric, allows for a greater array of categories than does the Dewey Decimal system, which is limited to ten major categories.

Filing Rules

There two main filing rules currently in use that explain how files or cards can be filed chronologically for facilitation of information retrieval as depicted below.

ALA Filing Rules

The ALA rules were developed in 1980 to facilitate filing in an age of automation and to do away with problems associated with improper filing. They are based on the way in which a computer “reads” data as opposed to the way humans perceive words and understand concepts. Therefore, the rules reflect the “file as is” principle which emphasizes the way strings of characters look as opposed to what they mean.

Basic principles of the ALA filing rules (1980) are as described below.

- The first (top) line on each card is the filing element
- Various types of entries (main, added, subject) are interfiled in alphabetical order; initial articles such as “the, as, & a” are ignored
- Filing is word by word and letter by letter within each word
- A space files before any character (the “nothing before something” principle).
- Punctuation marks are treated as if they were spaces and, therefore, file before any characters
- Abbreviations are arranged exactly as they appear on the card; they are not treated as if they were spelled out in full
- Non-alphabetic signs and symbols (e.g. #, \$) are ignored
- Numbers precede characters and are filed from lowest value to highest, e.g.
 - i. 5
 - ii. 6
 - iii. 67
 - iv. 400
 - v. Allophone
 - vi. Evans

9.2 The Mandalay Filing Rules

Encyclopaedia of Library and Information Science (1970) indicate that “Mandalay Filing Rules” are based on the idea that both the file and the user want simple rules’ that have no exception than are needed. The rule also assume that “ a good library will avoid Filing an added entry for an author anywhere except in an alphabetical sequence that will bring the added author’s name in direct relationship with the title with which his/her name is associated.”

The Five Mandalay Rules are as follows:

- a) ***File word by word and letter by letter within words, always regarding something as coming after nothing:*** This rule allows traditional library filing and gives the space between words the value of a letter; that is, to be considered first before any other Filing begins. For example, “**a**” followed by

nothing is to come before “a b” simply because “b” is something and the space after “a” is nothing. The rule is relatively easily followed and the other rules are to a certain degree explanation of this rule.

- b) ***Signs and symbols are to be spelled in the language of the entry if the symbol is the first word in the entry.*** Numbers within an entry are filed in numerical order. A book with the title “7 journées de mai” would be entered as /sept/7 journées de mai so that filers and users may find it readily. This is preferable to establishing a rule that has to be interpreted by filers and often by users as they look for entries in a catalogue. If the symbol is not the entry by word, it may be included and arranged in semantic order if a number. This rule is obviously more a rule of entry than a rule of filing, except for the second sentence. A library should not include symbols in its subject headings and it should make the filing marks clear to the user and to the filer.
- c) ***Abbreviations are not to be included in the catalogue if any other form of the name exists and is in common usage.*** Where no other form of name exists or is not in common usage, abbreviations are to be filed as if each letter were a complete word. Acronyms are to be considered a word and filed as if they were words. This rule, along with the following rule, may have exceptions depending on the preferences of library, but it is generally unwise to take an abbreviation from a title page and enter under that abbreviation when the name as spelled out already exist in the catalogue. An acronym presents a special problem, and from the author’s standing point UNESCO is a better entry than United Nations Educational, Scientific, and Cultural Organisation.
- d) ***Disregards all marks of punctuation.*** This rule may be amended, depending upon the preferences of a library, so that one mark of punctuation may be considered, especially the dash in subject headings. This will permit the subdivisions of subject headings. However, to include more than one mark of punctuation as an exception is to invite problems of arrangement predictable from the iron laws. The dash in subject heading, especially if the subject heading are identifiable by other means, is a useful mark of punctuation that can readily be distinguished from other marks of punctuation and remains the sole mark of punctuation considered in Filing. Where subject heading are not readily distinguished from other entries such as titles, a problem might arise. But the practice of all libraries for many years has been to put subject headings in read or in capital letter or spell out with other marks of punctuation used for titles, for instance quotation marks. This seems a simple method of establishing differences between titles and subject headings, and in a library in which these rules are derived and employed; titles in quotation marks very readily distinguish materials from subject headings. In a title unit entry system the problem is minimal.

- e) ***Matter not to be considered in Filing should be omitted from the entry, and no matter that may govern filing should appear except in the alphabet that constitutes the primary means of arrangement.*** Cutter's inclusion of a variety of personal titles for authors along with the entry, none of them to be considered in Filing, has led to great problems in the use of Library of Congress entries in computerized systems. One of the two compromises are available: either the material is always filed, or it is omitted from the machine readable copy of the entry. These seem to be no good reason to deny the user what the computer enjoys. If the word "Sir" is not to be considered in filing, it should be removed from the entry, or at the least it should be included in a mark of punctuation (e.g. , parentheses), that would uniformly exclude consideration of the material in filing operations. Parentheses are more perilous/unsafe to employ than brackets, and are less effective than omitting the matter not to be filed.

9.3 Administrative Aspects of filing

In developed countries where there are large libraries it is possible for libraries to obtain filers who got useful training. Some libraries believe that accurate filing cannot be done for more than two hours at a stretch. Trained filers, however, can continue to do accurate work throughout the day provided that they organise their work well, have sufficient varied things to do, and can file under satisfactory conditions.

i). Preliminary Filing: card catalogue cannot be filed directly into various catalogues. They must be put through a preliminary filing. A Filing board is a desirable accessory if many cards have to be handled at a time.

After the preliminary arrangement has been completed, some libraries put the cards in a temporary file. By this method, more cards can be filed into a given tray and so it is to some extent economical. It has been estimated that filing does not become economical until at least ten cards have been filed into each tray. It is highly desirable that all cards be filed as promptly as possible and, if the work cannot be kept seasonably up to date, at least the author cards and the title cards should be filed as soon as possible in the public catalogue for use by readers.

ii). Actual filing

In order to do actual filing of cards, the responsible person needs to consider the following:

- a) Make sure the difference between an author and a title is known. Fiction books such as Matigari (title) by Ngugi Wa Thiong'o (author) can confuse a person who is doing filing.
- b) Assume small letters have the same importance as big letters (e.g. d'Argy would be filed in the "D" section, not the "A" section).
- c) For authors who seem to have several names, like James Hadley Chase or Ruth Prawer Jhabvala, file books under their last name. In these examples, it would

be C for Chase and J for Jhabvala. If the author's last name is hyphenated, like Wu Ch'eng-en, the book would be filed under the first letter of the whole last name, in this case C.

iii). Revision of filing: Filed cards need to be checked before the tray is placed in the catalogue cabinet. The reviser should not be the person who filed the cards.

iv). Expansion of the Catalogue: at intervals it may become necessary to expand the catalogue cabinet. The rate of growth of a catalogue in recent years must be studied to determine how much additional space is required.

