



COURSE INFORMATION

Course Code: LIS 205

Course Title: Internet and Information Search

Credit Unit: 2
Course Status: Compulsory
Semester: 2nd
Required study Hour: 1 hour per day
Course Edition: First

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Ice Breaker

Upload your passport and introduce yourself by stating your names, what you do for a living, your hobbies, your expectation in this course and the name you would prefer to be called during this course

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Published by:

National Open University of Nigeria
Headquarters, University Village
Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway
Jabi, Abuja, Nigeria

Printed by NOUN Press np@nou.edu.ng

ISBN:

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COURSE GUIDE

LIS 205: INTERNET AND INFORMATION SEARCH

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Summary

INTRODUCTION

Library and Information Services 205 (LIS 205) covers the broad subject area titled Internet and Information Searching II. It is an advanced course and builds on the 200 level version titled LIS 205: Internet and Information Searching II. LIS 205 has five modules divided into 18 units. Students will be taken through fundamental definition of related concepts such as the internet, domain name, search engines and search strategies. Web-based data communication standard will be explained and focus will also be beamed on web services, web-sites, social media network, Library 2.0, new paradigms for information service delivery and emerging issues for library and information professionals.

The major objective of the course guide is to enable the student to navigate through LIS 205, locate course materials, and participate in tutorial sessions at their study centers.

AIMS

The basic purpose of LIS 205 is to take students beyond the fundamentals of the internet as a network of networks to an advanced understanding of the dynamics of information searching in that environment. Beyond the basics, students will understand distributed application using web services, library websites, blogs, portals and the challenges of searching in network environments.

COURSE OBJECTIVES

Achieving the aims set forth above will require the articulation of strategic objectives as guideposts to students who take this course. The objectives are critical to help students to assess their progress towards the completion of LIS 309. Students who complete LIS 205 would be able to:

- Define and describe internet and domain names;
- Describe search engines and how they work
- Acquire internet search skills and strategies.
- Understand basic data communication standards such as HTML, CML, HTTP, URL.
- Explain distributed application web services such as RMI, RSS, AJAX, JSON-RPC, WSP.
- Clarify web services description concepts such as web description language, web service flow language, web service metadata exchange, XML Interface Network Services.
- Describe library websites and how they are useful to library and information centres.
- Differentiate between static and dynamic library websites.
- Explain web directories and subject gateways.
- Describe the functions of library blogs and portals.
- Understand the various Social Media Network such as Facebook, YouTube, Intragram, Twitter, Blogs and Wiki's
- Describe concepts such as RSS, Podcasting Internet Messaging (IM).
- Understand and explain emerging technologies such as Web 2.0, Library 2.0.
- Describe new paradigms for information service delivery.
- Outline and explain challenges of information searching in a networked environment.
- Highlight and describe emerging issues for library and information professionals.

WORKING THROUGH LIS 205

Undertaking this course is a work in progress and there are vital steps/secrets that will guarantee successful completion of LIS 205. The first vital step is to studiously cover the modules and units of the course. Secondly, compete practical exercises and assessment. Thirdly, get and

read recommended textbooks and other materials related to the course. Fourthly, actively participate in the practical session and online facilitation at the study centre. Fifthly, master the course content/structure consisting of introduction, aims and objectives, expected outcomes, summary and conclusion. Sixthly, access online resources by clicking on the links provided in this module. Seventhly, complete all Tutor-Marked Assignments which are objective assessment of your progress in the course. Finally, downloading the courseware will assist you to study it ubiquitously.

ASSESSMENT

Assessment for LIS 205 will consist of formative and summative approach. The formative approach is administered at the end of each study unit and the goal is to help students to objectively assess their progress or learning outcomes. For LIS 205 there will be three continuous assessments of 10% each (30% in all). The formative approach is in the form of Computer-Based Test (CBT). The final examination is compulsory for all students.

STUDY UNITS

There are 18 study units in this course, divided into six modules. The modules and units are presented as follows:

Module 1: Internet Searches: Definition and Description of Concepts

Unit 1: Introduction to Internet and Domain Name

Unit 2: Search Engines

Unit 3: Internet Search Strategies

Unit 4: Prerequisites for Internet Access in Libraries

Module 2: Data Communication Standard in the Internet

Unit 1: Understanding HTML, XML, HTTP, URL

Unit 2: Distributed Application Using Web Services RMI, RSS

Unit 3: Types of Web Services

Module 3: Library Websites for Library and Information Centres

Unit 1: Static and Dynamic Website

Unit 2: Subject Gateways and Subject Directories

Unit 3: Web Directories and Library Portals

Module 4: Social Media Networks 1

Unit 1: Evolution of Social Media

Unit 2: Facebook, YouTube, Instagram and Twitter

Unit 3: Blogs, Bookmarking, Wikis

Modules 5: Social Media Network II

Unit 1: Other emerging Library 2.0 tools

Unit 2: Library 2.0 Tools and Technologies for the Transformation of
Information Service Delivery

Unit 3: Challenges of Information Search in a network Environments

Unit 4: Emerging Issues for Library and Information Professionals

Unit 5: Emerging Management Imperatives for Information Professionals

COURSE MATERIALS

Students who take this course will be presented with relevant materials to facilitate their learning experience. The materials will include

- Recommended textbooks;
- LIS 205 Course guide;
- Study Units;
- Appropriate sources; and
- Assignment file

Students who consult and use the above materials are likely to better than those who fail to do so.

ASSESSMENT

The Presentation Schedule

Tutor Marked Assignments

Final Examination and Grading

MODULE 1: INTERNET SEARCHES: DEFINITION AND DESCRIPTION OF CONCEPTS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Introduction to Internet
 - 3.2 Domain Name
 - 3.3 Search Engines
 - 3.4 Internet Search Strategies
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This unit will introduce you to basic concepts such as the internet and related terms such as domain names. Students will get to know issues related to the historical development of the internet, the differences between the Net and the Web. Students will also learn about domain names, their types and usefulness.

2.0 OBJECTIVES

By the end of this unit, you will be able to:

- Define the internet in its global, network and wholesome contexts.
- Distinguish between the internet and World Wide Web
- Describe domains names
- Describe the types and uses of domain names

- 3.0 Main Content
 - 3.1 The Internet

- 3.2 History of the internet
- 3.2 Differences between the Internet and the World Wide Web
- 3.3 Domain Names
- 3.3 Types and Uses of Domain Names

UNIT 1: INTRODUCTION TO INTERNET AND DOMAIN NAME

3.1 Internet: Definition and Description

INTRODUCTION

Can you imagine a world without the internet? It will mean a world operating as isolated islands, disconnected places and dislocated people. It would mean operating in the analogue or physical ecosystem with all the limitations imposed by time and space. The emergence of internet has turned the world into global village of actions, reactions and interactions in the cultural, social, and scientific communities. There are three quick takeaways. Firstly, is the global nature of the internet. In this regard, the internet can be rightly defined as ‘the global system of interconnected computer networks that uses the Internet protocol suite (TCP/IP) to communicate between networks and devices’. The second takeaway deals with the network aspect of the internet. It can therefore be described as the network of networks because it integrates “private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. The third takeaway concerns the vastness of information. It is now public knowledge that the internet superhighway conveys has emerged as a carrier of information of in text, audio, and video formats.

3.2. The Net: A historical perspective

The development of the Internet (simply call the Net in this module) can be attributed to the result of advances in research in the United States of America by the early researchers of the U.S. Defense Advanced Research Projects Agency (DARPA also known as ARPA). Liebscher, P. et. al. (1997) indicate that the Internet came into existence as a result of technological evolution on packet switching and the ARPANET by the early researchers. The Net represents the interconnection of millions of computers globally and could be called Internetworked systems. The year 1969 is regarded as the dateline for the birth of the Net with the funding of the Advanced Research Projects Agency Network (ARPANET) for research in electronic communication by the United States government. A

year later (1970), the Advanced Research Projects Agency developed protocols that facilitated the electronic communication. According to Stephen (2003), during the 1970s, about 200 network of computers of the military and research establishments of the USA were linked from the initial network of only four computers. By the middle of 1980, many academic networks had been set up, which combined with the ARPAnet to form the Internet.

3.2.1 The Emergence of the Internet: Implications: Three implications can be discerned from evolution of the Net. Large volumes of information resources have migrated from the analogue domain to the electronic environment. Instead of physical books we now have electronic books. Secondly, barriers created by distance have been blurred by the internet. Internet-held resources can be accessed from far and near. Thirdly, information resources on the Net keep growing exponentially, in various electronic formats-eBooks, e-journals, texts, video, and audio. (Schmidt, 2003).

3.2.3 Types of Internet Resources The internet supports multiples of different operational and experimental services, a few of the most popular include: e-mail, which allows a message to be sent from one person to another or to many others, via computer. The Internet provides an activation of sight, sound and cognitive reasoning, engaging students as active learners. The services and resources available on the Net are as follows: discussion groups, Usenet news groups; directories search engines, the World Wide Web (www), Telnet; file transfer protocol (FTP), E-mail, electronic books and journals, Websites, subject gateways, subject directories;

3.2.5 Capacity to use Internet Resources

The capacity to access and use internet resources depends on the possession of critical competencies (Okello-Obura & Magara, 2008; Tella, Tella & Ayeni, 2007). Information literacy, Internet literacy, and ICT literacy, and

network literacy skills are essential for effective and efficient navigation of the Net. Information literacy deals with one's ability to recognize his need for information, articulate that need and develop appropriate search strategies to enable access to information. It also includes ability to evaluate information and use it to achieve decision accuracy. Internet literacy is the possession of all critical skills needed navigate the Net, assess the usefulness of accessed information and communicate on the internet. On the other hand, the ability to work in various network platforms is the subject matter of network literacy.

The domain of ICT literacy is the capacity to use tools of technology such computers, and smart systems to work and navigate the internet environment. ICT skills refer to the students being comfortable or capable of using computers and other ICT devices. It is obvious that the multiple range of electronic resources cannot be fully utilized without the acquisition of skills which are germane to maximum exploitation of internet resources and services (Okello-Obura & Magara, 2008). The ICT skills play critical roles in building up electronic resources, their networking, access, sharing and maintenance.

3.2.6 The Roles of Libraries

Librarians and libraries of all typologies are in vantage position to assist users to acquire basic skills to access and use internet resources and services. In academic libraries users must be trained on basic ICT, information literacy and networking skills. The library week and orientation programmes must be infused with objectives designed to acquaint freshmen with internet resources and services available in their libraries. It is important that academic libraries assist higher education students acquire vital skills which will enable them carry out their academic work. The transformation of school libraries into media resource centres is clear evidence that children who are largely digital natives have the edge in using digital resources if properly guided. The public libraries as the university of the people are now provided with the technological framework to foster internet and ICT-driven lifelong learning through distant learning programmes. Moreover, libraries of all categories can now build expansive collection by concentrating more on the acquisition of electronic collections like encyclopedias e-journals, e-books, and e-reference materials in various subject areas.



Source: Free internet logo vector @<https://www.google.com/url?>

3.3 The Net & Web Differentiated

The above internet logo seems to suggest that the internet and World Wide Web mean the same thing. While there are meeting points between both concepts, they are not particularly the same. The difference between the Internet and World Wide Web are identified by Sambama (n.d.) and Shrikhande (1997) as stated below:

1. The internet is concerned with collection of computers that share information while the World Wide Web links information that are stored on different computers together.
2. The Net is governed by Internet Protocol (set of rules, laws and regulations), the IP also deals with data which can be transmitted through the internet while the World Wide Web is governed by Hyper Text Transfer Protocol (HTTP).
3. In nature, the Internet is collection of Computer networks that are usually connected through copper wires or fiber-optics or wireless cables while the World Wide Web is software which is a collection of web pages that are connected through hyperlinks and URL's.
4. By composition, the Internet consists of Network of computers, copper wires, wireless networks and fibre-optic cables while the Web made up of files, folders and documents that are stored in different computers.
5. The Net makes the Web accessible likewise other interlinked web pages.
6. Basically, the Internet is hardware-based while the World Wide Web is software-based.
7. The World Wide Web permits individuals to share information or data globally from the large database repositories.

8. The World Wide Web works with a browser which is a software program that makes computer to display documents identify hypertext links and retrieve linked files.
9. The Web is the largest source of network traffic of the world that links information together.
10. By invention, Sir Tim Berners Lee has the credit for invention of the World Wide Web in 1989. However, when it was adopted four years later developed a “network of networks” which later became the modern-day Internet.

3.4 Domain names

Domain name can be defined as a name for a website which allows people to find and navigate it easily. It is usually what people type on the web browsers of their computers to gain access to a website. Pope, Warkentin, Mutchler and Luo (2012) noted that the Domain Name Systems (DNS) is “the translation system that turns an internet host name (domain name) into the unique series of numbers which constitute an Internet Protocol (IP) address of each specific domain name.” By extension, DNS can handle or translate up to 20 billion of address which come in form of requests every day. They further described that DNS is vital to the completion of such requests.

3.5 Types and Uses of Domain Names

There are five types of domain. According to Wood (2019), they are Generic Top-Level Domain, Top-Level Domain, Country Code Top Level Domain, Second-Level Domain and Third Level Domain.

1. Top-Level Domains (TLDs): This type of domain is number one of the internet hierarchy of domain names. Individuals, companies and organizations can register at TLD’s for building up their sites. However, considerations are given in choosing the domain names that align with one’s brand and overall domain. E.g. .com, .info, .org, .net and .site.
2. Generic Top-Level Domains (gTLDs): This type of domain is a different variation of a Top Level Domain and can be classified as a TLD technically. Specifically, it reflects the organization that owns it. E.g. “.edu” which is an educational institutions, “.org” a non-profit organization etc.
3. The ccTLD which is the acronym for Country Code Top Level Domains is a class of domains which are technically allocated to different countries. Many countries use their countries abbreviation for extension in country code. For instance “.ng” can be used for Nigeria, “.us” for United States.

4. Second –Level Domains: The second- level domains give information more on the second piece of the domain name e.g. www.unn.edu.ng. In addition, country code second-level domain exists e.g. “.co.ng” for companies in Nigeria, and “.gov.ng” for government in Nigeria. Thus .gov give you the information that a government institution is involved while .edu implies that the institution involved is an educational institution.
5. Third Level Domains: This type of domain is below second-level domain in hierarchy. However, it is not a full domain name but a part and parcel of it e.g. in www.unn.edu, the third level domain is the “www”. At present, the third level domain is not always necessary as information can be retrieved without adding it to other domains. This simply implies that one can reach the University of Nigeria website with unn.edu.ng without the prefix www.

4.0 CONCLUSION

Students have been introduced to the Net/internet as a global network of interconnected networks. The unit has provided a comprehensive definition and description of the global information system. Moreover, the unit introduced you to domain name and types and uses of domain names.

5.0 SUMMARY

The Net integrates millions of computers and computer networks on a global basis. It is the network of networks because it integrates “private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies.” The internet has a large quantity of information resources and services, accessible from around the world. On the other hand, a domain name is a name for a website that allows people to find and navigate it easily.

SELF-ASSESSMENT EXERCISES

- 1.What is a domain name?
- 2.Mention five types of domain names

6.0 TUTOR MARK ASSESSMENT

1. Define the internet from global, network and volume of information resources
2. Identify the types of resources available on the internet.
3. Highlight the importance of the internet to the academic community.
4. Differentiate between the internet and World Wide Web?

7.0 References/Further Readings

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UNIT 2: SEARCH ENGINES

CONTENTS

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2.0 OBJECTIVES

3.0 MAIN CONTENT

3.1 Definition and description of search engines

3.2 How search engines work

3.3 Search engines: Merits and demerits

3.4 Search engines: Examples

3.5 Time to use search engines

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/Further Reading

1.0 INTRODUCTION

This unit will introduce you to search engines and provide you with a historical perspective of search engines and how they work.

2.0 OBJECTIVES

By the end of this unit, you will be able to:

- Define and describe search engines.
- Describe how search engines work
- Highlight the merits and demerits
- Give examples of search engines
- Understand when to use search engines

3.0 MAIN CONTENT

- 3.1 Definition and description of search engines
- 3.2 How search engines work
- 3.3 Search engines: Merits and demerits
- 3.4 Search engines: Examples
- 3.5 Time to use search engines

INTRODUCTION

Search Engine (SE) Defined

How will define the SE concept? It is a software programme designed to search for information on the Web environment. A search engine helps users to find information contained in the World Wide Web which contains vast amount of information (Stephen, 2003).

Furthermore, Naik and Shivalingaiah (2004) view search engine as a program that indexes other web pages and as a collection of software programs that harvest information from the web, index it and put it in a database so that it can be searched. To search information on the internet could be very tasking. This is because the internet content is vast and diverse. With the aid of search tools, information search could be made easy using the three main search tools like the search engines, Meta Engines, and directories.

Search engines facilitate the retrieval of desired information and resources from the large segment of the Internet and attempt to help users to retrieve precisely the information they need. This achieved by trying to matches to unspecified key words. The word or phrase one is searching for while using a search engine are entered into a text field which in turn produces a list of web pages and sites that match the search words. Ambrose et.al. (2005) pointed out that all search engines support key word searches while some search engines support concept- based searching as the search term determines what the searcher is looking for and return hits (number of returns or web sites based on one's keywords) on Web sites that relate to the keywords. There are search engines that bring out data available in databases or open directories. The difference between search engines and web directories is that unlike web directories, which are maintained only by human editors, search engines also maintain real-time information by running an algorithm on a web crawler. Google, Excite, Baidu, Bing, Yahoo!, AltaVista, AOL, Infoseek, Ask, and Lycos are good examples of search engines

3.2 Search Engine Operation

It is important to understand how SEs work? First they work by finding and isolating information. This is achieved because of the search engines' ability to compile indexes. Secondly by maintaining the compiled indexes of web resources users can now query web resources using keywords or concepts (Naik & Shivalingaiah, 2004). Furthermore, indexes are derived from specific resource lists, and may be created from the output of web spiders, robots or worms, crawlers and wanderers. The compilation of indices normally occurs during moments of optimal network traffic. It is significant to note that search engines operate also by allowing the user enter queries in form of words or concepts and try to find the closest match in its database.

It has been pointed out in the previous section that SEs compile their databases by employing "spiders" or "robots" ("bots") to crawl through web space from link to link, identifying and perusing pages. Once the spiders get to a website, they typically index most of the words on the publicly available pages at the site. Web page owners may submit their URLs to search engines for "crawling" and eventual inclusion in their databases. Anytime you search the web using a search engine, you're requesting the engine to scan its index of sites and match your keywords and phrases with those in the texts of documents within the engine's database. It is important to note that when you are using a search engine, you are NOT searching the entire web as it exists at this moment. You are actually searching a portion of the web, captured in a fixed index created at an earlier date. How timely? It's difficult to preempt. Spiders regularly return to the web pages they index to look for changes. When changes occur, the index is updated to reflect the new information. However, the process of updating can take a while, depending upon how often the spiders make their rounds and then, how promptly the information they gather is added to the index. Until a page has been both "Spider" linked and "indexed," you won't be able to access the new information.

3.3 Search Engines: Merits and Demerits

Search engines are recognised for their ability to serve as windows to enormous public domain information available on Web pages. The web is growing exponentially and this the critical reason why appropriate search tool are needed to safely navigate the Web waters. This is what search engines are designed to do. They represent the best means of searching the web. The down side is that the sheer number of words indexed by search engines increase the likelihood that they will return hundreds of thousands of responses to simple search requests. They will return lengthy documents in which your keyword appears only once. Usually, many of these responses will be irrelevant to your search.

3.4 Search Engines: Examples

Here are examples of some useful search engines: Alta vista, Northern light and Hotbot are rated as the biggest search engines. Others include Web Crawler, Lycos, Excite, Infoseek, Google, Bing, Yahoo!, & MSN. Google is the most popular and familiar search engine that most patrons use. Basically, there are three kinds of search engines- individual, meta search engines and directories.

- **Individual search engines** compile their own searchable databases on the web.
- **Meta Engines:** Meta search engines do not compile databases. Instead, they search the databases of multiple sets of individual engines simultaneously. They serve as search agents that assist in scanning the contents of some of the sites by gathering information from several search engines examples are Dogpile and Meta Crawler they can search plenty search engines at a time.
- **Directories:** This class of search engines aid browsing of many sites based on topics. They are arranged by subject groups in alphabetical order and are often compiled by human beings. Examples are Lycos, Infoseek, and Yahoo. The search method is direct. The topic is keyed in and it drops down all there is on that topic that is available but not necessarily relevant.

3.5 When do you engage the services of search engines?

They are useful for the discovery of:

- Unique phrases
- Quotes
- Keyword
- Buried information in full-text web pages and
- Diverse responses to specific searches otherwise called queries.