Study Questions

1. What rule for the treatment of the umlaut and other modified letters would you favour for a public and for university libraries?
2. Write out the words to be used as the Filing medium according to the ALA Filing Code for the following titles
 - a. 1066 and all that
 - b. 1812, en historischer Roman
 - c. 2400 business books
 - d. Le XIXe siècle
 - e. 1812 overture solennelle
3. Explain the difference between an abbreviation and an elision. How are two filed?
4. What answer would you give to a reader who argues that libraries should arrange entries beginning with the prefix Mac in the same way they are in a telephone directory?
5. How would you file a Library of Congress card with the heading *New York* Metropolitan museum of arts?
6. What is the difference between filing and records management?
7. What do you understand by filing system?
8. Explain the techniques involved in filing
9. Explain the techniques involved in library classification
10. Why do you think filing is imperative in knowledge organization?
11. What are the roles of card sorters in filing?

CHAPTER TEN

LIBRARY AUTOMATION

10.0 Introduction

The last few decades have witnessed an increasing amount of information being published, the phenomenon that has been termed as *Information Explosion*. Availability of this information is relatively easy through the use of computers, which are nowadays accessible to many people. This has gradually changed expectation of most library users toward preferences for online information. To cope with this increasing demand for ease of access to information, libraries began to feel the need to subscribe to electronic resource and to automate their operations by starting with inputting of bibliographic information in online catalogues. Although this was seen as panacea, there were some challenges that inhibit smooth transition towards that direction as shown below.

10.1 History of Library Automation

The history of library automation can be traced back with the punched cards that were invented by Hollerith in 1880 and used in tabulating the US census data (Cohn *et al.*, 1997). The library at the University of Texas was perhaps the first to use punched cards in 1936 for circulation control. The Library of Congress used the unit record machines for the production of catalogue in 1950. Many libraries in the US followed the system for automating their activities.

Jashu and Kumar (2004) noted that library automation entered into its second era in 1960s with the advent of computers. Until the early 1990s, “automating the library” involved generally the same features as those in place since the advent of machine readable cataloguing record in the late 1960s.

Nash (2010) noted that manual systems in libraries were used in the 1970s and early 1980s until computers became more prevalent and less costly. Thereafter, Libraries started creating integrated text based systems using micro/mini computers in which traditional library housekeeping operations were computerized using the library’s database as the foundation.

In the last decade, library automation has undergone a transformation that reflects changing definitions of library service in general and access to resources in particular. Rao (1992) and Cohn *et al.* (1997) emphasizes that the introduction of global networking such as internet, cheap availability of technology and new media technologies made information more accessible.

Today’s integrated library systems must not only provide modules which automate traditional library functions but also capable of connecting through the local systems into systems of other information or knowledge suppliers, databases and internet.

Meaning, Purposes and Need for Library Automation

Automation generally refers to the process of using machines for speeding up works and serving human power and time. These machines (computers) mathematically manipulate information storing, selects, presents and records input data or internally generated data.

In library contexts, automation refers to the use of computer systems for the performance of day-to-day library duties. Such a computer system must be MARC compliant to be called a modern one.

Kumar and Car (1995) defined library automation as “the application of computers in housekeeping operations such as acquisitions, cataloguing, circulation control, serial control and interlibrary loans”. They further added that library automation is application of computers in information retrieval services such as catalogue search by (author, subject, keyword, and title), indexing, current awareness services, and selective dissemination of information, retrospective search services and bibliographies.

Ahmad & Iqbal (2009) defined automation as a process of using computer-based system to do house –keeping operations, such as acquisition, circulation, classification and cataloguing.

Daniels (1980) add that, “library automation is the application of automatic and semi-automatic data processing machines to perform library functions such as acquisition, circulation cataloguing, reference service, and serials control”.

According to Encyclopedia of Library and Information Science (1982), “automation is the technology concerned with the design and development of process and system that minimise the necessity of human intervention in operation”.

From the above definitions, library automation can be noted to be usage of computers in facilitating information access and retrieval and processing. It thus improves manual done traditional operation such as acquisition, cataloguing and circulation.

The main purpose of library automation is to improve services, and in particular to reduce workload of library staff and to allow them to contribute more meaningful to the spread of knowledge and information.

10.2 Rationale for Automation

ICTs have changed the way information is created and distributed. They have also changed the way libraries select, acquire, organize and deliver information. Librarians must adapt to this change and acquire skill in using automated library systems.

The rationale for automation is therefore to achieve the following:

- Provide wide access to resources within the libraries and elsewhere

- Improved resource sharing
- Obtain increased operational efficiencies
- To save users time in retrieving information.
- Relieve professional staff from clerical chores so that they are available for user-oriented and training services,
- Improve the quality, speed and effectiveness of library services
- Improve access to external (remote) users and other stakeholders in need of information.
- Facilitate dissemination of information product & services to the users.
- Improve access to resources on other networks and systems, including the Web (Ahmad & Iqbal, 2009).

10.3 Levels of Automation

Library Users

- On-line search-able database
- Easily locate physical resource.
- Simplification of the basic process of request, loan, recovery, hold/recalls, etc.
- Move from paper to paperless

Library Staff and Procedures

- Implementing user procedure automation, including effective user training.
- Software for dynamic seamless information exchange/importation
- Managing multiple locations (campuses/sites)

Automation of the Four Main Library Functions

Circulation Module

- ◆ Handles circulation activities such as: lending, return and renewal. This allows fast entry of borrowed items and easy identification of overdue accounts through records of all patrons. It also enables printing of overdue notices and establishes waiting or holding lists.
- ◆ Manages library materials - circulation type, location and status; patron database - patron type, profiles, privileges; and other transactions such as computation and payment of overdue fines, lost books, etc.
- ◆ May have added value functions like: import, export, and backup and restore functions for the databases; inventory; report generation; and support for MARC, Z39.50 (information search and retrieve protocol standard), and ILL (Inter Library Loan) standards.
- ◆ May support integration with security systems that complement the self-check-in and checkout features of the circulation module.

Acquisitions Module

- Automates the acquisition process - ordering, receiving, claiming materials from suppliers, returns, and cancellations of materials
- Used to maintain statistics, and in some cases manage accounting activities.
- Acquisition can be done online if system is linked to an external network.

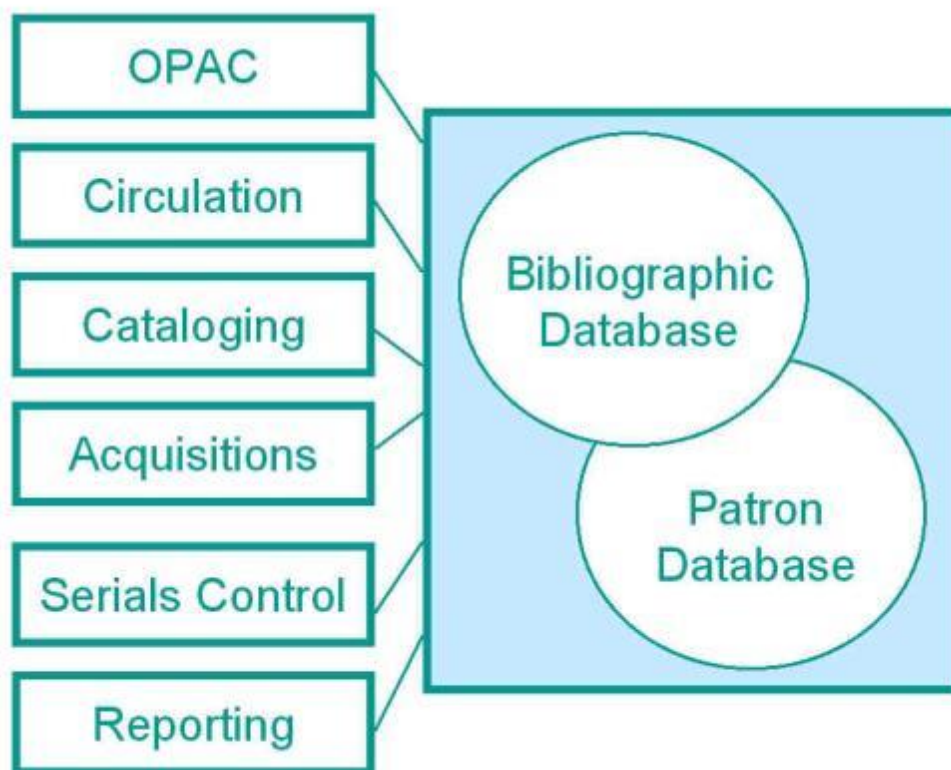
Serials Control Module

- Manages placing, cancelling, claiming of orders; returning defective, unwanted and unordered material; and accounting and statistical information
- Provides a system for recording issues and keeping track of undelivered issues by generating claim reports.
- May permit serial ordering online.

Interlibrary Loan Module

- Provides staff with an information management system for interlibrary loan transactions. This includes automatic monitoring of loans and accounts, making claims, putting holds on materials being borrowed, etc.
- Can also monitor the library's ILL activities, e.g. the number of items borrowed by individual clients, from where, for whom, etc. This module is seldom required except by libraries with very heavy ILL transactions.

As it can be noted from the figure below, there are several advantages to be derived from automating library functions.



Source: Adopted from Lam (2002).

Implementation of Automation

Choice of Software

Libraries attempting to venture into automation should first of all take a decision on the type of software to be used. The software can either be selective (this is where the library concerned picks only the module that will be useful to a specific library service) or comprehensive (that is containing all the modules). Software compatibility is essential if the library has an existing database and will eventually import the existing records into the new software. Other issues to consider include user friendliness of the software, its robustness, affordability and ability to detect wrong and multiple entries. There is also a need to consider if maintenance of equipment and training support for library staff from the vendor (technical and operational) are available.

On the other hand Ahmad & Iqbal (2009) cautioned librarians who are involved in acquiring library system to be sceptical about the software developed by individuals as

there will be no continuity. This needs one to ask the following questions before acquiring/purchasing software.

- How many times the software has been revised since the time of its first launch.
- How many parameters are available for each module? The more the parameters the better will be the flexibility and needs no or minimum customization.
- Whether the software has facility to import and export bibliographic data.
- Training and guidance after installation.
- Whether available on major operating systems.
- Whether it is web interfacial.
- Whether it can be interfaced with the email system of the campus network.
- Whether it has taken care of Y2K and other ICT compliant.

Retrospective Conversion

There is the need to recapture all bibliographic records of materials in the library on catalogue cards or whichever format that may be appropriate to the library concerned. The information to be captured usually include: author or editor, title, place of publication, publishers, date of publication, physical description, series (if any), notes, ISBN, and accession numbers or barcode numbers.

Data Entry into the New Software

The information is entered in the new software after all the needed bibliographic data have been captured on cards. Data entry can be done by the staff of the library concerned or be contracted to data entry companies. In-house entry enables the library to ensure that the right thing is done always. According to Olorunsola (1997) data entry by staff of the library “is cheap and the number of errors made during the data-entry is low provided that quality control is maintained”. On the other hand, in-house entry of data is always very slow. Data entry companies will use a shorter period to have all the data entered in the database, but this will come with some form of corrections such as typographical errors. Libraries should, therefore, weigh their options and then decide on which of the two will give them the best result.

Importing Into the New Software

Another option that can be employed by any library interested in retrospective conversion will be to import all their records in an existing database into the new software. Issues to be considered here will be the compatibility of the existing database with the new one. If the new software is not compatible with the old one, then it will be appropriate to contract it from a conversion company or the data should be entered afresh into the new software by staff of the library.

Selection of Vendors

There are various factors to be considered when choosing vendors. These factors include cost, timeliness, schedule, number of the records to be converted, experience of

the agency, i.e. who the developers are, whether an institution, or reputed company or few individuals.

The preference is for an institution. One has to be skeptical about the software developed by individuals as there will likely be no continuity. Again the number of times the software has been revised since the time of its first launch and the number of parameters available for each module should be considered. In selecting vendors one also has to take into consideration training and guidance after installation, whether the software is available on major operating systems or whether it has web interface.

Other factors according to Epstein (1998), are the size of the collection, types of subject headings, age and language mix of the collection, distinctiveness of the collection, classification schemes, amount of data to be included in each record, and the hit rate against the vendor's database.

Criteria for Selection of Library Systems

The criteria must be based on

- How it matches the library's requirements.
- Product quality
- Cost
- Features
- Functions
- Installation date and time duration of installation,
- staff training
- Support services
- Operating system: Interoperability
- Hardware/Software requirements
- Functionality: What modules are available, value addition to existing functions
- User interface: navigation, error alerts, intuitive, customization
- Design: Flexibility, switching from one module to another, multifunctional modules, does it enhance the productivity
- Conforming to standards: MARC, Z39.50
- Scalability: single user-multi-user-network. Can it be used in a client-server LAN architecture
- User controlled customization
- Reports that help take decisions
- Security levels
- Training support
- Development support, upgrades and its cost
- Migration, data transfer
- Manuals, documentation and online help

Recommendations for Library Automation

- Request a demo/testing phase from vendors before committing to buy.
- Stay up to date with information & technology on the following areas: Computers in Library; Web 2.0 (on-line chats, etc.).
- Yearly maintenance: Very important that this is by competent staff/people.

10.4 Library Software Evaluation

Software evaluation is quite a difficult task; one has to consider the following procedure, features and aids to evaluate software packages

Library software here refers to the software needed for library housekeeping routines and information retrieval services. Hundreds of library packages have been developed and run successfully in advanced countries and there are many directories and other tools available that help librarians to select suitable software for their libraries.