4.0 CONCLUSION

Search engines are inevitable tools for the web because the sheer complexity and volume of information on the web requires strategic retrieval framework to locate materials on the web. Without search engine it will be difficult to navigate the complex labyrinth of the web.

5.0 SUMMARY

Search engines are primarily designed to facilitate effective retrieval of web resources. Some good examples of search engines are: Alta vista, Northern light and Hotbot are rated as the biggest search engines. Others include Web Crawler, Lycos, Excite, Infoseek, Google, Bing, Yahoo!, & MSN. Google is probably, the most popular and familiar search engine that majority of people use.

SELF-ASSESSMENT EXERCISES

1. Why are search engine necessary tools for the web?
2. What are the merits and demerits of search engines?

6.0 TUTOR MARKED ASSIGNMENT

1. Define search engines
2. Give examples of search engines
3. When do you use search engines?

7.0 REFERENCES/FURTHER READING

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UNIT 3: INTERNET SEARCH STRATEGIES

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1.0 INTRODUCTION

This unit will introduce you to search engines and provide you with a historical perspective of search engines and how they work.

2.0 OBJECTIVES

By the end of this unit, you will be able to:

- Learn various internet search strategies.
- Employ these strategies in practice

3.0 Main Content

3.1 Effective Internet Search Strategies

There are different search strategies or techniques. However, in finding information, there are basic things required by the in order to have a successful search. The knowledge of the search techniques is vital among other things. Akoyulu (2002) and Brehim (1999), Xie and Joo (2010) as cited in Eke, Omekwu and Agbo, (2014) highlighted these searching strategies. They are:

1. Boolean operators,
2. Phrase searching,
3. Fuzzy search,

4. Proximity searching/matching,
5. Stemming and substitution,
6. Wildcard searches and
7. Truncation searches.

3.2 Practical approach to internet search

There are several practical ways to search the internet; they are described below.

The Boolean Operators

These are commands given to search engines while searching for information on the internet. Boolean logic is a way to search databases for effective results. Ambrose et. al. (2005) revealed that the Boolean logics are three logical operators which are (and, not, or). Xie and Joo (2010) as cited in Eke, Omekwu and Agbo (2014) added that the Boolean operators or search commands are: and, or, not, near, and none. These words are used to join keywords in a search in order to have desired results and delimit unnecessary records from the search return.

Example (A)

1. Rice and Beans
2. Atlas and Maps
3. Cakes and Pastries

The (AND) is used to find relationship between two things as listed above.

Example (B)

1. Rice or Beans
2. Atlas or Maps
3. Cakes or Pastries

It is advisable to use Boolean logic (OR) when searching for similar terms, concepts, and things.

Example (C)

1. Rice not Beans
2. Atlas not Maps
3. Cakes not Pastries

The Boolean logic (NOT) can be used when one thing is preferred to the other.

Phrase Searching

Phrase searching is conducting a search using a phrase which must be enclosed with double quotation marks. They match words that are adjacent to each other based on the order the searcher specifies.

Examples:

1. "Blessing Curse"
2. "Tomatoes Cucumbers"
3. "Computer Phone"

In the above examples enclosed in double quotation marks, the results from the website would contain results from each word without any quotation mark.

Fuzzy Search

In this type of search, the search engine retrieves document it considers relevant. In most cases, the terms used to formulate the query may not be evident anywhere in the documents that are matched.

Example

African- when typed in the query can bring results that do not match the query or search terms at all. It can bring such result as African culture, African dressing, African hairstyle etc.

Proximity Searching/Matching

Proximity searching is most useful when searching is targeted at two or more concepts or words that are contained in a specified number of words in the database. There is always intervening words in between the proximity search which may occur within 1,2,3, or more words.

Examples

1. Group* Studies
2. Social*Sciences
3. Trade* Union

Stemming and Substitution

Stemming is another feature that is supported by some search engines. For instance, when one searches for a word, another word is added or included by the search engine. In other word, the search engine adds other stems of the word.

Example: when you search for the word *sing*, the search engine may add other related words such that the result you would get may include: (singing, singer etc.)

Wildcard Searching:

This involves putting special characters like asterisk especially when uncertain about the spelling of a word. Special characters like asterisk are known as wildcard character in Alta vista.

Examples:

1. Computer accessories and Sphygmomanometers Thermometers

If the searcher does not know the spelling of Sphygmomanometers, he/ she may consider using wildcard thus: “computer accessories” and “S* Thermometers”. The wildcard or asterisk can be either at the beginning or ending of a word. It also varies according to search engines. Other wildcard characters include:

- + This sign shows a must include term.
- - This sign shows a must exclude term.
- ‘ This sign shows a must include phrase.
- () This sign specifies a set of terms.
- : Generally, this sign is used to isolate the reserved word from the search term.
- The asterisk sign (*) It specifies search term truncation).

Truncation Searches

The approach here is to put a symbol immediately at the end of the words. The goal is to facilitate the easy search for different endings of such a word.

Examples

1. *Socio* would retrieve documents containing sociology, sociological, and sociologically.
2. *Univer* would retrieve documents containing universe, universal, and university.

According to Naik and Shivalingaiah (2004), there are other search options available and they include:

- Natural language processing
- Vectors
- Browsing of concepts
- Automatic matching
- Non-English character matching
- Special features (e.g. price-range searching)

- Spelling error tolerance
- Thesaurus and
- Query by example

4.0 CONCLUSION

Getting the best retrieval result from the internet requires the use of effective search strategies otherwise, the principle of garbage in garbage out applies. This simply means that a wrong search input will always get a wrong output or result.

5.0 SUMMARY

The Unit has described practical strategies of the best result from searching the internet. The approaches include: Boolean operators, phrase searching, fuzzy search, proximity searching/matching, stemming and substitution, wildcard searching and truncation.

SELF-ASSESSMENT EXERCISES

1. What is phrase searching?
2. Illustrate phrase searching/

6.0 TUTOR-MARKED ASSESSMENT

1. When do you use Boolean operator?
2. Give examples of Boolean operators.
3. Give examples of proximity searching.
4. Illustrate wildcard searching.

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UNIT 4: INTERNET ACCESS IN LIBRARIES: THE PREREQUISITES

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
- 3.1 Issues Behind the Perquisites**
- 3.2 Prerequisites for Internet access for libraries**
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This unit will raise your awareness of the prior conditions for internet access in libraries.

2.0 OBJECTIVES

By the end of this unit, you will:

- Describe the necessary terms and conditions for accessing the Internet in the library
- State why these rules are necessary.
- Provide guidelines for the library to use the Internet.

3.1 Issues Behind the Prerequisites

Internet has become an indispensable tool for libraries. In the era of ‘click and or convenient Internet access, information professionals are facing increasing challenges to prove the relevance of information institutions. In response to this challenge, libraries and information institutions actively use the Internet for public services and internal operations, and make the Internet an indispensable part of the library service facility.

The rapid development of the Internet has led to the trend of providing Internet services and basic library services for library staff and users. Odero (2007) explored the Internet access of Kenyan universities since the 1990s and found that in some universities, computers connected to the Internet are located in specific rooms under administration, and staff must obtain permission from the administration department of the library before using the library Internet. Others charge employees for Internet use and ensure access during lunch breaks or a limited time after leaving work. He also noted that none of the libraries offer adequate training programs for their staff and if they do, they are primarily for senior members. Training on the Internet is largely left to individual initiative. Like other libraries, provision of internet in public libraries almost began in the 1990s. Jaeger, Bertot, McClure, and Rodríguez (2007) argued that between 2004 and 2006, 98.9% of public library branches in the United States were connected to the Internet, and 98.4% of networked public library branches provided public access to the Internet. However, there are differences in the number of visits, the types of visits, and the number of visits that can be used to meet the customer's needs. Users and communities, and now government organizations, rely on the fact that everyone who needs the Internet can access the Internet.

Internet access allows access to a variety of information, including information that some people classify as inappropriate in public places such as libraries. Librarians subsequently face the dilemma of whether to filter the Internet in the library, to delete materials deemed harmful or illegal, or to retain its traditional function of unreservedly providing information to the public. Restricting access to certain information is a censorship system, which violates people's basic right to obtain information. The implication is that information managers in the Internet era must do their work according to the provisions of enabling legal or legislative frameworks with responsible ethical position against rule that may any hinder access to information. They are professionally trained and therefore qualified to offer this vital advisory service to their organizations on legal requirements for access restrictions and eliminate unnecessary access restrictions. Let us now examine the conditions or prerequisites for internet access in libraries.

3.2 Prerequisites for Internet access for libraries

The IFLA Internet Declaration (IFLA 2014a) states that 'Library and information services should be essential gateways to the Internet, its resources and services. Their role is to act as access points which offer convenience, guidance and support, whilst helping overcome barriers created by differences in resources, technology and skills.' The following prerequisites are germane if libraries will fulfill their as access institutions:

3.2.1 Information Access Principles

The provision of public access to the Internet should be viewed as beneficial service which enhances the decision-making accuracy of users about lives. It is hereby argued that libraries and other information services institutions should provide unlimited internet access much as as possible, engaging reliable, and secure system configuration in the process.

Libraries should capitalise on their historical and traditional heritage as information custodians and become access providers use their unique resources and those that can be access globally. Access opportunities that meet users' information needs at ideas and exchanges, personal or universal, social, cultural and economic levels are vital access principles for libraries.

3.2.2 Internet Use Policy

This recommends that libraries and other institutions that provide Internet access to the public should formulate clearly stated, current and comprehensive policy framework for Internet usage. Another name for Internet use policies is Acceptable Use policies (AUP). The AUP clearly define the duties and responsibilities all stakeholders in the public Internet access equation, which include the ultimate users. The AUP MUST categorically state provide the purpose of the access, the objects of access, and any restrictions on use such as time restrictions, categories of content that are deemed not to meet the institutional requirements. Procedural issues such as procedures to guarantee access security such as the reservation and registration process, procedures and sanctions for abuse of access rights must be clearly delineated. While this list is nor exhaustive, the policy must be written in a simple and understandable language. It must be communicated to all users and publicized as a service and use contract between the library and its internet users.

3.2.3 For fees of for free: Usage fees

The IFLA's (2014) has recommended that libraries should carry out a vital function in providing Internet access without discrimination or fees to users, libraries and information services should strive to provide free public Internet and Wi-Fi at the point of use. The goal is to ensure digital inclusion for all socio-economic groups. If this is not possible, based on income levels, users should be able to afford the fees charged for public access. Libraries are also spaces for exchanging ideas, promoting teaching, learning and creativity and free access to the Internet for the exchange of ideas can extend this narrative.

3.2.4 Issue of Transparency

Issues related access restrictions and preservation of personal data must be transparently discussed. These provisions should be clearly explained in the Internet use policy and terms and conditions of use, and library staff should

receive appropriate training to be able to report and explain these issues to users.

3.2.5 Decision to Filter Content

Libraries serve diverse community of users, ranging from children, young adults and matured men and women. Therefore, there are web contents that are certainly harmful to children and young adults. To shield the vulnerable from harmful contents is the main reason for filtering. To filter or otherwise, will depend on some factors or addressing some questions. Firstly, what the legality of the content? Two, what is the local standard, legislation or subsisting regulation? Three, what is the appropriateness of the content with the social and cultural context of the content being accesses? To what extent does filtering software provide accurate and perfect solution so as not to result to excessive or insufficient blocking. As a rule of the thumb, information professionals should also promote the lowest level of content filtering as soon as legal compliance can be guaranteed.

3.2.6 Unblocking content

Internet access policy should contain clear provisions on unblocking improperly blocked content while at the same time empowering information managers with the necessary skills and knowledge to understand and explain why a particular site is blocked; be able to determine whether it is appropriate to unblock the site; and, if necessary, be able to unblock the site without cumbersome red tape.

3.2.7 User's privacy

It must respect the privacy of users. Where possible, visitors should be allowed to access the public Internet without a recognizable login name to allow free consultation. Whenever possible, there should be the installation of privacy screens. This will enable users to utilize online services without being viewed improperly by other users.

3.2.8 Provision for the vulnerable

What must libraries do libraries to guarantee that physically challenged have access to internet provided in the public space? To achieve this in just and equitable manner, libraries must acknowledge that there are members of their user community who have a wide range of different abilities, disabilities and capabilities. They must commit providing access rights to people who are the vulnerable based on challenges. to access to include accessibility Functional technology. The United Nations Convention on the Rights of Persons with Disabilities (United Nations, 2006) has provided that the functional needs of persons who are physically challenged must be remembered, respected and responded to.

3.2.9 Minors' safety and use of the Internet

Libraries have a moral responsibility to protect children from harmful online materials. This is consistent with provision of the United Nations Convention on the Rights of the Child (UN 1989, Article 17). It stipulates that “the government must help protect children from materials that may harm them”. However, this should not be a basis for excessive filtering or censorship. It is important to consider the role of age bracket, parental consent and the place of user education play in helping minors learn to evaluate information and use the Internet safely. The statement of the IFLA Children's and Youth Libraries Division on Social Media, *Children and Young People @ Library* offers librarians, parents, children and young people a useful guide on safety, privacy and behavior online (International Atlas) United Children and Youth Library, 2015).

3.2.10 Education and computer training

User education provided by library managers is vital to enable library users get the best from Web-held information resources. User education should therefore be provided to users. It should include regular courses for both parents and their children. Beyond education on safe Internet use, libraries can also benefit new computer and Internet users by providing basic computer training. Public libraries that provide publicly accessible computers are in a unique position to solve the digital divide by developing digital skills. Beyond basic computer training, user education should also include media and information literacy skills. This will help users to develop skills and the ability to achieve the following:

- Assess the quality, authenticity and appropriateness of information and communications;
- Evaluate the current affairs of information; and
- Understand and respect intellectual property rights.

3.2.11 Employee Training

In the context of providing public internet access, why should library staff be trained? The reasons are as follows:

- 1) They need to understand the basic ethical, social, political and legal, impact of Internet use and usage restrictions.
- 2) Staff should also be regularly trained on usage policies to understand access restrictions and how to remove them,
- 3) Library staff needs training on best practices for user education and effective teaching practices for users about Internet access and free access to information in order to better empower and support the user community.

- 4) Library workers should also receive training to answer questions about the use of filtering software, the basic principles of any access filtering, the categories of blocked content, and the requirements for unblocking sites.
- 5) Training should be provided to higher-level personnel to acquire propaganda skills and a deeper understanding of public policies related to issues such as human rights, protection of minors, intellectual freedom, intellectual property rights, privacy and incitement issues.

3.2.12 Social Networks

The pervasive impact of social media network in libraries can longer be ignored. How should libraries handle the presence of social in libraries? Since social media platforms are Web-driven, it will be proper if the platforms are treated the same as other content on the Internet, and the principle of allowing full access as far as possible within the scope of the law. Parents and guardians must take primary responsibility for their children's use of social media. TASCHA's 2012 study on public access computing emphasized that enabling and encouraging the responsible use of social media in libraries creates opportunities for citizens to "participate in online media production and grassroots economic mobilization" (Walton & Donner 2012: 2).

3.2.13 Wifi

The emergence and exponential increase mobile devices very evident. Their ownership and uses by library users are equally on the increase. Both in developed and developing countries. Many of these devices have internet connectivity. How should libraries handle internet access on mobile communication devices? It will appear that Wi-Fi internet access for library users is the way to go. In economic terms libraries could save a lot of money from the supply of personal computers. Wi-Fi is becoming more of a city or region issue rather than a library-specific issue. Advances in Wi-Fi technology have reduced the impact of bandwidth limitations. The same standards for unrestricted internet connectivity should be applicable to Wi-Fi and static access, especially since Wi-Fi is usually accessed through the user's own mobile device. Decisions about Wi-Fi access restrictions should take this into account.

3.2.14 Stakeholder review and participation

Sustainable provision of public internet access is critical to the work that libraries do in the digital age. Stakeholders review and participation are vital to achieve sustainable public internet access. Information institutions and service providers have the mandate to cooperate and negotiate with relevant local and national institutions, such as professional institutions, IFLA, Internet safety NGOs, and national Internet regulatory agencies (if applicable). Libraries and information services departments should

maintain high-level working relationships with relevant national Internet agencies, domain name regulators, and network security agencies to provide evidence that is useful for formulating policies and allow action to be taken in the event of content that is inappropriate being provided.

Librarians' work in the public internet space and its provision to users, must be guided by the ethical and professional principles of the profession. These will include intellectual property right, human rights, privacy rights freedom of access to information, freedom of expression, and support for any further development of policies and practices that provide public access to the Internet.

4.0 CONCLUSION

Filtering of library content on the Internet is causing a degree of censorship. It goes against the task of the library because it requires the library to restrict access to information. The library is responsible for serving a wide variety of communities with different preferences and perspectives. The right to share ideas freely, is one an essential right that moves a civilized nation forward.

5.0 SUMMARY

Given that the mission of libraries is to help access and apply the information needed for their personal and community development, it would be highly unethical to delete materials from the library's collection or restrict access to these materials. This has proven to be a challenge to librarians as total freedom might lead to corruption. Providing Internet access in libraries, with librarians as qualified intermediaries, is critical in bridging the gap and narrowing the digital divide. Privacy right, intellectual freedom, internet policy, user education, access right to minors and minors are among the prerequisites to the issue of public internet access.

SELF-ASSESSMENT EXERCISE

Do you think total freedom to internet access could be harmful to potential users? State your reasons

6.0 TUTOR-MARKED ASSIGNMENTS

1. Why is internet access in the library important?
2. List five (5) prior conditions the library has to consider before you give access to internet

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MODULE 2: DATA COMMUNICATION STANDARD ON THE INTERNET

This module will introduce you to basic data communication standards, describe distributed applications using web services and enable you to gain understanding of data communication languages such as HTML, XML, HTTP and URL.

CONTENT

Unit 1: Introduction to Data Communication

Unit 2: Distributed Application Using Web Services RMI, RSS

Unit 3: Understanding HTML, XML, HTTP, URL

UNIT 1: INTRODUCTION TO DATA COMMUNICATION

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Definition and description data of communication
 - 3.2 Data communication: critical aspects
 - 3.3 HTML, XML, HTTP, and URL
 - 3.4 Web Services
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This unit will introduce you to data communication, HTML, XML, HTTP, and URL

2.0 OBJECTIVES

By the end of this unit, you will be able to:

- Define and describe data communication

- State the major aspects of data communication
- Describe HTML, XML, HTTP, and URL
- Describe Distributed Application Using Web Services RMI, RSS

3.0 MAIN CONTENT

- 3.1 Definition and description of data communication
- 3.2 Major aspects of data communication
- 3.3 Description of HTML, XML, HTTP, and URL
- 3.4 Distributed Application Using Web Services RMI, RSS

3.1 Introduction to Data Communication

A critical feature of the Net is the large volume of information available that electronic environment. The next feature deals with the flow of information across geographical boundaries, educational institutions, political systems and legal jurisdictions. Data communications goes on in the electronic superhighway at all times. A proper definition of data communication will therefore, imply the exchange processes of digital data between two points among several points. Information is defined as processed data while knowledge is defined in the context of this module as information in applied form. Data communication occurs when digital information is received, processed, and shared among individuals and institutions. In summary, it is the transmission, reception, and processing information in digital format. The process involves the use of hardware devices and software called programmes. Delivery, accuracy, timeliness, and filter are the four critical elements of effective data communication systems. The two principles that set standards for data communication are the *de jure* and *de facto* rules. Dejure standards are set by the force of laws, rules and regulations. The *de jure* standards are created by the force of law, executive orders or administrative rule and regulations by the authorized regulatory agency. *De facto* standards are created by fact of use or conventions. Understandably therefore, data communication standard is all laws, regulations and rules that are signed by regulatory bodies to authenticate the standardization of protocols and networking.

3.2 Data Communication System: Critical Aspects

Every data communication system has five aspects consisting of a) the *message* from b) a *sender* to c) a *receiver* through d) a *transmission channel of medium* guided by e) a set of protocols. The message or information may be contained in a video, audio, or text. In data communication the sender may be an individual, a computer device, television network system or a telephone. The receiver may be an

individual, institution, a computer system or telephone device. The transmission channel or medium is the route that conveys the message. Cables, fibre optics, radio waves are common examples of transmission channels or medium. Generally, there are a set of rules that regulate communications among the parties. These rules or regulations are called in communication parlance protocols.

3.3 Understanding HTML, XML, HTTP, URL

3.3.1 The Hypertext Markup Language

The Hypertext Markup Language is a formatting system used to display materials retrieved from the Net. Document elements such as headings, paragraphs, and tables are specified by markup tags. In essence, they mark up a document for display by a computer program known as a Web browser. The Hypertext Markup Language remains standard markup language for creating Web pages; describing the structure of a Web page; and consists of a series of elements that instructs the browser on content display.

3.3.2 Understanding XML

The Extensible Markup Language (**XML**) is a text-based language. It uses tags to describe structured data including other markup languages. The language was designed to achieve two purposes: a) data storage and transportation and b) respond to machine-and-human readability. The data (or language) being described determines the XML's complexity.

3.3.3 Understanding HTTP-Hypertext Transfer Protocol

The HTTP stands for Hypertext Transfer Protocol. It is a web application protocol. The goal is to achieve distributed, collaborative, hypermedia information systems that allow users to communicate data on the World Wide Web. It is still the basic protocol of using the Net.

Operation

The mode of operation is on **request-response basis**. It enables users to interact with web resources. This is done by transmitting hypertext messages between clients and servers. The Hypertext Transfer Protocol clients basically use TCP (Transmission Control Protocol) linkages to interact with servers. The performance of tasks by HTTP depends on specific request methods.

3.3.4 Understanding URL

Whenever you open a search engine like Google, the browser will request to search Google or type a URL. The URL refers to Uniform Resource Locator. It takes you to the Web where the resource you are looking for is located. The URL consists of a subdirectory, a scheme, a top-level domain, a subdomain and a second level domain. The protocol, the internet address and the domain name are vital to accessing resources on the Web.

3.4 WBS-Web Services (WBS)

Essentially, WBS incorporates cloud technology, any software, or application, on a recognized web protocol (HTTP or HTTPS) to interoperate, communicate, and exchange data messaging throughout the Net. WBS are XML-centered data communication systems that use the Net for application-to-application exchange and interfacing. Involved in these processes are messages, documents, programs, and/or objects. It is essential to note that web services applications can be written in various languages and still be able to communicate by exchanging data between clients and servers. A web service is summoned by a client by sending a request via XML, and the service returns with an XML response. Essentially, web services availability is via an intranet or the Net and it uses standardized XML messaging system. It is self-describing using standard XML language and can be discovered through a simple location method. Finally, it is independent of a single operating system or programming language.

In practice web service interfaces between two sets of java, .net, or PHP applications and enhances access for these applications to communicate over a network or, a java app interacts with the java, .net, and PHP apps on the other end by way of the web service communicating an independent language.

Web services are beneficial across several business activities. Firstly, IT professionals and web architects use web services to streamline connectivity by minimizing development time. Where properly deployed, executives of organizations use it to achieve higher Return on Investment (ROI). For libraries it may translate to higher response rate in terms of service delivery. Efficient technology distribution throughout an entire network is achieved.

3.4.1 Types of WBS

The following are popular web services:

3.4.1.1AJAX

AJAX: is asynchronous Java script and XML. It is not a programming language. It simply uses a combination of browser built in XML-HTTP to request object or data from a web server and uses java script and HTML DOM to display or use the data.

3.4.1.2 JSON-RPC

This acronym stands for **Java Script Object Notation-Remote Procedure Call**. It is text-based and very suitable for data interchange. The format is derived from the java scripting language.

3.4.1.3 JSON-WSP:

The full meaning of the acronym is **JavaScript Object Notation Web-Service Protocol**. This flow language was an XML programming language that IBM proposed in 2001. It was/is used for describing web services compositions. It supports two types of compositions and choreography. The flow model describes business process, how choreograph functionality provided for the collection of web server achieves a particular business need; the global model is for describing overall partner interaction it. The -description of how a set of WBS interact with each other is achieved.

3.4.1.4 WSME

The full meaning of WSME is Web Services Metadata Exchange WSME. A few things to know about WSME include that

- It is published by BEA systems, IBM, Microsoft and SAP.
- It is a web service protocol specification,
- Web Service metadata exchange is part of the WS-Federation roadmap and
- It is designed to work in conjunction with WS addressing, WSOL and web policy to allow retrieval of metadata about a web services endpoint.
- Web Services metadata exchange defines how metadata of services can be represented as a WS Transfer resources or how it can be embedded in a WS addressing endpoint reference.
- It also describes the standard formats for encapsulating metadata standard mechanism to retrieve them.

3.5 Internet Protocol (IP) Address

An IP address is set of numbers usually separated by a full stop and represents the language each computer uses to communicate with other computers across a network. The IP address is therefore computer specific and computers in internet linked configuration will therefore be identified by its IP address.

3.6 RMI in distributed system

RMI stands for **Remote Method Invocation**. It is a mechanism that allows an object residing in one **system** (JVM) to access/invoke an object running on another JVM. **RMI** is used to build **distributed** applications; it provides remote communication between Java programmes.

4.0 CONCLUSION

From what you have gained from this Unit, you should be able to define data communication, and explain what HTXL, XML, HTTP and URL mean.

5.0 SUMMARY

This Unit has explained the meaning of data communication, HTXL, XML, HTTP, URL and the critical aspects of data communication on the Web.

SELF-ASSESSMENT EXERCISE

What is RMI?

6.0 TUTOR-MARKED ASSIGNMENT

1. What is data communication?
2. Explain the meaning of the following: HTXL, XML, HTTP, URL
3. Mention the popular web services
4. Explain *dejure* and *de facto* rules that set standard for data communication.

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UNIT 2: DISTRIBUTED APPLICATION USING WEB SERVICES RMI, RSS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives

- 3.0 Main Content
- 3.1 Definition and description RSS
- 3.2 Definition and description of RMI
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This unit will introduce you to RSS and RMI as distributed application for web services.

3.4 Distributed Application Using Web Services RMI, RSS

2.0 OBJECTIVES

By the end of this unit, you will be able to:

- Define and describe RSS and RMI.
- Describe the basic characteristics of RSS

- 3.0 Main Content
- 3.1 Definitions and characteristics of RSS

3.1 Introduction to RSS

Really simple syndication is a family of web formats used to publish information about frequently updated works such as blog entries, news feeds, live audio, and video in the standard formats. The information seeking behavior of active library users makes it evident that being aware of information is a crucial component of information use experience. RSS feeds can possibly be used to update users about the additions or changes that take place on websites of interest, and providing updates from one source instead of accessing individual websites, students can subscribe to those RSS feeds that cater to their academic and research needs. For example, the Library of University of Southampton provides news feed on RSS to inform students about activities and events held in the University (Chan, Abdul & Teh, 2008). With the rise of Web 2.0, many librarians (law librarians inclusive) have identified RSS as a beneficial technology for current awareness and they have traditionally been involved with the

provision of current awareness services. RSS is a technology that has the potential of overcoming many of the challenges facing libraries today and becoming a preferred tool to get most of library content delivered to the users, as well as a tool to help in making the library website top searchable site (Dey & Sarkar, 2009).

RSS can be considered valuable for library settings because they make use of a single interface (the feed reader) to manage current information from new sources, such as websites and blogs, as well as from traditional information sources such as journals articles. “RSS is used for publishing frequently updated content such as blog entries, news headlines, and podcast in a standardized format” (Goswami & Choudhury, 2014). It can be used in libraries to keep users updated and send alert about new books, articles, library news, happenings and even table of contents from new journals. According to Davies cited in Dey and Sarkar (2009), RSS has been used to promote new resources, deliver library news, and provide database alerts. Librarians, in particular, have discussed the technology explicitly in terms of providing current awareness services to clients and have found it most useful in their day-to-day service provision.

3.2 RMI in distributed system

RMI stands for Remote Method Invocation. It is a mechanism that allows an object residing in one system (JVM) to access/invoke an object running on another JVM. RMI is used to build distributed applications; it provides remote communication between Java programmes. As an application programming interface (API), RMI is used as a technique to create a distributed implementation in Java. What RMI does is to enable techniques to be invoked by an object operating in another Java Virtual Machine. To accomplish this Remote Method Invocation uses two means, a stub (which acts as a gateway on the client side) and skeleton (an object) on the server side) so as to provide distant communication between two applications. The basic concepts and their relationships are illustrated in Figure 3.1 below.

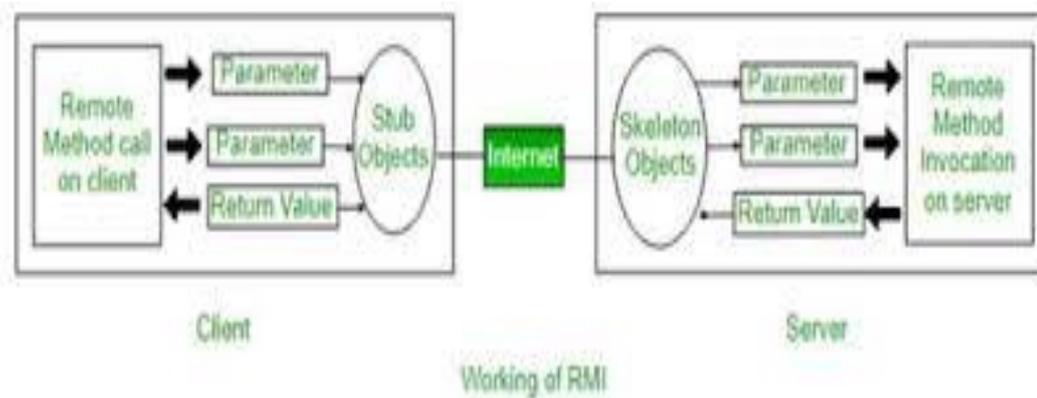


Figure 3.1: Relationship between the RMI Basic Concepts
Source: Knowledgehut.com, 2022

There are six basic steps to in the RMI process:

- Create the remote interface
- Provide the implementation of the remote interface
- Compile the implementation class and create the stub and skeleton objects using the rmic tool
- Start the registry service by rmi registry tool
- Write and start the remote application
- Write and start the client application (Knowledgehut.com, 2022)

4.0 CONCLUSION

From what you have gained from this Unit, you should be able to discuss RSS and how that impacts on library service delivery.

5.0 SUMMARY

RSS is a technology that has the potential of overcoming many of the challenges facing libraries today and becoming a preferred tool to get most of library content delivered to the users, as well as a tool to help in making the library website top searchable site. When it comes to building distributed application JVM RMI is the way go.

SELF-ASSESSMENT EXERCISE

- What are the basic characteristics of RSS

6.0 TUTOR-MARKED ASSIGNMENT

1. Discuss RSS and how it can be engaged in information service delivery
2. Mention the six steps involved in the RMI process.

7.0 REFERENCES/FURTHER READING

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MODULE 3: WEBSITES SUBJECT GATEWAYS SUBJECT AND WEB DIRECTORIES AND LIBRARY PORTALS

CONTENTS

1.0 Introduction

2.0 Objectives

3.0 Main Content

4.0 Conclusion

5.0 Summary

6.0 Tutor-Marked Assignment

7.0 References/Further Reading

Unit 1: Static and Dynamic Website

Unit 2: Subject Gateways and Subject Directories

Unit 3: Web Directories and Library Portals

UNIT 1: STATIC AND DYNAMIC WEBSITE

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Definition and characteristics static and dynamic websites
 - 3.2 Similarities between static and dynamic websites
 - 3.3 Benefits of static and dynamic websites
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

By the completion of the students would have been introduced to static and dynamic websites

2.0 OBJECTIVES

By the end of this unit, you will be able to:

- Clarify the of concept static and dynamic websites
- Distinguish between static and dynamic websites
- Highlight the benefits of static and dynamic websites

- 3.0 Main Content
 - 3.1 Definition and characteristics static and dynamic websites
 - 3.2 Similarities between static and dynamic websites
 - 3.3 Benefits of static and dynamic websites

3.1.1 Static Website

There are at least 14 things to know about static websites. By the way, a website is the location of an individual or institution on the web. It is important to note the following about static websites:

1. They contain stable contents

2. These contents are displayed by means of web pages
3. The encryption of the web pages is achieved by using HTML
4. Unlike dynamic websites which require complex design, static websites hardly require any web design
5. Static websites are also called flat or stationary pages. They are so called because they are displayed in web browsers precisely as they are stored.
6. Secondly, their web pages have fixed contents that are coded in HTML.
7. The coded contents are stored in web servers.
8. They do not change but stay the same for all viewers
9. In essence, they are designed to provide precisely all stored information to their visitors. Static site generators are used for the design and maintenance of these species of websites.
10. There are more than 100 static website generators in use globally
11. Their designers use several template languages in their design
12. Their number of pages are fixed and they have a specific layout.
13. It is possible to use different multimedia elements and videos in the design process.

3.1.1 Static Website-Advantages

The following are the advantages of static websites:

- They are relatively simple
- Their construction does not require complex or sophisticated programming or design skills
- They are fast and easy to design
- Their hosting is cheap
- Page load time is greatly enhanced and
- The display of their content can occur faster than those of dynamic websites

3.1.2 Static Websites-Disadvantages

There are two major disadvantages of static websites. The first is that their content can easily go into stagnancy. Secondly, updating them will need the specialized skills of a web master or developer

3.1.2 Dynamic Website

It is important to note the following features about dynamic websites:

1. They are database-driven
2. Information and contents change and this explains why they are called dynamic websites
3. It follows therefore that updating information in the database or content management system automatically changes the website
4. The above means that the content management system or the database is the primary location of the content in dynamic websites
5. Please note that information is passed from the browser of the user to the server each time the dynamic website is visited
6. Information generation or retrieval is real-time

7. Dynamic websites allow users to interact with the information that is listed on the page
8. High functionality is a big plus for dynamic websites while it is a big minus for static website
9. There is a combination of server-side and client-side scripting to generate information or content. The browser is responsible for executing the client-side scripting code. This is achieved with JavaScript while the server-side scripting refers to code that is executed by the server before the content is sent to the user's browser.

3.3.2 Merits of Dynamic Websites

Dynamic websites are more functional and easier to use. They offer less challenges to updating. Visitors access dynamic websites more frequently because of its current content. Dynamic content help in search engines. Data or content alteration can take place while users are using the sites. Conversely, dynamic websites are more expensive to host and have slower performance when compared with static websites

3.2 Similarities and Differences between Static and Dynamic Websites

- HTML and CSS languages are used to create their front end. Static and dynamic websites can handle large amounts of content, including rich text, images and video embedding.
- They can both be used to create responsive websites, which automatically adjust the content layout based on whether they are being viewed on desktop or on mobile.
- Static and dynamic websites require development knowledge if they are being created from scratch. However, there are ways of creating static and dynamic content using other tools to avoid heavy programming.

The major areas of difference are:

- Dynamic websites are more functional than static websites
- Static websites load faster than dynamic websites
- Updating of contents are less challenging in dynamic sites than in in static sites
- Dynamic sites are more database-driven than static sites
- Traffic is heavier to dynamic sites than static sites because the former has more current contents than the later
- Static sites are less expensive to host than dynamic websites and
- Special web development skills are not required for static websites but they are necessary in dynamic websites.

4.0 Conclusion

1. This Unit has examined the meaning of static and dynamic websites as well as the differences between the two. Dynamic websites are database-driven and their information and contents change which explains why they are called dynamic websites. Static websites contain stable contents that are displayed by means of web pages.

5.0 Summary

From what you have gained from this Unit, you should be able to describe static and dynamic websites, their advantages and disadvantages. You should also be able to identify their similarities and differences.

SELF-ASSESSMENT EXERCISE

Draw similarities between static and dynamic websites.

6.0 Tutor-Marked Assignment

1. Identify at least 10 things you know about static websites
2. What are the major differences between static and dynamic websites?
3. State at least 5 takeaways from the features of dynamic websites.

7.0 Reference/Materials for Further Reading

Please visit the following websites:

1. <https://wpamelia.com/static-vs-dynamic-website/#:~:text=Static%20websites%20are%20ones%20that,databases%20in%20addition%20to%20HTML.>
2. <https://www.hughesandco.ca/blog/the-difference-between-dynamic-and-static-websites>
3. <https://www.spiderwriting.co.uk/static-dynamic.php>

UNIT 2: SUBJECT GATEWAYS AND SUBJECT DIRECTORIES

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Definition and characteristics of subject gateways
 - 3.2 Definition and characteristics of subject directories
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This unit will introduce you to subject gateways and subject directories.

2.0 OBJECTIVES

By the end of this unit, you will be able to:

- Define and describe subject directories
- Give a description of subject gateways.
- Identify certain key features of subject gateways.
- List advantages of subject gateways to the library and information users.
- Provide specific Library and Information Science subject gateways.
- Define and describe subject directories
- Define and describe web directories

3.0 MAIN CONTENT

- 3.1 Definition and characteristics of subject gateways
- 3.2 Definition and characteristics of subject directories
- 3.3 Definition and description of Web Directories
- 3.4 Library portals

3.1 SUBJECT GATEWAYS

The Internet archive has more than five hundred and eighty–three billion web pages with millions being added regularly. This illustrates the exponential growth in information resources on the web. These resources come in different formats such as books, software’s, music, videos, movies and websites. The major challenge however is how to find what is critically needed from what is abundantly available. Although so much exists on the internet, the information resources lack systematization, structure and proper organization. Even search engines do not have internal mechanism to match retrieval with the particular demographic and class of experience of internet users. These and other factors are the major reason for the establishment of subject gateways.

With information explosion becoming more rampant than ever; with technology constantly adding up to become part of our day-to-day life; with our current society dynamically changing to an information society; and ICT constantly evolving to incorporate new advances, there is a need to save the time of the information seeker from a vast source of information base. Subject gateways are an antidote to this challenge. The Internet has become part of our day-to-day life, making the web one of the most sought after access point for information. There are both relevant and irrelevant information resources scattered all over the internet. This necessitates the need for subject gateways to help provide precise and easy access to other information resources according to the specialized information needs of the user. The libraries, therefore, are at an advantaged position to utilize these subject gateways to their advantage to satisfy the needs of the users. This aspect of the unit focuses on the concept of subject gateway, its features, advantages to the library and some subject gateways, especially in the Library and Information Science discipline.

3.1.1 Conceptual Definition and Description

A gateway can be described as a provider of an access point to vast resources. It serves as an entrance to a vast access point to get information resources to satisfy information needs of users. Literally, when we talk of a gateway, we have in mind a point that serves as a passage or entrance point to get to a destination. Subject gateways serve as this point that leads to a destination. In a review for City University London, Robinson and Bawden provides another name for subject gateways as Quality gateways. They said that it is a term that had existed two years prior to the year of their review in 1999. They laid emphasis on the fact that subject gateways are not the same as the internet but they go way beyond the internet. Das (n.d.) is of the opinion that change has occurred long time ago and the society has to

seek ways to adapt to these changes especially in the aspect of information seeking behaviours of users and their mode of information retrieval, which has shifted from being physically present in the library to retrieve information to having access to the same information and more online. Hence, an advantage of subject gateways. Mackie and Burton (1999) describe subject gateways as an organised access point to subject specific information on the Internet. He said that the popularity of the Internet necessitated the need for institution and organizations to upload their databases on the internet thereby providing free access to users for information.

Subject gateways, although, powered by computerization and technology, has not in any way affected the role of the library and information service delivery. It is duly accommodated in the library as an embrace of technology. This is because with the advancement of technology, there has been a shift in the role of libraries to become gateways of information. The aim of subject gateways is not to replace any access point of information previously existing. It does not undermine the use of any available information resource or tool but stands as a complementary service to provide answers to a particular and focused area of research for users who would find it relevant (Mackie & Burton, 1999).

To this effect, researchers need information fast, easy and with greater efficiency. It is true that the Internet is available for them to have access to as many information as possible but this process can also be overwhelming. The library is also a source for them. This is due to the fact that it stands in a position to procure as many information resources as possible. But the library as well as the Internet have a limit to the roles, they can play in fulfilling this function. A subject gateway provides an organized collection of digital information which enables easy retrieval of information in an accurate, brief and concise manner from current information resources. Succinctly speaking, subject gateways serve as special subject databases which provide links to other information resources or databases. They are a researcher's best help or complementary alternative to information resources for special research purposes.

In the context of network-based resource access, subject gateways, can be defined as facilities that allow easier access to network-based resources in a defined subject area. The simplest types of subject gateways are sets of Web pages containing lists of links to resources. He added that they are internet services which support systematic resource discovery. They provide links to resources (documents, objects, sites or services) predominantly accessible via the internet. The service is based on resource description. Browsing access to the resource via a subject structure is an important feature (Gajbhiye, 2020). Subject gateway is an innovation in the packaging of information delivery services to library users.

3.1.2 Rationale for Subject Gateways

The internet accommodates anything and everything. As such, it is hardly organized. There are lots of information online and if one is not careful, it could lead to misinformation and other dangers of using the internet. Despite the information age we are in, Das (n.d.) observed that some individuals still find it rather difficult to navigate the Internet in search of answers to their information needs. As such, there is a need to get this information to them in the shortest time possible. Search engines are not as efficient to use to search for certain subject related information. Usually, institutions with answers to these kinds of needs have special databases and repositories where they save this information for users who are able to navigate their way through to have access to it. At this stage, accessibility to the information or database may prove abortive.