Preliminary step in Evaluating Library Software

1. **Consults other:** Since no library want software that stops unexpectedly, slows down on large network, report error message, so librarians should consult others who have already used the software in the same way they intend to use the system or consult other who have already experience on that software.
2. **Who refer you:** the reputation of person or the institution, his/her experience on that particular software should also be justified at this point.
3. **Reputation of the manufacturer and vendor** the reputation of the manufacturer and vendor should also be considered.

Benefits of Library Software Evaluation

1. The task of evaluating automation software will enable a library to choose the most appropriate library automation software that will answer the needs of the library in automating its operations.
2. The library will become aware of the automation software offered by the different suppliers and relate them to their needs
3. The librarians and the library will be able to identify some critical factors like cost of hardware and software, training, maintenance, support, upgrade, etc.
4. A librarian will be able to evaluate the credibility of the supplier and be able to make a short-list of packages and suppliers

The ability of a librarian to evaluate library software gives library administration the basis on which to choose between alternative.

Online Public Access Catalogue (OPAC)

Several scholars have defined the term OPAC differently. The two main reasons for such variations are that some professionals look towards it as a product while others see it as a tool to exploit the collections of a library.

It is therefore worthwhile to examine the definitions from some scholars (Kulkarni, 2004).

OPAC stands for Online Public Access Catalogue. Sabine (2000) defined an OPAC as the gateway to library's collection, it is an electronic database that contains the same information: that is author, title, and subject information about the materials that a library owns. Some OPACS are union catalogues meaning that several libraries share the same catalogue.

An OPAC is an online bibliography of a library collection that is available to the public. It is also defined as a computerized system to catalogue and organize materials in a library. OPACs have replaced card based catalogue in many libraries particularly in developed world. An OPAC is available to library users (public access).

According to SIRSI (2000) OPAC is a computer work station used to search library's catalogue. OPAC therefore can refer to either the actual station in the library, or the interface provided by the library that is accessible from anywhere.

IT Specific Encyclopaedia (2005) and Harvey (1999) portray an OPAC as knowledge access system whereby the catalogue is both a finding and access tool. According to them, with user expectations becoming more demanding in terms of access to electronic information, the OPAC reflects an organised collection of databases and web.

With the above definitions an OPAC can be considered as an online bibliography of a library collection that is available to the public.

Origins of OPACs

- **Library automation**

- Began in 1930s with the use of punched-card techniques and machinery (i.e., Electric Accounting Machines [EAM]) for circulation control
- Continued in 1940s, 1950s, and early 1960s with the use of EAM and early computers to produce listings of contents of small collections: for example,
 - Groupings by authors, titles (e.g., Key Word in Context [KWIC] title lists), subject terms, etc.
 - Accession lists (i.e., new materials acquired during past week or month, etc.)

- **Computer-based library catalogues**

- Initially used one or a very few special terminals to display results
- The terminals were located only in the library
- In most cases, the terminals were intended to be operated only by special trained library staff (professional).

- **Computer-based library catalogues were initially restricted to small numbers of staff operated terminals because, in the 1960s and early 1970s,**
 - Computers were rarely available to the general public
 - Each computer network was served by a single computer
 - Connections between networks—the inception of internetworking, and the Internet—were limited to a few experimental interconnections
- **Some computer firms started to develop software for PACs**
 - For example, IBM worked with the universities of Dortmund, Germany, and Leuven, Belgium, to develop a catalogue system known as DOBIS (Dortmunder Bibliotheks Information System) and sold it in the 1980s to a number of customers in the U.S. and Europe.
 - Austin Public Library used the DOBIS system for over a decade.
- **Most libraries also went through a process known as "retrospective conversion"**
 - In retrospective conversion, machine-readable cataloguing records are acquired, or created locally, for older holdings
 - These records are added to the PAC, and the corresponding catalogue cards are destroyed, till eventually all or almost all reliance on printed cards for cataloguing information ends.
- **With the explosive development of the World-Wide Web in the 1990s, OPACs were rapidly made accessible via the Web (i.e., via the Hyper Text protocol)**
 - Telnet access for OPACs faded into past history
 - Web-based OPACs are sometimes called Web PACs

Functions of OPACs

Functions of an online catalogue are to enable a user:

- a) To find resources in a file or database as the result of a search using attributes or relationships of the resources:
- b) To locate a singular resource
- c) To collocate sets of resources representing:
 - All resources belonging to the same work
 - All resources belonging to the same expression
 - All resources belonging to the same manifestation
 - All resources by a given creator of intellectual or artistic content
 - All resources on a given subject
 - All resources defined by “other” criteria (such as language, country of publication, publication date, physical format, etc.).
- d) To identify a resource or agent (that is, to confirm that the entity described in a record corresponds to the entity sought or to distinguish between two or more entities with similar characteristics);

- e) To select a manifestation or specific item that is appropriate to the user's needs (that is, to choose a resource that meets the user's requirements with respect to content, physical format, etc. or to reject a resource as being inappropriate to the user's needs);
- f) To acquire or obtain access to an item described (that is, to acquire an item through purchase, loan, etc. or to access an item electronically through an online connection to a remote source);
- g) To navigate a bibliographic database (that is, through the logical arrangement of bibliographic information and presentation of clear ways to move about, including presentation of relationships among attributes).

Types of OPACs

There are two generations of OPACs as shown below:

i).First Generation OPAC. It was derived from traditional catalogues or computerized circulation system. They are also referred to as phase – indexed or pre-coordinated OPACs and it demands exact matching between the search term and pre-coordinate phrase. The number of access keys is limited and they are similar to that of manual catalogue i.e. author, title, subject and class numbers.

ii) Second Generation OPAC. It originated from common bibliographic information retrieval system and so there is a growing similarity between second generation OPAC and traditional information retrieval system. This generation of OPAC provides key word searching that is post coordinate searching together with phrase searching or pre-coordinate subject heading.

iii) Third-generation online catalogues: Very few systems have moved beyond second-generation online catalogues into third-generation online catalogues with enhanced or more sophisticated features. Due to the growing sophistication and availability of technology, new capabilities are being added to online catalogues making them more adaptive to the needs of library patrons. Free text search, enriched database search and simultaneous journal citation searching are among the retrieval capabilities in third generation online catalogues. Furthermore, the mode of interaction has been developed to the point of conversational, adaptive dialogue and the bibliographic format can be tailored according to user preference. Operational assistance such as automatic, context-based correction is also available (Matthews, 1991: 8).

iv). Fourth-generation online catalogues: Beginning from the late 1980s, a most recent development in online public access catalogues has been achieved in providing easy access to bibliographic information by using graphical user interfaces (GUIs) such as Windows.