Subject gateways are needed to improve internet searching and information retrieval processes (Accanoor, 2003). Subject gateways are particularly for a specialized kind of information subject matter or research area and as such they are highly relevant to saving the time of users, providing accessibility for effective utilization of information resources, increasing relevance of library and information professionals in providing efficient service delivery and promoting reference and information service in the library.

3.1.3 Information Retrieval

When we talk about subject gateways, one advantage it brings to mind is easy information search and information retrieval. We would examine the words information retrieval and give it a context. In this digital age, seeking and finding information of importance is of paramount necessity and, for this, people often refer to search engines because of their inherent effectiveness and simplicity. Search engines work because they are hinged on the field of information retrieval. The major objective of an effective information retrieval system is to retrieve all the documents that are relevant to a user's information query, while retrieving as few non-relevant documents as possible (Baeza-Yates & Ribeiro-Nero, 2011).

The term 'Information Retrieval' (IR) has been defined by various disciplines depending on its application. In Computer Science parlance, IR is a term used to describe the organization, location and retrieval of encoded information in computer systems. In Library and Information Science, information retrieval involves the retrieval of information from a collection or database in order to address an information problem or need. We can see IR as the process of obtaining information from information resources for an information need (Chimah, Unagha, & Nwokocha, 2010). Goker & Davies (2009) define IR simply as the process of efficiently locating and

finding information. It is very important because of the vast amount of information on the Internet. The Internet is not a library in which all information sorted after can be found, identified and retrieved by a single catalogue. No one knows how many individual files reside on the Internet. Eke, Omekwu and Agbo (2014) strongly asserts that the number runs into a few billion and is growing at a rapid pace. Due to this increase of information on the internet, more people look to the internet for information and this heightens the rate of information retrieval.

Deb (2005) posits that an enormous amount of video data exists on the internet and there is need for efficient and effective mechanism to store, access and retrieve these data. The challenge of information retrieval can be explained thus: on the one hand is an individual with an information need which is to be translated into a request. This request in turn is converted to a query or a search statement. On the other hand, we have information stored in collections. In these collections are the information resources needed to resolve the user's query. The challenge is matching the query with the right information relevant to the information need (Goker & Davies, 2009). Important factors in retrieving information are the type of media, or storage device, used to store information; the media's storage capacity; the speed of access and information transfer to and from the storage media, the number of times new information can be written to the media; and how the media interacts with the computer (Unagha, 2010).

Information retrieval has changed the way people acquire information for their need. Information retrieval systems enable users to find relevant document from collection of countless resources (Kumar & Sharma, 2018). For this to be achieved, four components are employed namely indexing, query processing, searching and ranking. Information retrieval focuses on finding relevant information rather than simple pattern matching (Hiemstra, 2009). Information to be retrieved includes, but is not limited to, documents, images and multimedia. Deb (2005) in treating the subject matter of video data retrieval concludes that the efficient way of handling it is through content-based retrieval which is problematic because computers do not have the capability of identifying specific images like human beings.

3.1.4 Library and Information Professionals

Librarians, acting as custodians of information, have gone through a dramatic change. From providing document to their clientele, they have switched to be information providers. The role of the librarian as information organizer and a navigator has gained importance in the Internet era. Library professionals need to focus and seize new opportunities and demonstrate how the tools of Internet can be gainfully harnessed for improving library services. Librarians can play a greater role in identifying, listing and classifying information sources and providing systematic

approach to accessing the required information. The role of the librarian has changed from that of a collector and preserver of information resources to a professional involved in very complex issues of organization, dissemination and provision of access to information.

During the past two decades the role of the librarian has further evolved to encompass the burgeoning technological developments. The role of the librarian today is to acquire, give access to, and safeguard carriers of knowledge and information in all forms and to provide instruction and assistance in the use of the collections to which their users have access. Libraries are about the preservation, dissemination, and use of recorded knowledge in whatever forms it may come. Put succinctly, the following roles are critical for the librarian in the information gateways:

- To give intellectual access to information in any format.
- To evaluate available sources of information.
- To organize and structure information.
- To ensure the preservation of information.
- To provide specialized staff to offer instruction and assistance in interpreting resources and access to resources.

3.1.5 Subject Gateways for Library and Information Science

Subject Information Gateway in Library Science is the first full-fledged subject information gateway exclusively in the field of Information Technology (IT). It is an effective and efficient way to provide easy access to quality information on the Internet on Information Technology to meet the information requirements of the scientific and academic community in the digital era. The content range of the Gateway covers almost every area of Information Technology like e-journals, e-books, IT schools and their curriculum, databases, free as well as open-source software, research projects, electronic theses and dissertations, forthcoming conferences/workshops, fellowships and grants, training programmes in IT, etc.

3.1.6 Facts to Know About Subject Gateways:

1. *As a Process*: Subject gateways involve the identification, filtering, description, classification and indexing of information resources before they are added to databases; before they become available on the web.
2. *As Search tools*: They assist users to locate books, journals, bibliographic databases on the net.
3. *As Internet services*: They facilitate systematic resource discovery by providing links to web-based information resources. They therefore assist users to locate top-grade information.

4. *As Databases:* They are databases containing complete metadata/catalogue description of web resources with appropriate links to them.
5. *In terms of categories, they are also called:*
 - a. SIG – Subject Index Gateways.
 - b. Pathfinders.
 - c. ST – Subject Trees.
 - d. QCG – Quality Controlled Gateways.
 - e. SBG – Subject–Based Gateways.
 - f. CH – Cleaning Houses (Das, 2021).

3.1.7 Search Engines (SEs) and Subject Gateways (SGs) Differentiated.

There are at least five basic differences between subject gateways and search engines.

1. While subject gateways deal with subject/discipline specific resources, search engines deal with resources of a general nature;
2. While high level of professional input goes into the establishment of SGs, SEs rely on powerful SE algorithms;
3. While SE indexes pages, SG concentrates on indexing information resources.
4. While professional cataloguers create the records with a clear highlight of the intellectual/critical characteristics of the resources, SE records are generated by automated process.
5. While retrieval results in SGs are precise, specific and linked to relevant documents, results from SEs are too broad, difficult to manage and often full of irrelevant materials.

3.2 SUBJECT DIRECTORIES

From the standpoint of online presence, a subject directory is an online database of websites and online information structured by subjects and categories. As a service, a subject directory is an aggregation of links to web resources developed by site creators or evaluation experts and organized into subject categories. They are vital when a subject or topic – based research is being undertaken.

However, subject directory is a hierarchically organized indexes of subject categories that allow the web searcher to browse the list of websites by subject in search of relevant information. They are compiled and maintained by humans and many include search engine for searching their database (<https://homepage.cs.uri.edu>)

Subject directory is also defined as an online database of web sites and online information set up by subject and category. Nwosu and Ottong (2014) in their view, suggested that subject directories are smaller and

selective than search engines. They use categories to focus their search, and their sites are arranged by categories not just keywords. Subject directories are handy for broad searches, as well as finding specific websites. Most subject directories' main purpose is to be informational, rather than commercial. A good example of a search directory is Yahoo, a combination search engine/search directory/search portal, or one of the original search directories, open directory project (ODP) also known as Directory Mozilla Data-DMOZ for short (Nwosu & Ottong, *ibid*).

Functions of Subject Directory

- To provide access to information relevant to subjects or fields
- To provide links to internet resources submitted by site creators or evaluators and organized into subject categories

Services of Subject Directory

- To offer a collection of links to internet resources submitted by site creators

Challenges of Subject Directory

1. Unlike search engines, most directories do not compile databases of their own. Instead of storing pages, they point to them. This situation sometimes creates problems because, once accepted for inclusion in a directory, the web page could change contents and editors might not realize it.
2. Smaller subset of information
3. Less comprehensive search

3..2.1 Facts to note about subject directories:

1. Human editors are responsible for the creation and maintenance of subject directories. This is different search engines, where robots or electronic spiders create web directories.
2. Using predetermined criteria, subject directories editors choose sites to include in their directories.
3. A professionalized approach of annotation is undertaken for resources included in subject directories.
4. In terms of size most directories are smaller than the database of search engines.
5. Some subject directories have in-built search engines to facilitate access to the contents of the subject directories.
6. Subject directories come in various species: general purpose subject directories or specific subject area directories, academic directories or commercial directories.

7. Subject directories are capable of returning a higher quality material than search engines, because their editors have use of their skills to create and maintain their characteristics.
8. On the negative side, subject directories face the challenge of containing dead links. Dead links results where a web page has been changed without the subject directory being aware of the change.

3.2.2 When best to use subject directories

1. When searching for popular topics online.
2. When searching for an organisation
3. When researching a specific subject area of interest.
4. In creating a product or a commercial site.
5. When looking for books in specific subject areas.
6. When looking for journals in a subject area.
7. When trying to locate professional colleagues.
8. When searching for grants or scholarships.

4.0 CONCLUSION

Subject gateways provide users with access to precise, accurate and high quality data/resources because they bring together various resources together. The good news is that librarians are central to the whole process subject gateway development. Subject directories are most suitable for teaching, learning and research in discipline – specific scenarios.

5.0 SUMMARY

This Unit has examined subject gateways, subject and web directories, highlighting their major features. Students should read extensively so as to have a detailed knowledge of their features and functionalities.

SELF-ASSESSMENT EXERCISES

1. How does subject gateways aid in information retrieval?
2. As a researcher in Library and Information Science, which Subject gateways would you visit when conducting a research on Library Practices and Theories?
3. Are subject gateways complementary information source or a totally replacement? Explain

6.0 TUTOR-MARKED ASSIGNMENT

1. Discuss subject gateways as a process, internet service, databases and search tools.
2. Define subject gateways in other terms.
3. State at least five facts about subject directories

4. When do you use subject directories?
5. State your five takeaways from your knowledge of web directories.

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UNIT 3: WEB DIRECTORIES AND LIBRARY PORTALS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Definition and description of Web Directories
 - 3.2 Definition and characteristics of Library Portals
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1.0 INTRODUCTION

This unit will expose you to the definition and characteristics of web directories and library portals

2.0 OBJECTIVES

At the end of this unit, students should be able:

- Define and describe web directories
- Know the features of web directories
- State the functions of web directories
- Understand the meaning of library portal
- Ascertain the meaning of Portal Contents
- Understand the concept of Knowledge Management in Library Science

3.0 MAIN CONTENT

3.1 Definition and Description of Web Directories

We live in an age of information in which the free flow of information and ideas require tools to facilitate access to information, for this reason, different search and information access tools have been developed such that information users have different tools at their disposal. Such tools include, but not limited to web directories and subject directories. These tools are updated to increase the growing pace of information volume and people's

quest to satisfy their needs. Web directories such as Yahoo, Lyrics, and Infoseek are equipped with facilities with which users should be familiar if they are to make the best use of them. Web directories provide links in structured list to make browsing easier to users. They are access tools that assist in browsing many sites on a topic. They are usually compiled by human beings and arranged by subject groups. The search procedures used for online searching are also employed on the internet (Aina, 2004). These tools are essential as basic building blocks for a system that will organize recorded information, providing links for easy browsing and access.

According to Nwosu and Ottong (2014), a web directory is also called link directory. It is a directory on the World Wide Web. It specializes in linking to other web sites and categorizing those links. A web directory is not a search engine and does not display lists of web pages based on keywords though some use it interchangeably. Instead, it lists web sites by category and sub category. Most web directory entries are also not found by web crawlers but by humans. The categorization is usually based on the whole web site rather than in one page or a set of keywords, and the sites are often limited to inclusion in only few categories. Web directories often allow site owners to submit their site for inclusion and have editors review submissions for fitness en.wikipedia.org/wiki/web-crawler as cited in (Nwosu & Ottong, *ibid*).

A web directory or link directory is an online list or catalog of websites. That is, it is a directory of web sites on the World Wide Web. Historically, directories typically listed entries on people or business, and their contact information, such directories are still in use today (<https://en.m.wikipedia.org>)

As to how it works, a web directory organizes web sites by subject and is usually maintained by humans instead of software. The searcher looks at sites organized in a series of categories and menus. This collection of links is usually much smaller than search engines databases, since the sites are looked at by human eyes instead of the spiders. There are two ways for sites to be included in a web directing listings either the site owner can submit the site by hand or the directory's editor(s) will eventually come across that site (websearch.about.com/od/engineanddirectories/a/subdirectory.htm)

3.1.1 Features of Web Directory

The following are the features of web directory

- 1. Free submission:** These are free and nothing is charged for review and listing of submitted links while it takes at least 3 to 6 months to get listed.

2. **Reciprocal links:** These need a link back to the web directories from your website in order to get listed. These usually take 1 week for approval by the site admins.
3. **Paid submission:** They are paid for one time for a specific period or for a lifetime for getting listed at once.
4. **Featured listing:** Link submitted in featured listening have premium value and are listed in one or more categories or on the homepage.
5. **Affiliate links:** These directories earn commission from referred listed websites

3.1.2 Functions of Web Directory

Web directories perform three essential functions which are:

1. To organize web sites by subject which is usually maintained by humans instead of software.
2. To provide a link which assist in browsing sites on a topic
3. To guide users to a list of websites appropriating layers of categories.

Examples of web directory include Yahoo, look smart, open directory also known as DMOZ (Directory Mozitla), Google my business, foursquare, yellow pages, Hot frog, chamber of commerce, etc.

3.1.3 Services of Web Directory

1. Express update – a free service that sends business information to search engines, car navigation systems and local online directories.
2. EZI local: This helps businesses achieve top local placement on sites such as Google, yahoo, and Bing as well as relevant local directories, social networks, online maps, and mobile aps.
3. Localize: Focuses on local brick and mortar businesses, localize provides listing management tools that enable companies to update their information to more than 100 local search platforms
4. MOZ local: Creates and maintains business listings on the sites, apps and directories that factor most into local search engine results.

Challenges of Web Directories

The major challenges faced by web directories include the following:

- Low quality websites
- Infrequent updates
- Limited number of sources
- Lack of maintenance
- Time consuming (<https://smseocom>)

Strategies include

To overcome the above challenges, the following are essential:

- There should be high quality websites usage
- There should be frequent updates
- There should be unlimited number of sources
- There should be proper maintenance of the sites
- It should not consume time

3.2 Library Portals and Library Websites

Internet offers a host of ideas, a broad array of information and interactive opportunities to educators and students. The web has made a huge amount of information electronically available. Portals present information from diverse sources in a unified way. Portal technology provides a central online tool to access and exchange internal information, vendors and resources according to needs, mission and priorities of the library. It is also called as a knowledge management tool. Besides business organizations, academic institutions are also trying to adopt these techniques to cope up with the modern society and to cater for the ever-changing needs of the modern users in the .com era. Library portals have played a vital role in the advancement of the present education system. The principal benefit of the library portal is to supplement the formal education system by making knowledge available to all users. By the way what is the meaning of library portal? This concept has two words, library and portal.

3.2.1 The Library

In the past, the definition of the library was limited to the concept of a store house of knowledge. In the current era of knowledge explosion and information technology revolution, the library is no longer just a store house of knowledge but access point institution for procurement, processing and provision of needed information to users. In essence, the information provided by libraries is no longer limited to information in the libraries. The libraries with appropriate internet connectivity, can access and provide information from global online sources. The emergence of open access initiatives makes it possible for libraries to access and provide information to their users, free of charge or at highly reduced cost. Let us now take a look at the word portal!

3.2.2 A Portal

What is a portal? A portal is generally perceived as an entrance, like a doorway, a gateway, providing a way in and a way out. In construction parlance, a portal illustrates the view leading to the entrance of approach to

a tunnel or bridge. In architecture a portal is composed of the surrounding leading to the entrance and porches of massive buildings. It is equally important to understand how the concept of portal applies to the web.

What is a web portal? Simply defined, it is a “dynamic and interactive web system that works as a one-stop access point for users to explore content, products and services and communicate with brands” (Digiteum, 2022). It can also be perceived as “a feature-rich web system that provides a certain target audience ... with specific and often personalised content and services” (Digiteum, 2022). Generally, a web portal can be a major source of information, contact, communication and collaboration. It is also having global visibility. What services do web portals provide? A good web portal provides the following services:

Email

Online shopping

Search engines and

Forums, etc.

What are some examples of web portal? They include Google search, Yahoo, MSN, Pathfinder, Lycos, Natcape and Excite.

3.2.3 Conceptual Definition and Description of Library portal.

There appears to be different definitions of library portal by different authors. For example, it has been defined by Dhamdhare (2014) as “a single-user interface for accessing wide variety of electronic resources, both within and outside the library” But Maloney and Brackle (2005) disagree with the singles perspective of library portal but contend that the library portal is a combination of several systems, standards, and protocols that interoperate to create a unified experience for the user/ Thirdly, it is an information hub. Fourthly and from a network point of view, it is a density of resources and services on the network (Mane and Panage, 2014). Fifthly and from Library and information Science perspective, Zhou (2003) sees library portal as nothing but a combination of OPAC and web discovery tools, an extension of the traditional Web OPAC. Sixthly and from the point of view of wed technology application, a library portal is a web page where detailed information of the library is provided and this will include its services and collection. A seventh definition is from a technical perspective: “ a portal is a network service that brings together content from a diverse distributed resources using technologies such as cross-searching, harvesting, alerting, and collates this into an amalgamated form for presentation to users” (Loughborough University, 2004)

3.2.4 What the Library Portal Does.

The question that needs to be addressed is why should a library have a portal? This question can be answered from the understanding of the

important of library portals, the up to date information they host, their provision of search engines which enable access to audio, video and full text information resources. Here below, are a synthesis of why every library should endeavour to have a portal:

1. A portal centralises library and information services to users;
2. Portals have the capacity to promote both online and other resources available in the library
3. Maintenance of resources is easier
4. Lecturers/supervisors can easily connect their students/supervisees to a variety of useful resources that are available online
5. Where the library operated in a multi-campus or sites framework, a 'cohesive and well-branded service' can be installed
6. Portals advertise the library and its services thereby enhancing the visibility of the library to the wider user community
7. Training and guidance with resources can be embedded (Loughborough University, 2004)
8. It hosts links to online resources and databases
9. It provides information about the library, its resources, staff and services
10. Portals provide multiple navigational platforms to enable users to access web-based information.

3.2.5 Academic Library Portals

An academic library portal provides easy access to information from anywhere on internet, quick and easy availability of information; improve the communication system between knowledge creators and knowledge users. It is a most popular form of knowledge management which provides a secure personal space to its users to access, create and guide others through sharing the knowledge with each other's. It provides easy to use discovery and management tool to academicians, research scholars, and other users. The work of Pienaar (2003) on the design and development of academic portal is a highly recommended reading to students, teachers and information professionals. To support the teaching, learning and research programmes of academic institutions, there are some imperatives for academic library portals. They include (but not limited to) the followings:

- The university library portal must be a combination of a vertical portal and a corporate or enterprise information portal
- It must include advanced personalization and customization qualities

- The portal must support both teaching and research roles of academics
- The portal should give access to the following information sources: e-journals, e-articles, e-reserves, e-archives, databases, e-books e-dissertations, library catalogues and the university's research database. Personal information sources should also be available for example experts and information specialists etc.
- The portal should provide web search engines; global search function lists, server's chat room, email, adding of Urls, and interface with document delivery and inter-library loan system.
- Academics should be able to evaluate and add information sources to the portal.

3.2.6 Web-Based Library Services

Web-based library services provide opportunities for librarians to play leading roles in guiding their technology-savvy users on how to navigate and engage with the vast amount of information resources that are increasingly accessible on the internet. White (2001) defined a Web-based library service as a system whereby the library provides answers to users' enquiry via electronic means, such as emails. It can further be described as a virtual extension of library reference services delivered through digital channels. Gavit (2019) has also discussed various aspects of Web-based library services.

3.2.6.1 The Purpose of Web-Based Library Service

Web-Based services offer alternative ways for libraries to provide answers to the users' enquiry or search for information without the constraints of the time and space of the physical library. An example of such constraints is the normal opening hours of library operations. Thus, the purpose of digital library services includes: to provide user-focused services that enable users to approach librarians with their queries at the convenience of their own time and without the travelling costs; to match users' needs with accurate and accessible information sources; to ensure timely and appropriate delivery of information sources to users; promote awareness of new library services and information sources to users when the need arises; to provide and help users develop information search and retrieval skills.

3.2.6.2 Advantages of Web-Based Library Services

- The mediums allow the librarian to attend to a large number of multiple users
- Easy to use and requires little or no training

- Enable libraries to offer individualized support and guardians to users
- Permanent and effective archiving of information sources

3.2.6.3 Disadvantages of Web-Based Library Services

There are no face-to-face interactions with the users

Unlike face-to-face encounters, web-based services require the use of several types of equipment in order to successfully complete a reference enquiry such as uninterrupted power supply, internet connection and computers. Access to some digital resources are often unreliable due to missing URL or lack of consistent web identifiers.

3.2.6.4 Tools for Delivering Web-Based Library Services

Resources used to provide web-based library services include Library Portals, OPAC, Gateways, Online Databases, Search Engines, Subject Databases, Virtual Library Tours, Ask-A-Librarian.

3.2.7 Library Websites

It is a juncture, let us address some issues about library website.

- (1) What a library website is?
- (2) The distinction between a library website and library portal
- (3) The features or characteristics of a library website
- (4) The benefits of a library website
- (5) Qualities of a good library website

3.2.7.1 Library Website

According to law Insider (n.d.), library website simply means an application that is anchored on the internet, hosted and operated by overdrive which provides authorization to library clientele to have access to digital content. It could also be seen as a virtual gateway that is owned, maintained and used by or for the library for the essence of providing information to library users and/or the general public about the library and its various services, policies, initiatives, and procedures. It also could be seen as a way of making available library –made products, it is used as a window to the WWW by making internet resources available on selective basis. It is also defined by another school of thought as a communication tool where information about services, people and facilities and collections can be found. Though library website could be used interchangeably as library portal, the two are distinctive. Library portal serves as a ‘hub’ or ‘door’ from which users could locate and link to desired content. An ideal library portal has the following coverage:

- a) Professional resources such as practice manuals, standards, model programs, report and studies.
- b) Organisations from the large national associations to local and special interest groups
- c) Publications, both book form and non-book form
- d) Conferences and other events
- e) Library websites, including web catalogs
- f) Communication channels, like discussion lists
- g) Job announcements
- h) The library marketplace i.e. vendors of library-related products and services

Whereas a library website is a related collection of library World Wide Web (WWW) files that includes a beginning file called a homepage. Access to website could be made when an organisation or individual gives one the address of its library website homepage. From the home page, one can have access to the other pages on their site.

3.2.7.2 Features/Characteristics of a Library Website

A library website is always characterised by the following:

A) Web 2.0 Tools

One of the features or content of a library website is library services ranging from general information about the library, library personnel, library and information resources, instructional tools etc. Provision of a brief description of the various library services and divisions/departments carrying out such specialised services. A good and rich library website provides access to the following: (i) orientation of the library materials, services and facilities; (ii) access to electronic databases and e-journals subscribed by the library; (iii) link to other open source databases and institutional repositories that are available in diverse subjects; (iv) access to a world of information from e-books, e-theses, e-dissertations, e-prints and web based reference sources, etc; (v) computerized library housekeeping operations; and (vi) other resources.

B) Library Services

These are 21st century referencing and social networking applications used by librarians and other information professionals for communication, to provide services and more visibility to library users through the use of emerging technologies. Tools such as email, Ask-a-Librarian, blog, Instant Messaging (IM) and real simple syndication (RSS) are some of the common tools that can be found on a library website that enables library users to connect the library wherever they may be at any point in time.

3.2.7.3 Benefits of a Library Website

The library website is of enormous benefits to both librarians and library patrons.

I Serves as the library's workstation

One of the benefits of a library website is that it often serves the role of a library workstation, both for the library patrons and the librarians serving them. This necessitates a presentation and organization that allows users to know all that the library has to offer digitally, and in a way that makes sense. It is a tool that will help to speed up or slow down the work of reference librarians' in guiding or assisting patrons to find needed information. It will also help or hinder the user in research expansion or in finding the answer to a very simple query, such as how determine if the library has a particular book and where it might be found. In the role of library workstation, a library website serves as a platform for the delivery of databases, electronic texts and journals, and often for the library catalog. In delivering these resources, the web necessitates dialog between technical and readers' service librarians to ascertain how and where to represent access to all this information.

II Makes internal resources/products available

Library website also makes available internet resources or products. These products might be digitized copies of special collections such as manuscripts, images, or even locally created databases. They might also include instructional tools, guides, class assignments, and finding aids. The option of placing electronic reserve material in a copyright secure environment is operational by many libraries. The web has enabled librarians to find new roles as information generators, as well as to continue the functions of information gathering, organization, and access.

III Agent of archiving of information

A library website can also become an agent for archiving and retaining information that comes and goes on other websites. Some consortia, such as the CIC (Committee on Institutional Cooperation or the Big-Ten-plus-one) libraries, are looking at ways of retaining copies of open source electronic journal sites that are not maintained by any publisher. Such activity requires mutual agreements on copyright and access rules, aside the technical issues of gathering and ensuring complete runs of journals. Other projects are being developed between libraries, consortia, and publishers for access to proprietary information that a library has in fact given out on contract. How can libraries ensure availability of materials without "housing" them directly? Sometimes license agreements can include guarantees of efforts by publishers, and sometimes library server space can archive resources that the publisher does not care to retain.

IV A component of the Web

Pertinently, the library website is also serves as a window to and component of the Web at large. No doubt, libraries are making huge use of the enormous wealth of resources available on the Web at zero cost and are examining the reliability, accuracy, and completeness of these vast resources. Where trust in a resource is engendered, and as it relates to the needs of a library's users, these resources are being incorporated into library sites as part of catalogs or in separate lists or databases created by bibliographers and reference librarians. As a component of the Web at large, libraries are beginning to increase their user base by making resources and services available to future worldwide audience. Policy decisions may have to be made to ascertain the extent of services and the definitions of users in this easy-to-access environment, where internal resources may be stretched. Furthermore, libraries might wish to consider what uniqueness they have to offer in this vast network when placing priorities on what is to be accomplished on the Web site.

V A communication tool

Conclusively, an all-vital benefit of the library's website is to serve as a communication tool for a library and its patrons. It helps to advertise where the physical presence is available and its location, as well as to intimate clientele who works there and the nature of services those people provide. A library website can also let people know organizational structures and missions. It can further tell people how to use inter-library loan, when there are research workshops, or what exhibitions are on display. It can even encourage them to come to book sales or other fundraisers. Even better, the website can allow librarians and other library staff to hear from the users through interactive forms, chat rooms, and e-mail links. But we can also do so through examination of our log files to learn how many people visit us, where they come from, what they use, and what sort of problems they encounter.

2.2.7.4 Qualities of a Good Library Website

1. Good combination of content, design and accessibility

A good combination of content, design and accessibility of a website is one of the qualities of a good website. This quality actually improves the performance and usability of a library and its website. The library website plays a very crucial role when we talk about users' perception or feelings about the library. Through a website, library and information resources in print and non-print are showcased, and can endorse its services and collection among the patrons. Services range from 'Circulation' to 'Reference' and 'Inter-Library Loan' to 'Library Events'. A library website hosts various kinds of useful and helpful information such as directions, library timings, various policies and procedures, the library staff directory, and basic information about the staff and more.

2. Virtual space

It is the website which corresponds to a virtual space to collect, organize and present the information. The needs and requirements of the patrons must be duly represented when organizing the virtual space. The library website must be relevant, constantly updated, user friendly and easy to understand so that users can easily navigate and may not be confused when searching for desired information. It shouldn't only be informative but a learning tool as well. It must be comprehensive enough to provide space for showcasing all the available resources it has, and services that it provides. New services or departments should have a space for incorporation with a proper description on the website. A good library website must be effective with proper space for graphics and text. It must not be too flashy or too insipid for a user. The contents of the website should not be in a ticklish/ambiguous language, rather words from the day-to-day life which are easily comprehensible.

3 Consideration of user's needs and behaviour

A good library website must consider the specific needs and usage behaviour of the potential clientele of the library. These needs vary from patron to patron and library to library. A new user generally visits the library website for membership-related issues such as registration, getting library card, membership fee etc. If the user is satisfied with the desired information he/she again visits the website for more specific information. Within a shortest period of time the user must be able to get the answers to the desired information needs.

4 Not a clutter of information

It should not have a clutter of information which may make it complex and difficult for the visitor to know what the prime objective of a library is. The way out of this is simply simplicity. Thus, the work of a homepage is to organize the information in a simple manner, making the visitor to likely spend ample time on the page. The information should be precise, concise and sorted out in a pleasant way making it convenient for the visitors to scan through the website for browsing their desired information.

5. Homepage of text and graphics

Homepage of a website is its most crucial aspect. It is expected to focus on providing efficient and effective services, users' interface that is user friendly and answers to frequently asked questions. The homepage of a good library website should have a proper combination of text and graphic images. If it has numerous images or other flashy elements it may take longer time to load, which may discourage the visitor and may lead to his exit from the site. If the homepage is not in tandem with users' needs and terminology, they will either leave quickly, or they may longer time by "clicking the wrong link and being lost forever in the wrong part of the site.

The purpose of the homepage is to make the visitor click more options on the website by presenting an attractive short introduction about various links on the website. The homepage should contain information that will catch the interest of the visitors and not necessarily general information in which the user is less interested such as history and development, objective etc. of the library. Instead, the information on homepage should be concise, and must give the overview of the various library services. It should be occupied only by the relevant information which will actualize the purpose of the user's visit to the library website.

6 Search windows

Generally, when a library patron finds a search window on the library homepage the only question that strikes the mind is how to expand the search. The search window may be for library contents only, or to the whole website of the parent organisation or the global network i.e. internet. There should be a clear description of every search window on the homepage. It will go a long way to save the time of the user while using the search window.

4.0 CONCLUSION

A Web directory provides links in structured list to make browsing easier to users. Directories are access tools that assist in browsing many sites on a topic. University library portal has become one of the most commonly used web discovery tools for effective and efficient delivery of information. It not only conveniently delivers electronic resources directly to the users on their computer screens but also provides a web environment which enriches learning and research activities by providing timely, convenient access to relevant and appropriate resources. It enables users and the library to focus on fruitful use of collections available on portal. Therefore, information literacy programmes should be conducted by university libraries to enable the effective use of library portals. Majority of the students' demand educational resources based on the curricula. University libraries need to create and upload relevant e-contents relevant to their users' need with the design of a simple, user- friendly portal.

5.0 SUMMARY

A significant demand for relevant information capable of solving individual needs is increasing every day and there is need to raise a crop of citizen (researchers and students) capable of using retrieval tools (web directories and library portals) to access into information that will satisfy their needs.

SELF-ASSESSMENT EXERCISES

1. Explain the term academic portal and portal contents?
2. What are the features of a good library website?
3. What tools can be used to migrate library services to the web?

6.0 TUTOR-MARKED ASSIGNMENT

1. Why do you think web directory is important to researchers despite other search engine tools available on the space?
2. Who are the developers of web directory?
3. Why do you think both web and subject are indispensable to users?
4. What do you understand by library portal?
5. State the importance of library portal
6. Explain academic portal and portal contents?

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MODULE 4: SOCIAL MEDIA NETWORKS 1

Unit 1: Evolution of Social Media

Unit 2: Facebook, YouTube, Instagram, Twitter, and Pinterest

Unit 3: Blogs, Bookmarking, Wikis

UNIT 1: EVOLUTION OF SOCIAL MEDIA

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Definition of the concept of social media
 - 3.2 Explain the evolution of social media
 - 3.3 history and operations of some social media platforms
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

Following our study about websites and library websites, this unit aims to take the lesson a little further by looking at evolution of social media (SM) In this unit, the focus will cover the definition, characteristics, popularity categorization, and platforms of social media. Social media will also be examined in the context of mobile communication and networking.

2.0 OBJECTIVES

At the end of this unit the students should be able to:

- define the concept of social media
- explain the evolution of social media
- understand the history and operations of some social media platforms

3.0 MAIN CONTENT

3.1 Social Media Defined & Described

Social media has been viewed from different conceptual perspectives thereby giving rise to many definitions. What is common to all the definitions is that social media is the ability to embed social interactions in information and communications technology to create value. According to the Social Media Research Group (2016) social media is web-based platforms that assist users to generate and share content. They facilitate further online interactions with other users. They are computer-mediated websites and mobile websites. Users of all classes are enabled to act, react and interact and share all forms and format of information among themselves. Users are the critical actors in content creation and communication (Alexa Website ranking, 2007 cited in Watson, 2008).

3.2 SM (Social Media): Conceptual Perspectives

Conceptually, SM derives from its name, that Social and Media. Previously, media was not a mere social tool, and social activities were not captured by emerging technologies. Social media is the emergence of a system that creates a platform for the intermarriage of technology and social engagement. That is, with social media, individuals can successfully have social interactions on various topics using a two technological platform. Majority of social media platforms are geared towards developing the social infrastructure for the community by supporting human communication, for information, for civic engagement, and for inclusion of all.

Significantly, the robustness of the SM derives from the platforms' ability to integrate text, audio, video, images, podcasts, and other multimedia communications. The SM combines mobile and web-based technologies to transform communication into interactive dialogue. The critical essence of SM is information communication and exchange across geographical and social boundaries. Consequently, the SM platforms have become unavoidable tools in the exchange of knowledge and information.

Table 1: Distinction between Social Media and Mainstream Media

S/N	Criteria	Social Media	Mainstream Media
1	Network	Many-to many	Broadcast:one-to-many basis
2	Nature	Demotic	Elitist
3	Production	People-driven	Commercial and/or public service-driven
4	Editorial control	Largely free from editorial control or censorship	Not free from editorial control
5	Reach	Ubiquitous	Limited
6	Gatekeeper regimes	Loose	Rigid

3.2 Evolution and development of social network platforms

It has been reported that the launch of SixDegrees.com in 1997 brought phenomenal changes to internet communication. The reason was users were and are still empowered to develop their profiles, connect with their friends and engage in a number of social interactions. A year later, it was for users to browse the list of their friends. Over the years, many social media platforms have evolved with new features that now makes communication easy and instant. The figure below shows the icons/logos of the world's leading SM platforms.



Below is a brief history of the major social media platforms.

Facebook

The Logo of Facebook is:



There are other variants of this logo.

Facebook was commercially launched in 2004 by Mark Zuckerberg, and now has over 2 billion users — including 69% of U.S. adults.

Reddit

Steve Huffman and Alexis Ohanian founded Reddit in 2005. It emerged as a news-sharing platform. They launched the platform while in their 20s. Currently, Reddit's users are over 300 million. They have literally transformed Reddit into a combination of news aggregation/social commentary platform. Its popularity derives from its ability to “up-vote” and “down-vote” user posts.

Twitter

Twitter was established by Jack Dorsey, Evan Williams, Biz Stone, and others as a microblogging site in 2006.

Instagram

Kevin Systrom who is graduate from Stanford University founded Instagram in 2010 as a photo-sharing site, and by 2012 Facebook purchased the platform as part of the efforts to widen its social media dominance. Today, Instagram has more than 1 billion users worldwide.

Pinterest

Pinterest developed by Ben Silbermann in 2010 as an online “pin board”. The company became a publicly traded company in 2019 and has more than 335 million active monthly users. Pinterest is a form of online version of pin board where individuals pin matters of interest.

Snapchat

Evan Spiegel, Reggie Brown, and Bobby Murphy are credited as founders of Snapchat. This was in 2011 when they were students of Stanford University. Snapchat started as a platform for sharing videos. Then the concept of “stories,” or serialized short videos, and “filters,” run for informative digital effects, often based on location was introduced.

TikTok

TikTok was founded in 2016 by Chinese Tech Company ByteDance. This short-form video-sharing site was merged with the U.S.-based mobile app Musical.ly in 2018 and became popular with American teens and young adults. As of early 2020, it had more than 800 million users worldwide.

3.3 Social Media Characteristics

Social media is characterized by the following features:

- a. Users can interact online;
- b. web 2.0 internet-based applications. Users generate contents by posting comments
- c. Participants create their bio-data including real name or a different user name, and provide information about their research and other related matters.
- d. Social media promotes online networking and relationships by connecting a user's bio data to other individuals or groups, and facilitates the linkage of individuals with common interest.

3.4 Reason for the Popularity of Social Media

Social media has been acknowledged as the most widely used platform for exchange of information and communication all over the world because they are comparatively easier, cheaper and more accessible than the traditional information channels. Through social media, people obtain information, education, news, business, advertisements, employment opportunities, security alerts, marriage contracts among others (Tang, Gu & Whinston, 2012). Jefferson and Traughber (2012) stated that social media can embrace video, audio, photo, text and PDF formats and are capable of creating one-to-one, one-to-many and many-to-many interactions and offer different stages of engagement by the users. Information is easily reachable, up-to-date, and cheap on social media. Hence it has the capacity to reach large and small audiences, rich and poor and makes for high frequency, usability, immediacy and permanence.

3.5 Social Media Categorisation

Many authors have stated categories of social media. Perhaps, the categorization of Sorokina (2015) is more extensive. According to him social media can be categorized into eight different types based on the primary capabilities and online services they are capable of being used for. Personal networks, online reviews, interest-based networks, e-commerce, social publishing, bookmarking, media sharing and discussion forums. Social networking is a major social media tool employed in establishing and building online relationships with others for social, professional and educational purposes. In corporate communication, SM increases the level

of transparency and makes exchange of information faster, which leads to high levels of work efficiency among users.

3.6 Social Media in Platform Typologies

Based on their different categories, social media has many different platforms. These are useful means through which friends and family who are geographically dispersed keep in touch with and feel close to one another. This is done by posting messages, photos, images of events to maintain a steady connection with family and friends. This means of communication now overrides the use of phone calls because of its cheapness. Social media is said to promote a culture of passive interaction characterized by ‘likes’ and detached ‘shares’. Use of social media is also seen as a leisure activity when users engage in following celebrities on twitter and Facebook, listening to music, watching films and videos, playing virtual games and most recently, following radio programs. Hobbies and specialist interests are also pursued through the ability to connect with people with similar interests. This enables participants to share problems and get instant advice and solutions. On professional basis, users employ social media platforms to network with other professionals, sharing ideas and expertise, updating knowledge and learning how to advance their careers. More specifically, professionals use this medium to promote and publicize services or raise awareness on issues of concern in their profession. Although some social media platforms have been developed specifically for professional uses, majority of the social networks e.g Facebook, Twitter, LinkedIn are used for professional purposes to some extent. According to their uses, Beninger (2014) gave three broad categories of social media as- social, leisure and professional. While Allison (2012) further categorized social media into eight major types with corresponding platforms as illustrated in the figure shown below:

Types of Social Media

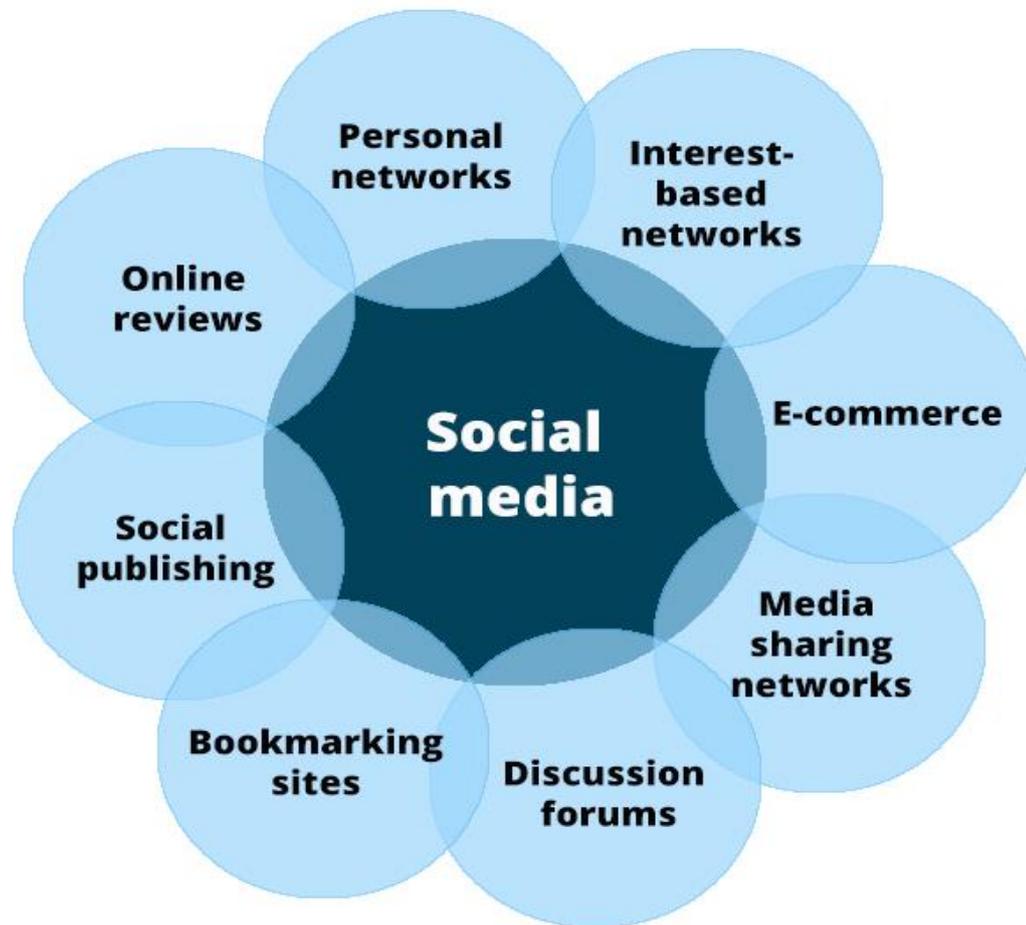


Fig 2: Types of social media platforms

1. Social networking sites- Facebook, Google Plus, CafeMom, Gather, Fitsugar
 2. Micro-blogging sites- Twitter, Tumblr, Posterous
 3. Publishing tools- WordPress, Blogger, Squarespace
 4. Collaboration tools- Wikis, Wikipedia, WikiTravel, WikiBooks
 5. Rating/Review sites- Amazon ratings, Angie's List
 6. Photo sharing sites- Flickr, Instagram, Pinterest
 7. Video sharing sites- YouTube, Vimeo, Viddler
 8. Personal broadcasting tools- Blog Talk radio, Ustream, Livestream
 9. Virtual worlds- Second Life, World of Warcraft, Farmville
 10. Location based services- Check-ins, Facebook Places, Foursquare, Yelp
 11. Widgets- Profile badges, Like buttons
 12. Social bookmarking and news aggregation- Digg, Delicious
 13. Group buying- Groupon, Living Social, Crowdsavings
- Alison Myers (2012)

3.7 Social Media in Mobile Communication Systems

Mobile communication technology has greatly enhanced access to social media platforms by people across different ages. With an internet-enabled smartphone, it is possible to hook up with friends and families in a social media platform. The result is the emergence of a mobile social network. Mobile communication technology has grown by bounds as shown in the figure below:

A DIGITAL WORLD

1. **5.11 billion** unique mobile users in the world today, up 100 million (2 percent) in the past year.
2. **4.39 billion** internet users in 2019, an increase of 366 million (9 percent) versus January 2018.
3. **3.48 billion** social media users in 2019, with the worldwide total growing by 288 million (9 percent) since this time last year.
4. **3.26 billion** people use social media on mobile devices in January 2019, with a growth of 297 million new users representing a year-on-year increase of more than 10 percent.