These systems, which can be considered as fourth-generation catalogues, have moved away from the traditional menu-type interfaces and are more, associated with client server and graphical user interface. They use WIMP (windows, icons, mouse and pointers) interfaces to speed and simplify searching. With the Windows-style user interface available through PCs (personal computers, i.e., intelligent, and not dumb terminals), there is much more functionality. In these systems the user has the flexibility to click on various buttons, each of which carries a special function. Nevertheless, these systems do not eliminate but augment the keystroke access. There is also the possibility of using function keys for different purposes when keyboards are involved. In general, access is via mouse or keyboard or a combination of both.

Searching capabilities in the Windows version of OPACs are greater than those found in other generations of online catalogues. Pointer capabilities allow the searcher to select exactly the term he/she is looking for, while pull-down menus provide additional options to make searching even more useful. By using scroll bars and pull-down menus, browsing in different indexes is very simple. With the capability of post-Boolean searching, the search software also attempts to interpret users' search requests in order to present matches of greater or lesser interest to the user. This is called relevance ranking of the search terms. Similar to second and third generation online catalogues, these systems search for terms through using an implicit Boolean 'AND'. Other Boolean operators such as 'OR' and 'NOT' can also be used to narrow down search results or such search strings can be constructed using the mouse alone. In addition, access has been enhanced by text retrieval qualifiers such as 'language', 'date' and 'form' of the text. With this feature, it is possible to include new data elements that help in the better identification of the sought item. Integral or add-on text retrieval modules to provide range searching, related term searching, wild card features, adjacency and proximity are supplied by some systems.

One of the recent additional advanced features of fourth-generation OPACs is the 'hypertext' function. Through this function, any word that the user selects or highlights can be used to search all the fields and subfields in all the records in the database for any occurrence of that word. This dynamic feature helps the searcher to navigate the database to find more relevant sources of information.

Components of OPAC

There are three main components of OPAC. These are:

- i) Computer and Terminal:** The hardware requirement for OPAC i.e. computer terminal and server from which databases can be accessed.
- ii) Software Enabling Networking:** The network enabling software which will be able to manage the entire database.
- iii) Database:** The database of books, serials, dissertations, etc. can be generated by two different ways. One is developing database by direct entry and the other is developing database through retrospective conversion process.

Searching and Browsing OPAC

When the user knows what he or she wants, he or she can use various methods of searching as shown below:

i) Phrase Searching: Phrase searching is done on pre-coordinate subject heading.

ii) Keyword Searching / Post Coordinate Searching: When a query is formulated using Boolean expression.

iii) Browsing: Browsing is used when user's information needs are not precisely defined. By browsing one can determine the exact forms of entry of a subject heading or author name (Barman 2005).

OPAC versus Card Catalogue

The difference between OPAC and Card catalogue are shown below:

Characteristic	OPAC	Card Catalogue
Time	OPAC allows rapid retrieval.	It is a time consuming job.
Access point	It provides multiple access to the database and helpful for Boolean searches	Access is only through entry point and a build in cross reference structure.
Indexing techniques	Support both pre-coordinate and post coordinate searching.	Support only pre coordinate searching.
User Friendliness	It is more user friendly and guides the user in a step by step manner to find the information.	The user has to decide himself how to find the required card.
Current Status	OPAC provides the current status of the item being search i.e. whether a document is on the shelves, on loan, on reservation or in the bindery or the document is lost.	It does not provide current status of the document.
Enhance Feature	OPAC provides acquisition of titles, to reserve material and to send personalized SDI, overdue/ recall / collect notices and messages by Email.	Such types of facilities are not found in a card catalogue
Union Catalogue	Helps to develop centralized database and resource sharing among different libraries.	It is very difficult to achieve resources sharing through card catalogue

OPAC versus Information Retrieval System

The difference between OPAC and Information Retrieval System are shown below:

Characteristic	OPAC	Information Retrieval System
Coverage	OPAC database includes one or more than one library's collection; hence its coverage is on wide variety of discipline and subject areas.	Its coverage is limited in subject scope either to a single subject or to a range of discipline linked to a particular mission.
Abstract	Records in the OPAC mostly lack abstract and subject descriptor is inadequate.	Information retrieval systems records are well indexed and are supported usually with abstract.
Indexing System	OPAC provides pre-coordinate phrase searching and browsing option.	Information retrieval system mostly provides post coordinate searches.
Underlying Assumptions	The most searches will be on known document i.e. searches for document whose bibliographic details are known at least partially.	Searching will be for document containing information of a particular subject.
Skill	OPAC is designed for end-user and so menu driven and provides facilities like on-line help message, on-line index with different approach points (author, ISBN, class number, etc.)	It is not designed for end user and requires the skills of information professional. The search negotiations are carried out by the librarian. He/she should interact with the user to know their information need then formulate search strategy using vocabulary control devices and modify the search if required.

Source: (Barman, 2005).

Advantages of OPAC

- Access time: The speed at which data is accessed is very high compared to the card catalogue.

- b) Operation: with the OPAC you use the computer to enter data or retrieve it. It is therefore not so tiresome as compared to the card catalogue which is done manually.
- c) Accuracy: With OPACs mistakes are easy to correct and therefore more flexible and up to date than the card catalogue.
- d) Flexibility: When using OPACs errors can be deleted and terms added for search which is not possible with the card catalogue as any error needs card replacement. Networking: With OPAC bibliographic information can easily be shared with other libraries in the shortest possible time through networking while with card catalogue it is not possible.
- e) Online cataloguing
- f) Enables searching at users' convenience from any location. Users can access local, national and international OPACs. With OPACs, users can, in principle, perform other kinds of searches that are, as a practical matter, difficult or impossible in a card catalogue: e.g.,
 - Call number, publication date, location (in a multi-branch library), language, publisher, series, illustrator
 - The actual capabilities for such searches vary according to individual implementations of OPACs in different libraries

Disadvantages of OPACs

- i. Sensitivity to spelling when inputting or searching information. Any error means unexpected or different information is printed on the computer screen. Users may be frustrated by getting few hits or sometimes too many hits or citations. This may require a new way of getting information including training users.
- ii. They may also be unavailable due to reasons such as power cut, internet disruption or when a computer breaks down (Wijoyo, 2009).

Challenges of Using OPACS

There are some challenges of using OPACS as shown below:

- Misspelling in entering information in the OPACs makes users not to get information they desired.
- Limited number of computers resulting from increasing enrolment. This is because the number of users that can access information in the system depends on the number of computer terminals a library has. So library users sometimes need to be patient when faced by these situations, as libraries do not have adequate budgets for computers.
- Low level of information searching skills among students especially the new comers that need organised training information literacy programmes.
- Inaccessibility of OPACs in some libraries which do not have standby generators. Even those that which do have, irregular availability of fuel is also a problem (Arkorful, 2007).

- Inability of library staff to trouble shoot computer problems due to absence of ICT staff in most libraries. Dependency of ICT staff from their institutions has not solved much this problem due to being busy with their schedules.
- High mobility of ICT skilled staff makes it difficult for institutions with low level of motivation to retain them once employed.