Source: We are Social (2019) Digital 2019: Global Internet Use



3.8 Essential Skills for Effective Navigation in Social Media Platforms

Use of social media requires a level of attitude, knowledge and skills that enable inter-connectedness and interaction among users. This is called referred to as SML (Social Media Literacy). This involves having the proficiency to communicate appropriately, responsibly and to evaluate conversations critically within the realm of socially-based technologies (Tillman, 2014). These competencies allow one to communicate in a suitable manner, to cooperate and participate actively and to give and take in the social environment of communication and sharing of content. This is because users of social media as consumers of SM space have transformed into active participants in content creation, editing and exchange. Researchers therefore have to develop a framework of media literacy that will enhance their ability to participate in the media. Basic among these skills include the rhetoric of blogging, understanding the use of wikis and forums for collaborative research and knowing the techniques necessary for ascertaining the validity of information accessed online. According to Banagi (2015), social media literacy includes reputation management, critical thinking and network awareness of socially-based technologies. The essence of managing reputation is to communicate privacy appropriately

and responsible personal branding. Critical thinking is employed to detect, evaluate conversations to determine its credibility because anybody can post anything online. Network awareness of socially-based technologies means to identify ones' networks, find new contacts based on current research activities. A person who is literate in social media forms her personality, world view and manner of social conduct among other ways through tools for collaborating and managing information found on the web.

3.9 Social Networking (SN)



Figure: Social networking: Connection, Cooperation, Collaboration and Communication

Source: <https://www.thewebkitchen.co.uk/what-is-social-network-and-social-networking/>

Consideration is here given to a range of web-driven programmes which assist users to relate cooperatively and work collaboratively. The ability to browse, search, invite friends to connect and interact, share film reviews, comments, blog entries, favorites, discussions, events, videos, ratings, music, classified ads, tag and classified information and more are very imperative (Mishra, 2008). What SN does is to permit people to join and create a personal profile, then formally connect with other users of the systems as social friend. The whole essence of SN is that it allows people to develop contacts, cooperation, communication, and create online communities that are quite engaging.

3.10 Libraries and Social Media

Librarians across the globe are increasingly engaging the ecosystem of the SM to reach their critical public with current and cutting edge library and information resources and services. As Bothma (2016) rightly noted that “the question is not whether libraries should adopt social media but how to apply them”. With the changes going on in user’ behaviour to information systems and increasing demand for round –the- clock library services, the social media has become a technology that can help the academic library deliver effective services to its teeming young population. Library services that are targeted towards orientation, direction and counseling can be carried out effectively with social media. The combined population of active Twitter and Facebook users run to billions. As at June 2016, Facebook’s monthly active users were 1.79 billion globally and 16,000,000 of these were from Nigeria (*INTERNETWORLDSTATS*, 2016). This population of social media users creates wider opportunities for librarians to disseminate information that should not be ignored.

There are many benefits that libraries and information centers can derive from the use of social media. Similarly, students and researchers can derive a lot of benefits from the use of social media. Some of these include:

- Increasing awareness and impact –more and more people read your work and write about your work
- Researchers get quick feedback on their works from colleagues around the world.
- Promotion of your work -raising the profile of your work more rapidly than conventional academic publishing allows.
- Staying up to date is easier -you get a pulse of movement in the industry.

4.0 CONCLUSION

In conclusion, social media are interactive technologies and platforms that allow two-way communication, and they enhance the delivery of information services to users. Social media are technology-aided platforms that bring social interaction to reality through the internet as a medium. Social networks are useful for building relationships with users of products and services. Social network platforms like Facebook, Twitter, Instagram, Youtube etc. have been seen to be very useful in many areas, especially for information sharing.

5.0 SUMMARY

In this unit we have learned the concept of social media, and the evolution of some popular social media platforms. It is clear that the social media are interactive technologies that grew from web 1.0 technologies. Whereas web

1.0 enables only one way communication, social media which is an improvement in the era of web 2.0, allows two-way communication.

SELF-ASSESSMENT EXERCISES

List five (5) types of social media platforms and briefly explain their evolution

6.0 TUTOR-MARKED ASSIGNMENT

1. What is social media?
2. What are the differences between social networks, microblogs, blogs, and photo sharing apps?

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UNIT 2: FACEBOOK, YOUTUBE, INSTAGRAM, TWITTER AND PINTEREST

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Discussion on various social media platforms: Facebook, Youtube
 - 3.2 Description of other social media platforms: Instagram and Pinterest
 - 3.3 History and operations of some social media platforms
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

The previous unit clearly explained the concept of social media and its evolution. This unit is focused on the history, growth and operations of the most popular social network platforms. Specifically, we shall be looking at Facebook, Twitter, Instagram, Youtube, and Pinterest.

2.0 OBJECTIVES

At the end of this unit the students should be able to:

- Give a brief description of the social networks
- Explain the growth of the social networks
- Discuss the operations and benefits of the social networks
- Describe issues affecting the use of Social Media

3.0 MAIN CONTENT

- 3.1 Discussion of various social media platforms: Facebook, Youtube
- 3.2 Description of other social media platforms: Instagram and Pinterest
- 3.3 Issues Affecting the Use of Social Media

3.1 Discussion of some Popular social media platforms: Facebook, Youtube

3.1.1 Facebook

Mark Zuckerberg, along with his friends: Eduardo Saverin, Andrew McCollum, Dustin Moskovitz and Chris Hughes are credited as founders of the Facebook. They were all roommates and students at Harvard College. Currently, Facebook ranks among the top five companies in the USA with global users more than the population of China. It is certainly one of the world's most valuable companies. It is the world's premier and most popular SN institution. Basically, Facebook:

- Improves communication by enabling students to easily contact lecturers and other students with questions
- Easily integrates class projects with Facebook through the sharing of books, reviews, and promoting student work
- Makes learning and studying easier and more enjoyable for students Through its applications and groups
- Enables teachers to schedule events, post notes, and remind students of important dates and due dates
- Serves as a news source by posting status updates and follow other media and well-known leaders

Facebook as a social media networking platform has been utilized on a daily basis by undergraduates as reported in some research studies. It is part and parcel of Web 2.0 supporting technologies. Most libraries, like many organizations have Facebook pages through which they provide library services to their users on current events, and arrival of new collections.

3.1.2 YouTube

YouTube is a very effective social media platform that can be used by libraries to share library and information resources in video format available in their libraries. Most information resources now come in text and in audio visual form. This enables users to learn using audio and video information as leaning tools. Libraries can now package their workshops, conferences, and practical training on how to use the library OPAC, or physical shelves and upload them on YouTube for users. With the Youtube, librarians and tutors can:

- Search for video-clips under specific topics that can be used in the classroom to give a lesson in a more memorable way
- Organize playlists to enable students to easily find and watch all relevant and approved videos on a topic
- Record lessons and post them on YouTube in order for students to review them whenever they want to
- Create interactive videos by adding quizzes, comments, etc. to it

3.2 Description of other social media platforms: Instagram and Pinterest

3.2.1 Instagram

Instagram is a unique social networking platform. The design strength of Instagram is communication of video and photo media. Instagram is probably the best social media that businesses can use to create native advertising to showcase their brands and reach potential customers.

3.2.2 Twitter

Twitter is a micro-blogging site that gives users the opportunity to compose detailed message that is not more than 140 words in a given post. It is another social media that is popularly used in professional circles. The message communicated on Twitter is called tweet. On Twitter, users are allowed to make public anything as far as it can be reduced to 140 characters or less, it can easily reach desired audience and beyond (Marion & Omotayo, 2011). As at 2016, Twitter has over 313 million active monthly users, over one billion monthly site visits and 82% active users on mobile. In line with its mission, users are empowered to create and exchange ideas and information instantly, without barriers. (about.Twitter.com, 2017). Twitter's large followership has been seen as a credible platform for any organization that wants anything to be popular. On Twitter, users can do a lot of things such as:

- Post additional materials such as links to articles and videos in order for students to continue with their learning even if classes are over
- Set up specific feeds to enable all students see and monitor certain events
- Develop a feed for your students in order to tweet about important dates, upcoming events, and assignments, as well as class news
- Connect with other students, lecturers, as well as parents in order to increase communication and build community
- Follow tweets of other lecturers in order to keep up with the latest teaching trends, to get ideas, and to support one another
- Share ideas and collaborate with lecturers and students from other classes, schools, and departments

3.2.3 Pinterest

Pinterest in recent times have become one of the fastest-growing social networks in Nigeria. Pinterest is a self-proclaimed online pin board site. People and companies are using it to organize and show off their “favorite things” on digital bulletin boards by uploading photos and graphics directly from their computers and smartphones (there is a free app for iPhone users) and by “pinning” images and graphics from websites. Any user can have an unlimited number of boards, and each board can have an unlimited number of pins It is currently in an invite only phase-meaning Pinterest or someone who is a Pinterest member must invite you. To sign up, your account must be linked to an existing Twitter or Facebook account, but you will be able to change this once you have set up your account by editing your profile (Queenslibrary.org). Moreau (2022) addresses the question: what is Pinterest any how does it work? On Pinterest, users can:

- use community boards for group projects, as well as brainstorming to enable a number of users save their resources in one place
- utilize its features for presentations and projects
- Search for inspiring tips on how to organize and decorate your room/classroom
- Search, find, pin, and organize images, projects, videos, stories, etc. for future classes and projects.

3.3 Issues Affecting the Use of Social Media

Social media has undoubtedly created many benefits but there are numerous issues associated with the use of social media in our world today. In this section, we shall highlight some of the conventional ones, try to understand their implications and also attempt to source out solutions to these problems:

3.3.1 Social Issue

Social media has had numerous effects on society as a whole, it is valid argument that social media has done more good than evil. However, the societal issues that social media has brought with its advantages are numerous. Some of them include:

- **False Information:** Social media has in its relatively few years of existence almost replaced many personal contact media such as radio and television. News can now be disseminated quickly to a wide range of users in very little time, even if such news/information has not been fully verified. Such news can be misleading and the fact that users completely trust these sources and share this info without verification further compounds the problem. Although very reliable information could be gotten from the social media, and the fast dissemination has even saved lives, false information still thrives on social media because its users fail to properly analyze information given to them. A partial solution to this can be sharing news from only verified sources.
- **False Identities (Cat-fishing):** All a person needs to create a social media account is a few personal questions, an email or phone number and you're good to go. This ease of access makes it easy for users to log in and out, however it also makes it easy to impersonate other people or take totally new personas without having any ties to

the real person controlling the account. The verification system used by platforms like “Facebook”, “Instagram” and “Twitter” has helped curtail these activities; however, this doesn’t cut it as fraudulent activities are still carried out through fake accounts. Some accounts purposely use erotic or very sexual profile displays to attract more followers to their pages, even though this is not exactly fraud it still poses a threat to the purpose of social media which is to connect with “real people”.

- **Free Speech:** One of the core fundamentals of social media is the freedom of expression it gives to its users however, this “free speech” has continually been abused. There have been cases of defamation, slander and a host of other atrocities being perpetrated all in the name of expressing one’s right to free speech. From racist comments to hate speech, all these are done under the cover of expressing one’s rights. Many social media platforms have community guidelines that a user must accept before using the platform; this has helped curtail the frequency of such things. The guidelines aim to protect members of the community from the use of hurtful language
- **Mobilization/Terrorism:** Terrorism is now a worldwide menace and has evolved even to the extent of using social media to broaden their reach. There have been records of terrorist groups such as ISIS posting on social media to mobilize supporters for their cause. These terrorist organizations have even used social media to recruit members, they use social media like regular users using tactics highlighted in “False Identities” above to stay hidden and hide their intentions.

3.3.2 Legal Issues

There are very many legal issues associated with the use of social media. We would in this context refer to legal issues as problems that may involve arbitrations in a court of law. A few of them include:

- **Copyright Infringement:** Due to the astounding number of user generated content, it seems impossible to avoid content that does not possess copyrighted content, a lot of these social media platforms have been sued because their users utilized copyrighted content such as music and stock photos. Even though they usually

get away with it (due to the fact that they do not receive any monetary gain from the posts), this seems to be an almost impossible problem to overcome as a lot of things can be tagged as copyrighted, from company names or likeness, images, logos to even company taglines. Setting down conditions for the use of content tends to force users to be more original with their content, but the parameters needed and the policing involved are complex and do not have the sameness of application across legal and political jurisdiction.

- **False Testimonials:** Online retailers tend to use false testimonials to lure prospective customers into buying their products. This seems to be quite harmless, but it is a system that tends to reward dishonest people and even move consumers in the wrong direction. This can only be addressed if the said product is appalling enough to make the consumers file a report or call out such brands. In effect, this means that if two similar retailers with similar product quality are put side to side, the product with more testimonials even if false is likely to get more customers.
- **Defamation:** Social media has a wide reach when it comes to interpersonal connections; defamation here is different compared to the less harmful type frequently encountered in places of work because the effect will be in a hundred fold, causing enormous amounts of havoc for the one at the receiving end. Although this is arguably the expression of one's freedom of speech it is important to note that allowing this would cause a lot of people to lose face after being accused even if such accusations are unfounded. In light of this, such unfounded accusations can get you on the wrong side of the law.
- **Misleading users via sponsored posts:** This is one of the newest on the list, as many influencers are paid to promote a post and give dishonestly good reviews on products, thereby misleading their unwavering followers into accepting a product. In the United States, the Federal Trade Commission (FTC) has stamped down on these influencers and would take on cases if such misleading information would cause harm to consumers in anyway.

3.3.3 Health Related Issues (Mental Health)

The excessive use of social media has been loosely linked to many underlying health related issues such as anxiety, depression and many other, we will generally relate this to mental health. Humans are extremely social creatures and our ability or inability to prove our social prowess has a mighty big effect on our mental health, being socially connected to others helps ease stress, anxiety and even depression. However, the abusive and excessive use of social media does the exact opposite. Physical/real human connection cannot be replaced by social media, it is not meant to be a substitute, and spending expensive time on social media is actually an underlying cause of feelings of sadness, frustration or loneliness. This can however be curtailed by creating a scheduled time for social media and following it, or even taking a long break from all social media platforms and trying to connect with the world around you.

4.0 CONCLUSION

This unit has helped us to understand the development and operations of the major social media platforms utilized in libraries globally. We have seen that social media platforms could be utilized for variety of information related tasks such as sharing information, information literacy campaigns, and general awareness campaign. It is imperative to note that most of the issues associated with the use of social media have their origins from the consumer/user side. Social media was made as an avenue for people far and wide to have an alternative means of communicating with each other and even create new connections. However, its misuse has created many issues which we were only able to scratch on the surface. The best way, perhaps, the most effective way for these issues to be eradicated is through the positive action of its users to do what is right in their own capacities, so as to make the world a better place for all of us.

5.0 SUMMARY

This unit focused on the development and operation of Facebook, Twitter, Youtube, Instagram, and Pinterest. The unit looked at the basic ways these platforms operate and the various activities that could be carried out with them and issues that can arise from wrong use of social media.

SELF-ASSESSMENT EXERCISES

1. What type of policies have social media platforms used to stamp down on false identity/ identity theft on their platforms?
2. In what ways can using fake testimonials on social media affect rival businesses?
3. Explain in detail why defamation on Social media is worse than the less harmful form found in places of work.

6.0 TUTOR MARKED ASSIGNMENT

1. Briefly discuss how to operate: Facebook, Twitter, Instagram, Youtube, Pinterest
2. List at least four (4) things each that an information expert could do with Facebook, Twitter, Youtube, Instagram, Pinterest
3. List the different types of Social media according to this text, and give at least one example of each?4. What type of social media is best suited for peer-to-peer interactions? Give your reasons and examples of such platforms
5. According to this text, list three (3) less popular uses of social media and share your view on why you think they are less popular than others

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UNIT 3: BLOGS, SOCIAL BOOKMARKING SITES, WIKIS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Definition and description of Blogs
 - 3.2. Social Bookmarking Sites
 - 3.3 All about Wikis
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

We have already studied about evolution of social media and different types, this unit aims to focus on types of the social media most commonly used in academic environment. That is, Blogs, social Bookmarking sites and Wikis.

2.0 OBJECTIVES

At the end of this unit the students should be able to:

- define the concept of Blogs, Bookmarking sites, and Wikis
- explain the basic functions of Blogs, Bookmarking tools, and Wikis
- understand the techniques and procedure for using Blogs, Bookmarking tools and Wikis

3.0 MAIN CONTENT

3.1 Definition and description of: Blogs

The word “blog,” is a coinage from “web log,” and it is a web page with written that mimic a physical diary. The term “log” comes from the history of nautical navigation and it was used to refer to a chronological list of activities in a ship during a voyage. Blogs are internet enabled platform for

writing and keeping series of events in an orderly format. Unlike other forms of write ups, posts made on blogs are usually short, and focus on topics. Walker (2005) posited that a “Blog is a website displaying dated entries in a reverse chronological order, most often containing links and other kinds of interactivity between websites and frequently featuring conversational features on the individual blog, for instance, a comment section”.

Simply put, a blog is a discussion site published on the web where users can make posts displayed in a reverse order form. Blogs have been used in academic environment as discussion enablers. For example, to make students talk freely on an issue, the instructor can simply post a question about it in the class’ blog, and ask students to make comments. With these students who otherwise might say anything in a classroom environment will find it easy to express themselves. And their contributions could be aggregated or compiled and later reviewed in the classroom.

It requires a lot of effort to keep a blog attractive and interesting to visitors. In the first place, to attract users to a blog the topic of the blog must be such that catches their interest. According to the Thompson Writing Program at Duke University the following principles should be considered in order to have an attractive blog: Consider the following principles when composing:

1. “**Make a point:** While posts do not require a formal thesis or claim, it is important to have an argument, opinion, or purpose in mind when you compose.”
2. “**Be concise:** Use precise language and coherent syntax to make your posts easy to read.
3. **Post often:** Blogs should be updated regularly to hold readers’ interest. Actively generate new and interesting content on a daily or weekly schedule”.
4. “Consider inviting guest bloggers to appeal to diverse readers, broaden your blog’s scope, or refresh your own perspective on the project.”
5. “**Proofread:** Careless mistakes and errors can distract readers and make you appear less credible as a writer.”
6. “**Create visual interest:** Consider which aspects of your content would pair well with visual elements such as photographs, figures, or videos. Break up large chunks of text with visual elements to make your blog more readable” (<https://twp.duke.edu/sites>).

3.1.2 Characteristics of Blogs

Blogs have certain characteristics that no other media can possess. For example, most readers chose blogs because of the depth of information, for

up-to-the-minute 20 news, for commentary and analysis, for unfiltered information and to track a story over time, as well as ability to link to other sources (Kaye, 2005). Other characteristics according to Kornejeva (2012) include:

1. Personal fulfillment: blog users find blogs entertaining, fun, relaxing and interesting. Blogs offer escape from work and boredom, and they are humorous.