10.5 Library Automation Environment in Africa

Africa is not having much to show in the first and second evolutionary stages of automation. This was largely due to the fact that costs of systems were lack of awareness and digital literacy. Meaningful library automation in Africa commenced in the 1980s after being driven by a number of factors. During that period, IT departments or computer centres were largely responsible for automation of libraries using local programming expertise. They used libraries to justify higher budgets from their parent organizations (Mutula, 2000). Other library automation initiatives that were visible in Africa were those of the international organizations such as United States Information Services and British Council mainly because such organizations were well funded. However, during the late 1980s, CDS/ISIS library software from UNESCO became available and was largely given free to libraries. Consequently, many libraries in government, public and private sector including international organizations that had computers were able to automate using CDS/ISIS. CDS/ISIS facilitated development of in-house databases mainly of local collections. Similarly CD-ROM databases became increasingly available to libraries through donor agencies. Donor funded CD-ROM databases and CDS/ISIS can be said to have influenced significantly library automation on desk tops in Africa.

In Eastern Cape (S. Africa) automation of academic libraries is being spear-headed by South East Academic Libraries System (SEALS). A SEAL brings into a consortium of seven tertiary institutions namely; Border Technikon, Eastern Cape Technikon, University of Fort Hare, Port Elizabeth Technikon, Rhodes University, University of Port Elizabeth and the University of Transkei (Millennium at South African Libraries Consortium, 2001).

Library automation in Africa has also been influenced by individual libraries' efforts such as the Campbell Collections of the University of Natal in Durban in South Africa which is involved in the preservation and conservation of the various media comprising of library, archival, museum and digital collections. Similarly, the Digital Imaging South Africa (DISA) is involved in investigating and implementing digital technologies to enable scholars and researchers from around the world to access South African material of high socio-political interest that would otherwise be difficult to locate and use (Peters and Pickover, 2001)

In addition, Rhodes University in South Africa has an on-going project of publishing electronic theses and dissertations (ETD). This project undertakes the digitisation of doctoral dissertations and makes them available on the university intranet. The

University of Botswana, through its Millennium INNOPAC system, has extensively automated its housekeeping services including provision of web-based catalogue. Through its OPAC, the university library provides access to several full-text journals. The university has also digitised its past examination papers and made them available over the Web OPAC.

Within the special libraries arena, librarians in Botswana during 2002 formed a consortium to facilitate the digitisation of their libraries resources to make them widely accessible (Mutsheha and Rao, 2000).

10.6 Tanzanian Automation Situation

The use of information technology in Tanzania started in the mid 1980's and moved slowly into the 1990's achieving different levels of computerization. In mid-1990's most documentation and information centres were already using computers for bibliographic and library database management. This concurs with the observation that, 'automation has continued to spread in Tanzania as more and more libraries are now embarking on library automation, (Kasulwa, 2008).

The main automation activities carried out by libraries in Tanzania are inputting of bibliographic information of library materials in Online Public Access Catalogues (OPACs). Full automation has not been achieved by most libraries that could have enabled borrowing and lending of books using students IDs including, machine controlled entry and exit from libraries. Heads of libraries are advised to keep on finding resources from different sources that enable achievement of full automation for the good of their users and for their institutions in general.

The OPACs of most academic and research libraries can be accessed through home pages of the websites of their mother institution (Nyika, and Owano, 2000). As a result of usage of OPACs, access to information by students, researchers and faculty members have improved by becoming faster and easier.

Despite these improvements there are some challenges with regards to differences in OPAC software. Majority of academic libraries with OPAC systems use different software ranging from commercial to open access ones. For instance, the University of Dar es salaam is using ADLIB which is commercial software, Mzumbe, Sokoine and Jordan University College is using ABCD database which is free software, while Open University of Tanzania is using Koha which is also an open source software. This is limiting the long dream of these libraries in improving information sharing. However, there are trends towards shifting to open source software in Tanzania as agreed in September 2012 by heads of libraries of academic and research libraries in Tanzania in their meeting organised by the Consortium of Tanzania and Research Libraries (COTUL.)

Challenges of Implementing Online Public Access Catalogue in Africa

The library automation environment in Africa is improving but there are several challenges to be addressed. The study conducted in Ghana by Arkorful (2007) identified some of the challenges of implementing OPAC in Africa, these include:

- Shortage of system librarians to handle ICT aspect of online cataloguing.
- Institutions ICT staff not being very conversant with library management systems (LMS).
- Detailed and technicalities of procurement laws that are not properly understood by library staff who are initiators of procurement of library ICT equipment. This was experienced in Ghana in which its New Procurement Law was noted to be very technical and detailed. This was noted to be causing not only difficulty in interpreting its content but also delays in taking actions that affect projects (Arkorful, 2007).
- High cost of automation equipment as noted in Ghana, in which it was found that vendors of LMS are hesitant operate there (Arkorful, 2007).
- Delays in purchasing library ICT related materials such as Barcodes which are not produced locally due to lengthy procurement process.
- Decreasing trends of library budgets which have become concern for most library administrators.
- The issue of irregular power supply in online cataloguing environment is very serious.
- The cost of library management systems that comply with AACR and MARC is expensive.
- Low level of ICT infrastructure in most African countries and Tanzania in particular.
- Most staff in academic libraries in Tanzania and Africa were generally trained in traditional librarianship. They are finding it difficult to cope with the requirements of the electronic issues in libraries such as digitization.

To speed up full automation of library operation, staff training in ICT issues related to libraries needs to be improved for the benefits of library users and their institutions in general.

Study Questions

- h) What is Library Automation? Explain service areas that need to be automated in libraries for improvement of information provision.
- i) Describe Data Structure and its uses. Name any three Popular Library Automation Software and explain their special Functions.
- j) Why Library Automation software is needed in modern times? “Concepts of Five laws of Library Science are carried out by modern Library Automation Software”. Discuss.

- k) Define Library Automation. Bring out the scope and areas of library automation. Trace the developments in the history of library automation during 1954-1970.
- l) Explain how you would determine the infrastructure requirements for library Automation.
- m) What are the subsystems of a Circulation System and bring out their features and functions.
- n) Explain the Library and Information Services, which are amenable for computerization.
- o) Write short notes on of the following.
 - Evaluation of Library Automation Software Package
 - Problems of Library Automation in Africa
 - Early Efforts of Library Automation.
- p) Explain the steps involved in planning library automation.
- q) Discuss the functions of circulation system of a library in an automated environment.
- r) What do you understand by a bibliographic database? Explain the process of searching a bibliographic database.
- s) Describe the features to be included in an automated circulation system.
- t) Describe the reports that can be generated in automated Acquisition System.
- u) Explain how Mzumbe University OPAC enables users to get book(s) they want.