2. Expression/affiliation with bloggers and blog users: Blog users enjoy affiliating with other blog readers and with bloggers. Users express their opinions, read opinions of others, keep up with social trends, make friends, develop a sense of community, mobilize behind a cause, network, keep in touch with friends and family members who blog.

3. Information seeking Blog users have the opportunity to search for a wide variety of information for work or school, for personal reasons, etc.

4. Intellectual/aesthetic fulfillment: blog readers want to learn something new, debate, sharpen their critical thinking skills, want to learn from experts or are drawn to good writing.

5. People with **anti-traditional-media** sentiments are drawn to blogs because they consider traditional media biased. Many blog users consider blogs an alternative or a supplement to traditional media. They offer broader spectrum of news or news that are not available in traditional media.

6. **Guidance/opinion** seeking users choose blogs to receive support and validation of their opinions and for help to make up their minds about important issues.

7. Blog users seeking **convenience** turn to blogs because they can quickly access information, and they are less expensive than buying a newspaper.

3.1.3 Types of blogs

There are a number of types of blogs divided mostly by the purpose they serve. However, there are generally two major types of blogs, that is, corporate/organizational and Personal blogs. Corporate blogs are those blogs run by organizations such as universities, business and banks. While personal blogs are those run by individuals. Irrespective of type, blogs could focus on a variety of topics such as sports, finance, fashion, religion, service delivery. The subject of the blog is usually selected based on the needs of the people who are the primary subject.

The most popular platforms for creating blogs are Blogger powered by Google, and WordPress. On both platforms users can create and freely operate personal and cooperate blogs. However, to have access to certain features in the platform users are required to upgrade their accounts by making payments.

3.1.4 Blogs and Librarianship

Blogs offer library and information professionals great opportunities to reach their users with their resources and services. Academic libraries post emerging services to their blogs for the benefit of both faculty and students. They can also provide the lead in discussing current and critical issues in the contemporary space. Blogs are veritable platform for selective dissemination of information. Current Awareness Service (CAS) and provision of subject based bibliographies. Public libraries can use blogs to provide healthcare information during an epidemic or pandemic. Public library blogs can be useful in providing tourist guides, information on mental health challenges and opportunities for further studies. Law library blogs can and should be used in providing information or current judicial pronouncement, case laws and legal information services to the often very busy legal practitioners. Research libraries will find blogs very useful in showcasing new research findings or the status of current research undertakings. (Dhiman and Sharma, 2008)

3.2. Social Bookmarking Sites

In the traditional sense, a bookmark is anything used by readers to serve as reminder of where they stopped in order to help them pick up reading next time without having to go through the whole pages. An internet bookmarks functions in the same way. A bookmark is a place holder for a web page that allows a person have quick access to a web page without having to browse or search for it from the beginning.

According to Adobe.com (2021) “a *bookmark* is a type of link with representative text in the Bookmarks panel in the navigation pane”. Initially, a bookmark displays the page that was in view when the bookmark was created, which is the bookmark’s *destination* (<https://helpx.adobe.com/acrobat>).

More commonly used in the social media space is social bookmarking sites. Unlike regular bookmarking, social bookmarking sites allows users to save and share web addresses and sites on the internet. As Arens (2019) noted, “Social bookmarking is the process of tagging a website page with a browser-based tool so that you can easily visit it again later”. Arens further noted that “Social bookmarking sites began as simple resources for social media and content marketers. Today, they are diverse and dynamic online communities, where users discuss links and develop groups based on shared relevancy.”

In a social **bookmarking** system, users save links to web pages that they want to remember and/or share. These bookmarks are usually public, and can be saved privately, shared only with specified people or groups, shared only inside certain networks, or another combination of public and private domains (Wikipedia.com, 2021).

Basically, **Social bookmarking** sites as online services allow people to add, annotate, edit, and share bookmarks to web pages or documents. Some of the most popular social bookmarking sites are: Twitter, Pinterest,

Stumble Upon, Dribble, Pocket, Digg, Reddit, Slahdot, we hear it, and Scoop.it. With these users can conveniently bookmark web pages and web documents for future use or for the benefit of others.

3.2.1 Advantages of using bookmarks:

1. Libraries use bookmarks to provide lots of vital links to library users.
2. They provide access to aggregated bookmarks from various sources.
3. They are useful in organizing large volumes of bookmarks.
4. Institutions, individuals and libraries have found bookmarking a vital strategy for enhanced information sharing.
5. Bookmarking have emerged as a strategic educational tool in knowledge communication, interaction and deliberations.
6. In academics, they are used for web pages' categorization and organization.
7. They make tagged webpages available and reachable in a networked environment.
8. They facilitate collaborative information sharing in the teaching, learning and research environments

Disadvantages of Bookmarks:

Its populist nature, makes bookmarking susceptible to corruption and unhealthy collusion, for instance they can be used for multiple tagging gain for undue visibility and enhanced ranking of websites.

3.3. WIKIS

Goran (2011) has identified why wikis have become a critical source and destination of information. The popularity of wikis derived from principle of shared authorship and social editing. Shared authorship means that many persons cooperate in creating the content and disseminating the source work together to create and disseminate contents implies that wikis writers have an understanding as to ownership, attribution and integrity of all materials they contribute with regardless of copyright issues. Social editing is the process that enables authors to contribute to improving the content by correcting errors and enhancing the clarity, precision and effectiveness in words, phrases and sentences. Shared authors are able to add, delete, rearrange words, phrases, sentences and streamline the whole structure of the wiki content.

When you hear the word 'wiki', you most likely think immediately of Wikipedia, the online encyclopedia. With the site bearing the root word, you would be forgiven for thinking it is related (Lebar, 2017). The term "wiki" is a Hawaiian word meaning *“quick”*.

A wiki is a web application that allows users to create, add, edit, and delete content in collaboration with others. With this wiki arrangement none of the contributors owns the content, and the content do not have any particular structure. So, a wiki is geared towards collaboration and content

contribution and by nature, it allows external addition and content editing. That is, two people can work on the same document the same time from different locations and while one is writing, the other can be editing the same document. With this collaboration can be easy and real time. As Lebar (2017) noted “the important part of wikis—what makes them different from any other type of website—is *collaborative editing by the users*”.

A **wiki** is a useful tool for enhancing collaboration among students especially when they have to contribute or edit some pages in course related materials. As earlier stated, wikis are collaborative in nature and this allows it to serve as a tool for community-building among students and researchers.

According to Vanderbilt University (2021) (<https://cft.vanderbilt.edu/>) some common uses of wikis include:

- Mini research projects in which the wiki serves as documentation of student work
- Collaborative annotated bibliographies where students add summaries and critiques about course-related readings
- Compiling a manual or glossary of useful terms or concepts related to the course, or even a guide to a major course concept
- Maintaining a collection of links where the instructor and students can post, comment, group or classify links relevant to the course
- Building an online repository of course documents where instructors and students can post relevant documents
- Creating e-portfolios of student work

3.3.1 *What can you do with a wiki?*

With wikis collaboration becomes easy, and content creation becomes normal even for amateurs on the internet. In the first instance, wikis are composition systems that make it easy to write on a web page. Thus, wikis facilitate quick composition and content editing on web pages. Also, Adding Links to Wiki Pages is Quick and easy.

As noted by Lebar (2017) in summary, wikis:

- “Make it quick and easy to write information on web pages”.
- “Facilitate communication and discussion, since it's easy for those who are reading a wiki page to edit that page themselves.”
- “Allow for quick and easy linking between wiki pages, including pages that don't yet exist on the wiki.”

Kurt (2017) has noted the following remarkable advantages of use of wikis in education setting:

- Offer content access at all times, no matter where the user is located

- Support many forms of media, including URLs, photos, videos, and music
- Let the user view every change and entry for group assignments
- Collect information from student groups
- Allow for collaboration in writing of assignment or course reviews
- Offer a highly useful resource for teamwork and conversation at a low cost
- Allow for detailed reading, modification, and recording of each draft
- Foster collaboration between teachers and students in the design and implementation of uncomplicated webpages
- Encourage peer review and editing in group assignments
- Allow for collaborative authoring of projects and assignments
- Offer an alternative to traditional presentation tools like PowerPoint
- Provide an environmentally-friendly alternative to paper-based assignments
- Allow for easy tracking of deadline compliance thanks to date and time stamps
- Show all revisions, offering options like reverting to former versions and ability to undo changes

Rasmussen, Lewis and White (2013) believe “that wiki technology offers a number of potential benefits for administrators, students and instructors, including the ability to share information online, to construct knowledge together, to facilitate collaboration and to enable social learning and peer feedback”. In view of this, many educational institutions in developed and developing nations are adopting wikis to facilitate classroom instructions and promote collaboration among students.

There is need to ensure proper preparation of students before implementing wikis in the learning process to ensure it succeeds. The study of Zheng, Niiya and Warschauer (2015) demonstrates that “while wikis can be a tool for post-secondary collaborative learning, appropriate pedagogical supports are required for successful implementation”

.

4.0 CONCLUSION

Blogs, Bookmarking sites and wikis are essential content creation and collaboration tools powered by the web. They have been seen to be crucial tools for enhancing education, and for helping information users to create instead of just consuming information. Blogs do not just allow users create their own stories, they also give people the opportunity to contribute freely to ongoing discussions. In the same way, Bookmarking sites allow people to store and share information and links to sites. Wikis are useful tools for collaboration and allowing users to create and edit useful educational

contents. For example, with Wikipedia users can create, edit and add sources to publicly available information.

5.0 SUMMARY

In this unit we have taken time to discuss blogs as online diaries and platforms for discussion and collaboration. We equally looked at bookmarking sites and wikis. This unit further outlined the requirements for operating wikis and the benefits they bring to the education system.

SELF-ASSESSMENT EXERCISES

What are wikis?

Discuss three (3) things students and researchers can do with a wiki.

6.0 TUTOR-MARKED ASSIGNMENT

1. What is a blog? An are the benefits of a blog?
2. What is bookmarking? How can you bookmark a site?
3. List ten (10) examples of bookmarking sites

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MODULES 5: SOCIAL MEDIA NETWORK II

Unit 1: Podcasting, Instant Messaging, Access from Mobile Technologies, RSS

Unit 2: Emerging Terminologies: Web 2.0, Library 2.0

Unit 3: Challenges of Information Search in a network Environments

Unit 4: Emerging Issues for Library and Information Professionals

Unit 5: Emerging Management Imperatives for Information Professionals

UNIT 1: PODCASTING, INSTANT MESSAGING, ACCESS FROM MODERN TECHNOLOGIES, RSS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Discussion on various social media platforms: Facebook, Youtube
 - 3.2 Description of other social media platforms: Instagram and Pinterest
 - 3.3 history and operations of some social media platforms
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

2.0 OBJECTIVES

3.0 MAIN CONTENT

- 3.1 Discussion on various social media platforms: Podcasting, IM, Mobile Technologies, RSS

3.2 Podcasting

Podcasting is the process of capturing audio digital-media files which can be distributed over the Internet. This tool is very useful for sharing audio programmes among the users. Podcasting is also the same kind of service

for video format (Kumari & Khan, 2015). Law libraries can utilize this service for offering library instructions to the users in audio-visual format being services that are used in delivering library web-based services (Hutchinson, 2014).

3.3 IM

IM, the acronym for Instant Messaging represents an instant means of getting help by individuals or patron who is in need of immediate information without limitations to distant. An instant messenger is a new technology for telecommunication over the Internet for real-time text messaging and chat (Firoozeh, et al, 2017). With the arrival of wireless networks and mobile technologies such as 3G and 4G, internet access via mobile phones has increased significantly, these applications evolved in the form of mobile phones as mobile instant messaging applications such as such as WhatsApp, Telegram, Imo, et cetera, and grew rapidly in terms of both types and numbers of users. Since libraries are interested in providing users with their resources at any time and in any place, the use of mobile devices is a golden opportunity for libraries, and in particular law librarians, to provide their services on a mobile platform. Since law libraries for instances are saddled with the responsibilities of providing lawyers and law students with their resources at any time and in any place, the use of mobile devices is a golden opportunity for the library, specifically law librarians, to provide their services on a mobile platform.

3.4 Access from Mobile Technologies

Mobile technological systems such as cell phones, and Ipads have become an integral part of almost all the library users' life. The need for law librarians to adequately carry out their obligations and take library services to the users has brought about the desire to continuously explore mobile phone applications such as Twitter, Whatsapp, Facebook, Skype and others as communication infrastructure capable of creating an interface between the library, its resources and its users (James & Emmanuel 2017). According to Kumar (2014) it is considered as a learning device as well as a tool for delivering library services. In earlier days, libraries as well as law libraries were used to informing their users through notices, circulars, etc. putting on notice boards about the library activities. Nowadays, according to Hutchinson (2014), SMS or message using an app has become a vital mode of direct communication with the users, the usage of mobile phones is not restricted to the message or alert services; the e-resources can be accessed using smart phones. Kumar (2014) has described the potential library services that can be rendered through mobile devices. For example, the law library being one of the major libraries saddled with the responsibilities of providing up-to-date information to her users can introduce the SMS services for various purposes: such as alert about membership status, alert for new activities/ services launched, alert for new arrivals of information resources, alert for reference queries, alert for issue/

return of books, reminder for overdue material/fines, request for renewal/availability/ reservation of books among others. Also, the library can implement Web 2.0 tools for delivering library services efficiently if the users are fond of smart learning devices. (Kumar, 2014). This is not the matter of convenience, but to learn the use of electronic devices in their professional life which is indispensable for future lawyers (Glankler, 2009).

3.5 RSS Feeds – Really Simple Syndication or Rich Site Summary.

RSS feeds can possibly be used to update users about the additions or changes that take place on websites of interest, and providing updates from one source instead of accessing individual websites, students can subscribe to those RSS feeds that cater for their academic and research needs. For example, the Library of University of Southampton provides news feed on RSS to inform students about activities and events held in the University (University of Southampton, 2022). With the rise of Web 2.0, many librarians (law librarians inclusive) have identified RSS as a beneficial technology for current awareness and they have traditionally been involved with the provision of current awareness services. RSS is a technology that has the potential of overcoming many of the challenges facing libraries today and becoming a preferred tool to get most of library content delivered to the users, as well as a tool to help in making the library website top searchable site (Dey & Sarkar, 2009). RSS can be considered valuable for library settings because they make use of a single interface (the feed reader) to manage current information from new sources, such as websites and blogs, as well as from traditional information sources such as journals articles. “RSS is used for publishing frequently updated content such as blog entries, news headlines, and podcast in a standardized format” (Goswami & Choudhury, 2014). It can be used by libraries to keep users updated and send alert about new books, articles, library news, happenings and even table of contents from new journals. According to Davies cited in Dey and Sarkar (2009) in library implementations, RSS has been used to promote new resources, deliver library news, and provide database alerts. Librarians have discussed the technology explicitly in terms of providing current awareness services to clients and have found it most useful in their day-to-day service provision.

4.0 CONCLUSION

Podcasting provides a platform for the library to build relationships with their users. It aids publicity of and participation in library programmes. We have discussed how Instant messaging can be used to fast-track service delivery to library patrons.

5.0 SUMMARY

In this unit we have taken time to discuss podcasting, instance messaging and access from mobile technologies as emerging platforms for service delivery by libraries. We also discussed how these platforms can facilitate quick and efficient information sharing with users.

SELF-ASSESSMENT EXERCISE

Discuss the place of mobile devices in information delivery to library users.

6.0 TUTOR-MARKED ASSIGNMENT

1. Define podcasting
2. Identify ways this platform can be used to engage library users
3. What is instant messaging?

7.0 REFERENCE/MATERIALS FOR FURTHER READING

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UNIT 2: NEW PARADIGMS FOR INFORMATION SERVICE DELIVERY USING LIBRARY 2.0 TOOLS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Other emerging Library 2.0 tools
 - 3.2 Library 2.0 tools and technologies for the transformation of information service delivery
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

In Unit 1 of this module we examined podcasting, RSS, instant messaging, and the place of mobile technology in information service delivery. In Unit 2 we will extend the discussion to cover other Library 2.0 tools and techniques.

2.0 OBJECTIVES

After going through this Unit, learners will

- Understand other emerging Library 2.0 tools
- Explain how Library 2.0 tools and techniques has or can transform information service delivery

3.0 MAINT CONTENT

3.1 Emerging Library 2.0 tools

Shukla (2018) has discussed the use of library 2.0 tools and technologies in academic libraries. He argues that library 2.0 evolved from Web 2.0. Combining these web applications with library services is responsible for the emergence of Library 2.0. The feature of Library 2.0 is that it is multimedia, interactive and collaborative. It is a system of service

transformation driven by emerging technologies to evolve better library and information delivery to users. Aspects of these have been discussed in previous modules and units of this course. A synthesis of Library 2.0 which can transform is vital at this point. Library 2.0 tools and technologies which have redefined the frontier for service delivery include the following:

3.2 Streaming Media.

Streaming media are powerful tools for librarians to use to deliver sequential multimedia content over computer network in a playback manner.

3.3 Blogs

Blogs are viewed as perfect means of disseminating information as the system of dated entries makes it easy for viewers to identify new content (Dhiman & Sharma, 2008). Harder and Reichardt cited in Dhiman and Sharma (2008) suggest that academic libraries can develop department or subject specific weblogs to reach faculty and graduate students with contents customized to meet their information needs. Blogs are natural for librarians, mostly the law librarians being an extension of their duties to: identify, organize, and make information accessible in libraries. They give librarians an opportunity to be more responsive, to reach out to the lawyers and other law library users in general. Library blogs are used to highlight news, post student/faculty book reviews and invite comments, announce events, list new acquisitions, et cetera (Anil & Hemant, 2008).

3.4 Social Networking

Social networking refers to a range of web-enabled software programs that allow users to interact and work collaboratively. It includes ability to browse, search, invite friends to connect and interact, share film reviews, comments, blog entries, favorites, discussions, events, videos, ratings, music, classified ads, tag and classify information and more (Mishra, 2008). A social network allows individual to join and create a personal profile, then formally connect with other users of the systems as social friend. Social networking is about how people use social media tools to communicate and engage with each other and build online communities.

Social networking platforms (SNP) provide an innovative and effective way of connecting users (O'Dell, 2010). Social networking sites can be broadly defined as an internet or mobile-based social space where people can connect, communicate, and create and share contents with others (Waitley, 2015).

Librarians can create library's page on Facebook and users can have access to this information. Twitter can be used to provide current awareness services (Glankler, 2009). Jeske et al. (2014) suggest that libraries can use social media as a marketing tool to promote upcoming legal database training sessions while [Intachomphoo, C., Jeske, M. and Landriault, E.\(2016\)](#)

observed that using Facebook as a promotional tool helped increase the registration numbers for legal database workshops at their law library.

3.5 Wiki

Wiki can be likened to a server program that allows users to collaborate in forming the content of a Web site. Wikis seem to enable and facilitate the collaborative creation of any kind of document. Libraries have been using Wikis for group learning, sharing knowledge and experiences and for creating subject guides. (Goswami & Choudhury, 2014).

3.6 SMS

Mobile technological systems such as cell phones, and I pads have become an integral part of almost all the library users' life. Nowadays, according to Hutchinson (2014), SMS or message using an app has become a vital mode of direct communication with the users, the usage of mobile phones is not restricted to the message or alert services; the e-resources can be accessed using smart phones. Also, the library can implement Web 2.0 tools for delivering library services efficiently if the users are fond of smart learning devices.

3.7 Bookmarks

Bookmarking is a method for Internet users which can be used to manage, organize, store and search for bookmarks of resources online. According to Idowu, Joseph & Oluwaseun (2014), social bookmarking tools are described as an extension of the "bookmarks" or "favourites" features of your Web browser. Social bookmarking tools can include annotations and tags to assist in locating resources again and in sharing with others. These tools can foster collaboration and sharing of collections and online contents (Goswami & Choudhury, 2014). Social bookmarking is considered very useful for sharing the tagged online resources on a particular topic among the library patrons. Social bookmarking sites like Delicious and Diigo help to organize browser's bookmarks.

3.8 Vodcasting

Vodcasting is the video version of podcasting which is generally audio-based. The library can engage in a type of video – on – demand service to promote and publicize library resources, services and activities.

3.9 Tagging

Required or term assigned to a digging object. Users can create subject heading for objects at hand.

3.10 Mashup

This web application combines data from many structures into a single integrated tool. The Library 2.0 environment it remembers a user when he/she logs in and permits him to edit OPAC data and metadata. It also saves the user's tags.