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Acronyms and Various Cataloguing and Classification Terms

AACR2 or **AACR2R** – Anglo-American Cataloguing Rules. Provides guidelines for descriptive cataloguing.

Abstract - a brief summary of an article or a book that includes bibliographic information such as author, title, source, subject headings or descriptors, etc.

Access points – Can also be called headings. A name, term, code, or number by which a bibliographic record can be searched, identified, and retrieved.

Access tool - **Bibliography**, catalogue, database, or other information source which leads you to information on your topic.

Accession: The primary unit of records formally received by an archival institution from a particular source on a particular occasion.

Accession Number - a unique number or combination of letters and numbers that are assigned to each record in a database.

Added entry – Is a personal name, corporate name, title, or series entry in a bibliographic record that is made in addition to the main entry.

Authority control – The cataloguing function of providing established headings as access points in bibliographic records and linking those headings to authority records that display, with appropriate references, in the OPAC.

Authority record – **MARC** record that contain the decision for an established heading, sometimes with references. Authority records are created for names, subjects, uniform titles and series.

Autobiography : a written account of a person's life written by that person.

Barcodes: Machine-readable symbols of patterns of black and white stripes that encode sequential numbers used to identify and differentiate every individual item in library.

Bibliographic (bib) record – End result of the cataloguing process; represents the item in a catalogue and enables its retrieval; can be in card form or machine readable form (MARC).

Bibliographic record number – Unique number assigned to a bibliographic record. May also be called accession number or database control number. In an OPAC this should be a searchable number and will provide an access point.

Biography: a written account of a person's life.

Boolean Operators - words such as AND, OR, and NOT that are called "logical operators" and are used to combine search terms to either broaden or narrow the retrieval results of a search. Boolean Searching describes the method of searching in which terms are combined to either recall more documents or to retrieve a more precise set of documents.

Card Catalogue: A Card holder/Cabinet onto which catalogue cards are stored.

- Call Numbers** - a combination of numbers or letters and numbers that indicates the address or location of an item in the library. Materials in the library are organized by call number into specific groups according to the Library of Congress (LC) classification system. The University of Dar es Salaam Library uses LC call numbers which combines letters and numbers like PQ 1756 .I15 1990.
- Catalogue** -A tool used to learn what a library owns and where it is located. A standard format is used to describe books, journals, audio visual holdings, etc. Most catalogues are now online or computerized. See **OPAC**.
- Catalogue Card:** A card on which bibliographic information of an item is written/recorded
- Cataloguing (Descriptive cataloguing)** – Creating the bases of a bibliographic record by describing an item using AACR2R rules; includes transcription of title and statement of responsibility, publication information (imprint), physical description, assigning main and added entries.
- Cataloguing level-** Refers to the level of focus for a cataloguing record or description-
-higher than, lower than, or at the title level (resource level).
- Charged:** when a book is checked out of the library, responsibility is given or *charged* to the user. The user can also be *charged* or required to pay for a book not returned to the library.
- Class numbers or classification numbers** - symbols used to identify classes (preferably called **notation** since they can be alphabetic or alphanumeric).
- Chief source of information** – Where the bibliographic information comes from; especially the title. AACR2R is very specific as to what the chief source of information is for each format of materials. The source of bibliographic data to be given preference as the source from which a bibliographic description is prepared (e.g. the title page is the chief source of information).
- CIP – Cataloguing-in-Publication** - A Library of Congress publisher program that provides bibliographic records on the t.p.(title page) verso of published books. CIP cataloguing is done from galley proofs or electronic files sent to the Library of Congress by the publisher. Some publishers do their own CIP cataloguing which is published in their books, but it is not cataloguing sanctioned by the Library of Congress.
- Circulation Desk:** the area of the library that checks books in and out of the library and replaces books on the shelves.
- Classification** – Classification arranges items in a logical order on library shelves and groups like subjects together. Classification numbers along with Cutter numbers are combined to form what is usually called the call number.
- Classification system-** Used by libraries to arrange materials by subject. Dewey Decimal System and Library of Congress Classification System are the most frequently used classification systems.
- Collection** – Materials owned by the library and organized in such a way that they can be easily retrieved.

Control fields – Information used by the computer to make the bibliographic records retrievable. Control fields do not usually display to the patrons.

Copy cataloguing – Utilizing and possibly editing a bibliographic record created by someone else before adding it to your own catalogue. [Cataloguing by copying entirely or editing an existing record from a bibliographic utility's database, and incorporating it into one's own catalogue.]

Copyright: A statutory right that grants creators (authors) certain exclusive rights in their creations for a legally established duration of time.

Corporate body heading – Access point in a bibliographic record representing an organization or group of persons identifiable by a particular name, that acts as an entity, and that is responsible for or related to the work. Example of corporate bodies includes associations, business firms, non-profit enterprises, governments, religious bodies, ships, buildings, and conferences.

Cutter number – Symbols (usually combination of letters and numbers) used to distinguish items with the same classification number, in order to maintain alphabetical order on the shelves.

Database: A structured assembly of logically related data designed to meet various applications but managed independently of them.

Database record: A complete set of information in a database; records are composed of fields, each of which contains one item of information.

Date due: date on which library materials are due to be returned to the library.

Description: The process of capturing, analysing, organizing, and recording information that serves to identify, manage, locate and explain archives and the contexts and records systems that produced them.

Discharge: checking in of a book that was loaned and returned.

DDC – Dewey Decimal Classification System; classification system used mostly by public libraries and schools.

Documentation: Information needed to develop, use or maintain computer hardware and software and to permit access and retrieval of the data.

Edition: All copies made from essentially the same master and issued by the same entity.

Entry: the record of a book in a catalogue that describes the item and gives its location.

Field: the space in an entry devoted to one or more related data elements (ex. Title field, author field or call number field).

IFLA- International Federation of Library Association and Institutions

ILL – Interlibrary loan - Process of sharing bibliographic items among cooperating libraries.

Imprint: Cataloguing definition: Publishing information about the bibliographic item; usually gives place of publication, publisher, and date of publication.
Publisher definition: A subsidiary organization to the publisher.

Index - a systematically arranged list of articles and other information which includes enough information for each item to be located.

Indexing: To make something searchable in the OPAC.

Information: a group of data in an understandable form, recorded on paper or some other medium, and capable of communication.

Interlibrary Loan - an interlibrary loan is a function of the lending and borrowing services that provide access to materials not owned by the given library.

ISBD – International Standard Bibliographic Description – An internationally agreed upon framework for cataloguing rules for description that states what essential items of information must appear in the bibliographic record, the order in which those items will be given, and the standard punctuation and spacing that must be used.

ISBN – International Standard Book Number - Publishers number. Standardized number used since about 1968; books published before that will not have these numbers. Usually found on the t.p. verso or back cover. ISBNs are used for searching and matching bibliographic records.

ISSN – International Standard Serial Number. Number used to identify serials.