3.11 AJAX

As discussed earlier, AJAX simply means Asynchronous JavaScript and XML. Librarians must learn how to use this tool to:

- a. Creating webpages with easily changeable parts;
- b. Increases web pages speed, functionality and usability; and
- c. Update webpages.

3.12 Library toolbars.

When an application is used more often it may be necessary to create a graphic user interface consisting of a panel of buttons, icons or commands. The visibility of the toolbars can provide library users with a quick access to library portals, databases and websites.

4.0 CONCLUSION

The library and information service ecosystem has experienced a paradigm shift. The paradigm has shifted from the physically situated environment to an electronic one. This shift has blurred time and distance, enabling librarians to leverage on Web 2.0 and Library 2.0 to promote service delivery efficiency. From podcasting to vodcasting, instant messaging, wikis, blogs, social media networking and a host of other platforms, Library 2.0 has become both irresistible and inevitable platforms that enhance the work of librarians and other information professionals.

5.0 SUMMARY

In this unit further, considerations have been given to emerging library 2.0 tools and techniques which are transforming information service delivery to the clientele. These technologies provide the appropriate operational framework for information institutions to effectively and efficiently deliver quality services to users of all categories.

SELF-ASSESSMENT EXERCISE

Explain the following concepts: Mashup, vodcasting and tagging.

6.0 TUTOR-MARKED ASSIGNMENTS/QUESTIONS

1. How can libraries use the social networking to promote services to users?
2. In what ways can libraries use AJAX Web activities?
3. Discuss the following Library 2.0 concepts: Wiki, Bookmarks, Streaming Media and Blogs.

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UNIT 3: CHALLENGES OF INFORMATION SEARCHING OF INTERNET ENVIRONMENT.

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Challenges of navigating the Net environment
 - 3.2 Solutions to the challenges of searching the internet
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

.1.0 INTRODUCTION

This Unit focuses on the challenges associated with information searching in the internet environment.

2.0 OBJECTIVES

The learning outcomes include:

- Clear understanding of challenges of navigating the Net environment
- Learners' ability to proffer solutions to the challenges of searching the internet

3.0 MAIN CONTENT

3.1 Challenges of navigating the Net environment

Navigating the labyrinth of the electronic ecosystem can be very challenging. lack of browsing skill, insufficient ICT infrastructure, poor internet service, erratic power supply, lack of browsing time, difficulty in finding relevant information, high cost of subscription, high downloading/printing cost, too many online databases and uncooperative attitudes of library staff are all the challenges. In summary the key challenges of effective and efficient searching in the internet environment are human resources, infrastructural, Internet and security related.

3.1 Human Resources Challenges

Operating in the electronic environment is quite different from the familiar physical environment. Online navigators are often confronted with the following challenges:

3.1.1 Lack of browsing skills

Lack of Net navigational skills will curtail optimal access and use of web-based resources. Sufficient browsing skills is *sine qua non* to maximal access and use of Net resources.

3.1.2 Poor knowledge of search strategy

Searching the Net requires the ability to deploy appropriate search strategies. The absence of this can lead to retrieval of a lot of garbage because the principle of GIGO (Garbage In Garbage Out) will apply.

3.1.3 Uncooperative attitudes of library staff

Librarians as front-line information professionals must realize that new users of the internet can be overwhelmed by the complexities of the Net environment. Uncooperative attitude from them can be a discouraging factor of new Netizens.

3.1.4 Issues on effective administration of complex networks

The administration of networks can be a complex challenge. Information professionals who are not knowledgeable about issues of network administration (whether local-LAN, wide-WAN, metropolitan-MAN or the internet will not be able to address network issues such as connectivity, bandwidth renewal, and security. These can result to ineffective network administration.

3.1.5 Lack of time for browsing

This is particularly the case in school and academic environments where students have stringent academic schedules and teachers have several deadlines to meet. In these cases, browsing the Net is not an affordable investment.

3.1.6 Addiction to Analogue Environment

It is understandable that many Net users are not digital natives. This means that they were BBC-born before computers. The temptation sticks with the familiar can be strong but a major hindrance effective searching of the Net.

3.1.7 Insufficient Training in Library School.

Many Library Schools in developing countries appear not to have a course like this LIS 309 that will prepare their students for real work experience in

a world that is increasingly internet driven. It is not surprising therefore, if studies report that undergraduate students do not have sufficient browsing skills.

3.1.8 Lack of purpose for Getting Online

The Net environment can be likened to wild jungle and the possibility of being lost in the jungle is real. To find direction in the labyrinth of the Net, access to the Net must be purpose driven. The advice is: *know what you need and how and where to get it!*

3.1.9 Internet Related Issues

Beyond and above those human factors discussed above, there are other factors that constitute barriers to rewarding internet navigation experience. They are discussed below.

3.1.9.1 Low internet bandwidth.

It has been indicated earlier that inadequate bandwidth can jeopardize network performance. The cost of bandwidth or data is expensive for institutions and individuals in developing countries. Most institutions and individuals therefore subscribe to what can be afforded as distinct from what is needed. Invariably what can be afforded results to low bandwidth and unsatisfactory Net navigation experience.

3.1.9.2 Online resources not relevant.

There are many irrelevant Net resources. Search retrieval can be overwhelming with a lot of garbage. This is often the case where appropriate search strategies are not employed.

3.1.9.3 Too many online databases.

The Net has a lot of information resources, some good, some bad and others ugly. Many of the databases are free but like book donations, not relevant to the needs of users. On the other side of the divide, propriety databases are so expensive that only few libraries can afford to subscribe to them and sustain the subscriptions on annual basis.

3.1.9.4 Complexity of online resources

The Net is a complex labyrinth, maze and a wild jungle that requires guides to wade through successfully. Knowledge of Net navigational tools like search engines, subject and web directories are critical for this purpose.

3.1.9.5 High cost of subscription to propriety databases.

This point has been alluded to in section 3.2.3 above. The consequence of unsustainable subscriptions is that many institutions do not provide their users with current information resources in newer databases.

3.1.9.6 High downloading/printing cost

Where downloading takes longer time because slow internet connective users are compelled to pay longer internet access. Commercial printing of downloaded resources can be equally expensive.

3.1.9.7 Lack of optimal network performance.

Downtime can be a frustrating experience for Net users. Downtime describes the period when the internet connectivity is unavailable.

3.1.9.8 High cost of bandwidth subscription.

This is a big issue for academic institutions where thousands of students want to get online. It has been argued in section 3.2.1 that subscription to what is can be afforded results to low bandwidth and general unsatisfactory Net navigational experience.

3.1.10 Challenges of Infrastructure

3.1.11 Insufficient ICT infrastructures

Omekwu (2009) has argued that ‘institutions must reposition themselves to cope with the challenges of development in the ICT world. The following are institutional imperatives for ... libraries.

- (i) Computer applications
- (ii) Library automation
- (iii) Local area network
- (iv) Internet connectivity
- (v) Websites
- (vi) On-line law libraries and data bases
- (vii) CD-ROM facilities and resources.

This author has asked elsewhere *What benefits can...libraries derive from ICT application?* To which he answered: *The following are derivable from ICT application to... libraries.*

- *Real-time:* More than two users can all be accessing a... resource online at the same time. A printed book can only be used by a user a time.
- *Diversity of Resource:* The ICT platform provide access to resources in multimedia formats.

- *Co-operation:* The whole essence of professionalism is to enhance contact, communication and co-operation. Professionalism is most enhanced in the electronic environment. Librarians can easily interact and co-operate with one another.
- *Access points:* The ICT platforms provide multiple access points to global information resources that the librarian cannot afford to ignore.

3.3.3 Unstable power supply

3.1.12 Security Challenges

3.1.12.1 Network Security

Network security deals with preventing unauthorized access to network facilities and resources. Without network security hackers can easily bring Net access, resources, services and facilities.

3.1.12.2 Security of Facilities

Facilities such as computers, network cables and servers can be either damaged or stolen without adequate security of services.

- Security of ICT Personnel.

In many organizations ICT staff face various security such as fire, criminal harm and techno-stress. The life of ICT personnel matters!

3.2 Strategies for overcoming challenges of information searching internet network environment.

Put together, solutions to the above challenges include:

- Internet resources should be properly classified
- Awareness of available information resources
- Proper orientation on online service
- Adequate Computer facilities to access internet resources
- Up-to-date information materials
- Constant Power supply
- Strong internet access
- high-quality infrastructure
- Users' adequate skills in search for needed information
- Accessibility to some electronic resources

4.0 CONCLUSION.

Many challenges are associated with information searches of the Internet environment. They include lack of browsing skill, insufficient ICT infrastructures, poor internet service, erratic power supply, lack of browsing time, difficulty in finding relevant information, high cost of subscription, high downloading/printing cost, too many online database and uncooperative attitudes of library staff are all the challenges. Strategies to address these challenges include (but not limited to) proper orientation on online service adequate computer facilities to access internet resources, up-to-date information materials, constant power supply, strong internet access, and high-quality infrastructure.

5.0 SUMMARY

We have considered in this Unit challenges associated with access to and utilization of internet resources. These challenges are human resources, infrastructural, Internet and security related.

SELF-ASSESSMENT EXERCISES

- What are the major challenges to information searching in networked environment?
- Outline at least eight strategies to mitigate the challenges of searching the internet environment.

6.0 TUTOR-MARKED ASSIGNMENTS

1. List the major human resources concern to information searching in networked environment?
2. What are the major infrastructural challenges to information searching in networked environment

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UNIT 4: EMERGING ISSUES FOR LIBRARY AND INFORMATION PROFESSIONALS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Discussion on various issues on navigating the Net environment
 - 3.2 Discussion on new roles for information professionals as a result of challenges of the internet environment
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This Unit focuses on the emerging issues associated with information searching in the internet environment.

2.0 OBJECTIVES

The learning outcomes include:

- Clear understanding of issues of navigating the Net environment
- Learners' ability to discuss new roles for information professionals as a result of the challenges of the internet environment

3.0 MAINT CONTENT

3.1 Discussion on various issues on navigating the Net environment

There is no doubt that the universe of knowledge is growing and expanding exponentially. The need to manage the complexity of the emerging electronic environment is becoming inevitable. The library and information profession must come to terms with globalized information system which is a complex amalgamation of relationships of information resources, services, information professionals and information institutions and practices. Libraries are critical institutions in the advancement of civilization, the enlightenment of the mind and the transformation of societies. Their roles are manifold crisscrossing social, educational,

informational, economic, political and cultural landscapes. As the impact of ICT becomes more pervasive and the work processes of libraries and librarians are technology-driven, library and information profession will be called upon to assume new roles to handle critical emerging issues. The emerging issues include:

- **Automation**

Automation of library operations and work processes have become an imperative. Analogue approaches must give way to technological methodologies if libraries will sustain their relevance in the digital age.

- **Digitization**

Understandably, the collection of every library is in two classes. They are either pre-digital or born digital materials. For born digital collections, their electronic status makes them to be just step to becoming available globally. For pre-digital materials a comprehensive digitization project is the most critical necessity.

- **Institutional Repository.**

Every library institution must create its own documentation of the intellectual output of its critical stakeholders. The documentation will facilitate digital archiving, processing and dissemination of the institution's intellectual heritage. The critical means for an institution to become a contributor of information to the electronic superhighway is by making its intellectual output available to the global community.

- **Digital Library Services.**

Library services can now be rendered 24/7 without the barriers of time and space. This is because of the power of digital technology to blur physical boundaries and facilitate communications and information provision seamlessly.

- **Open Access.**

Libraries must come to terms with the open access movement. The movement leverages on a set of principles and practices to make the results of research accessible free of charge. These open access principles and practices give permission to uses resources in the open access domain without restrictions ordinarily imposed by copyrights and intellectual property laws.

- **Ethical issues**

In spite of permissions granted by open access movements ethical issues that must be considered include privacy and copyright concerns, principle of confidentiality, informed consents, fair use, integrity and due acknowledgement and access by minors.

- **Social issues-positive notes**

On a positive note, the internet and the electronic environments presents lot of social benefits. They include effective communications, time saving in social interactions, online shopping which makes life less complicated, access to latest news, online job application, education, abundance of information resources and services, and professional growth and development.

- **Social issues-negative notes**

On a negative note, the internet environment raises social issues connected to illegal and inappropriate content, addiction to technology, especially the social media, and hacking of accounts. Others are related to the spreading of hate speech, fakes news, terrorism, social isolation, cultural adulteration, pornography and sexual abuse of children.

- **Legal issues**

The emerging cyberspace environment is pregnant with several legal issues. They include copyright and intellectual property violations, internet fraud, child pornography, money laundry, and illicit cash flow.

Other issues.

There are other emerging concerns worthy of mentioning. Librarians and information professionals will learn to deal with consortia-driven services; they must also deal with the emergence of RFID implementation, outreach programs, reference management, and Open Science. The virtual platforms also imply that information professionals must think out of the box virtually and digitally to provide reference services in these spaces and new paradigms for current awareness and selective dissemination services as well as effective technology-driven contact and communication with the library's critical public.

3.2 New Professional Roles

The migration of information resources and services to the Net environment means that the tools for the profession for service delivery must include application of electronic skill to library practices and processes. The profession will have to rethink its relevance in the highly networked internet environment. Professional rebranding is inevitable. Omekwu (2012) argues that their increasing roles will rather emerge as follows:

- **Classification of Knowledge-** Librarians by training are experts in cataloguing and classification of information resources. These resources are now in the internet environments. The need to use professional skills to categorize Net resources into separate subject area to accentuate access is increasingly imperative.

- **Identification services-** Net resources have increased exponentially. The Internet Archive with over five hundred and eighteen web pages exemplifies the largeness of resources on the internet. The resources grow at the rate of 10 terabytes per month (Byrum Jr, 2001). The need to evolve standards for the identification of valuable resources from the available has become increasingly critical. There is also the necessity of processing and preserving information materials that will justify the time and energy spent on their processing and preservation.
- **Organizational issues-** Identified relevant resources from internal and networked environments must be organised in a *search and retrieve* model. Institutionally generated information must be organised by information professionals so as to become contributions to the electronic superhighway. The creation of institutional repositories is vital in this direction. The critical challenge however, is on accessing, retrieving, evaluating, cataloguing and preservation of internet resources.
- **Authentication of Knowledge-** Librarians must use their training to make a difference. They are critical in differentiating ephemeral information resources from those of a more enduring value. This authentication services will ensure that information resources of permanent and enduring values are purchased, processed, and provided to users.
- **Content Administration:** Librarians' role is critical to ensuring that access tools like indexes, abstracts, and bibliographies are of best quality for maximum utilization of Net resources and other databases. Information professionals will emerge as the content managers of information resources in the Net environment.
- **Managers of Systems-** Libraries and information centres are fast becoming a network of systems. The ICT systems have become dominant aspect of the libraries. The design of systems for the various aspects of the work information professionals do, such as knowledge acquisition, technical processing and provision will require a lot of system issues that need proper management. The movement from analogue systems to automated, the development of the data, the choice of database management and retrieval systems are areas that will compel the professional attention of librarians and information professionals.
- **Designers of IRS-** Librarians and information scientists are already in the forefront of designing information retrieval system (IRS) and tools for the Net environment. They are active in the creation of subject, web directories and subject gateways.

- **Web Masters-** Many librarians are fast becoming Web Masters in their institutions. Web mastery relates to the design and administration of institutional websites from both the back and front end. Librarians' knowledge of the web ecosystem is critical to the creation of static or dynamic websites, assistance to web users and updating of websites.

4.0 CONCLUSION

Navigating the digital ecosystem implicates several issues such as automation, digitisation, the development of institutional repositories, web-enabled library services, and open access. Others issues are related to legal, social and ethical considerations. These issues mean that librarians and information professional must assume new roles to meet the evolving digital scenarios.

5.0 SUMMARY

We have considered the critical and emerging issues implicated by the digital information environment. The library and information profession must come to terms with globalized information system which is a complex amalgamation of relationships of information resources, services, information professionals and information institutions and practices. They need to emerge as web masters, system managers, content administrators and institutional repository creators, among others.

SELF-ASSESSMENT EXERCISE

- Highlight navigational issues implicated by developments in the online environment.

6.0 TUTOR-MARKED ASSIGNMENTS

1 Discuss new roles for library and information professionals in the new digital environment.

7.0 REFERENCES/MATERIALS FOR FURTHER READING

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UNIT 5: EMERGING MANAGEMENT IMPERATIVES FOR INFORMATION PROFESSIONALS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Management imperatives; From change to managing subscription to Net resources
 - 3.2 Management imperative: From online resources to strategic management
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 INTRODUCTION

This Unit focuses on the challenges associated with information searching on the Internet.

2.0 OBJECTIVES

The learning outcomes include that students will be able to:

- Explain management imperatives occasioned by the Net environment
- Describe major management imperatives such as strategic management, and knowledge management

3.0 MAIN CONTENT

3.1 Management imperatives: From change to managing Net resources

The Net ecosystem is not the conventional environment. As professional practices and tools of trade of information workers move to the internet environment, those who are information professionals must not remain in the often familiar, physical or analogue work space. As companies and

corporation engage in mergers, alliances, acquisitions and recapitalization, IT system will be utilized to design and develop management information systems that offer competitive and strategic advantages. As the world become increasingly globalized on the wheels of digital technology and driven by high-speed internet vehicles, those who produce, process, and provide will need to focus on emergent management styles which are not part of training offered in the conventional school system. Information professionals will be compelled to:

3.1.1 Management of Change

Life itself is in a constant motion of change. The only thing that does not change is change. Technology has radically redefined our approaches to education, entertainment and the economy. The lockdown experience during the coronavirus pandemic has brought what is now called the new normal. The new normal has minimized physical contacts and encouraged working virtually. Managing changes as a result of the digital technology revolution and internet-driven human ecosystem will become increasingly inevitable.

3.1.2 Technology Management

The introduction and application of technology to the workspace brings with it the need to manage the new technological environment. This will include how to manage information technology (IT) hardware and software systems, internet and bandwidth issues and IT personnel themselves.

3.1.3 Process Management

Computerisation and automation of the system of operations in libraries involve several processes which must be managed very well to prevent waste of money and energy. This is because a mismanaged process could lead to bad products and services.

3.1.4 Product Management

The conventional products of libraries are encapsulated in the services they provide, whether indexes, abstracts, bibliographies or information circulation or processing. As these services migrate to the electronic environment, they must be of the highest quality. The quality of their electronic books, journals, abstracts and indexes and bibliographies must be top class as well as being informative, educative and comprehensive.

3.1.5 Networks

Librarians must be familiar with managing the network systems. This may involve the management of Local Area Network, Wide Area Network, Metropolitan Area Network and wired and wireless systems.

3.1.5 Security Management

Security management in libraries in the information age will go beyond ensuring that damages are not done to library resources through willful mutilation and theft of paper-based resources. It will imperatively involve security of networked information resources and databases as hacking of information network can cripple organizational efficiency extensively.

3.1.6 Reference Services' Paradigm shift

As library and information sources, resources and services migrate to a predominantly electronic space, the service of reference librarians must change accordingly, digitally and virtually. The service concept of *Ask the librarian* is already part of the reference service delivery in many organisations

3.1.7 Institutional Repository (IR)

An institution's repository is a digital archive of all information and knowledge resources generated and stored in a database management system. It represents the institution's contribution to the electronic superhighway. In a university system for example. staff publications, students' project and dissertations, and all other information resources are all potential or actual contents of the IR. The creation of institutional repositories has become an imperative.

3.1.8 Net Resources' Management

The familiar terrain for the librarian has been the management of print-based resources in the open space or physical library. Library and information professionals should use skills acquired from training and work experience to bring order control how electronic resources are organised and provided.

3.2 Management imperative: From online resources to strategic management

There are other management issues that the Net environment has implicated. They include the management of online resources, online subscriptions, donation, gifts and exchange, personnel, continuing and professional development. Others are the management of organizational dynamics, finance, development challenges in the public sector, and strategic management

4.0 CONCLUSION

Traditional management of men, materials, machines and money will continue to feature in the information age. But a paradigm shift to the management of information and the technologies that aid its captures, processing and provision is likely to occur. The challenge would be for librarians to see how any of the above management imperatives fits into

their specific information management scenario. The secret is to continue to learn, to grow and to change in a positive way.

5.0 SUMMARY

Managing information resources and services in both physical and electronic systems means that old management skills will not be suitable or sufficient in the dual environment. New management strategies and skills are therefore imperative. You should be able to mention and discuss these management imperatives.

SELF-ASSESSMENT EXERCISES

- Give reasons for the management of Net resources.
- What is the whole essence of knowledge management??

6.0 TUTOR-MARKED ASSIGNMENT.

1. Managing change is imperative in today's library. Why?
2. What is financial management and why is important in this ICT era?
3. What is strategic management and what aspects of it will feature in this digital age?

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