Issue: a specific publication, complete in itself, of a serial or periodical. Usually indicated in a citation as "n" (number) or "i" (issue) and an issue number.

Journal - a periodical collection of articles or other material such as reports, proceedings, or transactions issued by a society, an organization, or an institution. See *Magazine*.

Keyword: "One of the significant and informative words in a title or document that describes the content of that document."

LC – Library of Congress; coded as "DLC" in MARC records.

LCC – Library of Congress Classification; classification system used mostly by university and research libraries.

LCCN – Library of Congress Control (formerly Catalogue) Number; accession number assigned to LC cataloguing and used as access point.

LCSH – Library of Congress Subject Headings or "Red books." Lists subject headings established by LC. Also accessible online through OCLC and some local systems as the "subject authority file."

LLSAP - Local Library System Automation Program – A shared database sponsored by most Illinois Regional Library Systems.

Loan Period: the period of time this is allowed for the use of library materials.

Main entry – Name entry in a bibliographic record that represents the individual chiefly responsible for the intellectual content of the item or title entry of a bibliographic record where no personal or corporate entity was deemed to have such intellectual responsibility.

MARC – Machine readable cataloguing. System to encode bibliographic information so that a computer can read and interpret the data in the bibliographic record.

MARC Record: Machine-Readable Cataloguing record. Machine-readable: "Machine-readable" means that one particular type of machine, a computer, can read and interpret the data in the cataloguing record.

Microfiche: a flat sheet of photographic film containing very small images of the text of a publication. A machine reader must be used to read the information.

Microfilm: "a microphotograph on cellulose film." A machine reader must be used to read the information.

Monograph – Publication either complete in one part or intended to be complete in a finite number of parts; often referred to as a book.

Network: a system of individual computers which are linked electronically, allowing each machine to share the resources of the others.

OCLC – Online Computer Library Center – Nonprofit, membership, computer library service and research organization. Provides cataloguing services, interlibrary loan, and reference services.

OCLC number – The unique number assigned to each OCLC bibliographic record. This number is searchable in OCLC and should be searchable in your local OPAC.

Online Catalogue: electronic, searchable database which contains a listing of the library's collection.

OPAC – Online Public Access Catalogue – A library catalogue made up of bibliographic records in machine-readable format (usually MARC) available via a computer.

Original cataloguing – Creating a new bibliographic record from a work form or from the skeleton of a related record when no matching cataloguing record is found.

Periodicals - publications issued in successive parts at regular intervals, including journals, magazines and newspapers. Current periodicals are ones that have arrived recently within the last six months to two years. Bound periodicals are back issues which have been sent to the bindery, covered with a binding, and placed in the stacks. See also *Serials*.

Periodical Indexes and Abstracts- Periodical indexes list articles by subject which have appeared in specified journals, magazines, or newspapers. They generally list author, title, and name of periodical, volume, pages and date of publication. Indexes which include abstracts contain summaries of the articles.

Personal name heading – Access point in a bibliographic record that represents a specific person responsible for or related to the resource.

Physical description – The description of the book that includes the number of pages or leaves, details about types of illustrations, and the size of the item. Each format has different details that are noted in the physical description that characterize what the item is, the type of sound or video, etc., and the size.

Preliminaries – Title page, t.p. verso, any pages preceding the t.p., and the cover. Preliminaries are often preferred sources of information for certain parts of the bibliographic description.

Publication: Professional: any publication which is produced or published by an organization of professionals in a field.

Publication: Refereed: a publication which contains articles that have been reviewed by other professionals (peers) in the field and accepted for publication.

Publication: Scholarly: a publication that contains articles by scholars or researchers in a field. Professional and refereed publications could be included with these.

Realia: Is a term associated with libraries and are objects such as coins, tools, and textiles that do not easily fit into the orderly categories of printed material. It is also used for objects from real life used in classroom education. It concretises vocabulary and language and places it within a frame of reference. It also allows language learners to see, hear, and in some cases, touch the objects. For example, to illustrate and teach concepts such as animals, clothing, fruits, etc., we use pieces of clothing, toy animals, and plastic fruit. It's a useful tool in making the abstract concrete.

Refereed Publication: see "Publication: Refereed".

References – Links that take a searcher from an unused heading to a used heading (See reference) or from a used heading to another related used heading (See also reference).

Reference Librarian: the librarian assigned to help find needed information using the catalogue, online sources, the reference collection and other sources.

Running Title: A title that is repeated at the head of foot of each page.

Shelf Location: A word or number that designates the classification of the title and therefore its location on the library shelf.

Sears – Sears List of Subject Headings. Subject headings primarily used by small- to medium-sized public and school libraries; has accompanying **DDC** numbers.

Serials - publications issued at regular intervals--daily, weekly, monthly, quarterly, annually, or biennially-- and are generally intended to be continued indefinitely. Serials include Periodicals as well as annual publications, proceedings, and transactions.

Sine Loco (s.l.): Place of publication is unknown.

Sine nomine (s.n.): Publisher is unknown.

Special Collections: area of the library where old and valuable books, historical collections, and university materials are kept under special conditions.

Statement of responsibility – Statement related to the person(s) responsible for the intellectual or artistic content of the item.

Stacks - the sections or areas of the library where the collection is stored. Books and periodicals are arranged on shelves in the stacks and grouped by call numbers.

SCRPC- Standard Cataloguing Rules and Practices Committee

Subject analysis – Subject analysis is the function of using controlled vocabulary to tell what the item is about and/or to describe what the item is. Controlled vocabulary means that everyone is using the same term to describe the same concept or type of item.

Subject headings- Words or phrases assigned to books and articles to index these items by topic. Determining the correct headings (also called descriptors) for a specific database or catalogue is important for effective research. See also **Controlled Vocabulary** and **Thesaurus**.

Technical reading – Examining an item; i.e. a book to create an accurate bibliographic description, considering the chief source of information; presence or absence of contents page, bibliography and/or index; cover and jacket information; size, pagination, illustrations. A similar process should be used with other formats, examining the chief source of information for that format, and all other pertinent information.

T.p. (title page) – Page at beginning of the item, bearing the title proper and usually the statement of responsibility and sometimes publication information.

T.p. substitute – If the item doesn't have a t.p., the t.p. substitute is the source used to notate information usually taken from the t.p.

Title proper – Main title; usually from the t.p. or t.p. substitute; does not include the subtitle or other title information.

Title Page: A page at the beginning of the item bearing the title proper and usually, though not necessarily, the statement of responsibility and the data relating to publication.

Union catalogue- A catalogue that represents the holdings of more than one repository (archive, library, museum, etc.).

Z39.50 Information Retrieval Protocol (Z39.50/ISO 23950) : A computer protocol that can be implemented on any operating system and that defines a standard way for two computers to communicate for the purpose of information retrieval. A Z39.50 implementation enables one interface to access multiple systems providing the end-user with nearly transparent access to other systems.

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