Module 3
Information Seeking in an Electronic Environment

Lesson 1
How has ICT affected the Information-Seeking Behavior of Users?
Rationale

- The format and the mode of access to information resources have changed because of the electronic environment in libraries and the industry brought about by ICTs.
- Libraries, librarians and users have to cope with the challenge and make use of the advantages brought about by ICTs.
Scope of the Lesson

- Impact of ICT on the information industry and services
  - Format of information resources
  - Representation of information-seeking tools
- Impact of ICTs on the user
  - Information needs
  - Information-seeking behavior
  - Methods to support user information needs
- Impact of ICTs on the librarian and other information professionals
Learning Outcomes

By the end of the lesson, the student must be able to:

- Appreciate the impact of ICTs on the information industry and services
- Know the different formats of information resources
- Know new ways of representing information in an electronic environment
- Understand the information-seeking behavior of users in an electronic environment
- Appreciate the impact of ICTs on the librarian and other information professionals
What is Information?

- Information is anything that can change a person’s state of knowledge (What one knows) and physical representations of abstractions that can cause this change.
- Information used to be obtained only from friends, experts, printed books, serials, audio-visual materials, etc.
- Information used to be accessible through the card catalog, printed bibliographies, etc.
The digital environment has led to changes in the creation, storage, distribution, access and delivery of information.
Information Resources

- Printed and electronic books (e-books)
- Printed and electronic journals (e-journals)
- Printed and electronic reference tools (e-dictionaries, e-abstracts and indexes, multimedia encyclopedias, etc.)
Impact of ICT on the Library

- The digital information environment changed the way information is created, collected, consolidated, and communicated. Library services became automated and information services became electronic.

- Libraries have to acquire, organize, distribute and preserve information in digital formats.
Library Services in a Digital Environment

- Automated library system
- Services for e-onsite resources: CD-ROMs, e-journals on subscription, e-books
- Internet services
- Information services: SDI, Repackaging of information
- Resource sharing activities: Interlibrary loan, document delivery
An Automated Library

An automated library system that uses a single database for its various operations and services is called an integrated library system (ILS)

Circulation workstation

SERVER

Cataloging workstation

OPAC
The Library in the Digital Environment

Electronic Library Model

**OWNERSHIP**
- Printed books and e-books
- Printed serials and e-journals
- Audio-visual materials and microforms
- CD-ROMs, DVD, DAT
- Special collections

**LIBRARY**
- Staff/Services/Infrastructure

**ELECTRONIC ACCESS**
- Internet Resources
- Other Libraries and Information Centers

**USER**

The Library in the Digital Environment
Electronic Library Model
Impact of the Digital Environment on Librarians: New Roles

- Create
- Collect
- Consolidate
- Communicate
- Preserve

In an electronic library these functions and services are done and provided using ICTs
Impact of the Digital Environment on Librarians: New Knowledge

Understanding of the broader context within which the information professional works.

- Subject knowledge
- User behavior
- User information needs

New knowledge

Librarian
Library Service
User
Impact of ICT on the User

Preference in using ICTs for fast, efficient, comprehensive searches for information.

Efficient global communication results in frequent personal interaction among researchers.

ICT competent users
What is Information Seeking?

- Information seeking is the process engaged in by humans to change their state of knowledge. It is a high level cognitive process that is part of learning or problem solving. To seek information implies the need to change the state of one’s knowledge.
- Information retrieval is concerned with getting information from databases.
- Searching is the behavioral manifestation of information seeking.
Ways to Represent Documents to Support Information Seeking

- Full-text indexing or indexing all the words in the document (String search)
- Treating documents as vectors—Accounts for the number of times a term is used in the document. Retrieved document can be ranked.
- Latent semantic indexing—Compares an input vector with all document vectors to determine the best match.
- Indexing using a standard indexing language (e.g. Library of Congress Subject Headings List) or a knowledge-based indexing language (MESH)
- Indexing using terms in the document and generating an inverted file. Boolean algorithms may be used for searching
Information-Searching Tools

- Printed tools (Card catalog, printed bibliographies, printed abstracts and indexes, etc.)
- e-tools for library collections (OPACs, WebPACs, online databases—abstracts and indexes)
- Search engines for the Web collection (Google, Alta Vista Advanced Search, AllTheWeb), Meta-Search Engines--most of which are not recommended, others)
- Subject Directories
- Invisible Web (Searchable databases)
Interactive Information Seeking

Ranking and relevance feedback support highly interactive information seeking

Information seeker

Interface

Database Server

Relevance and Ranking Feedback
What is Information-Seeking Behavior?

Reasons for searching and strategies used to find and use information.

- Reference materials
  - OPAC/WebPAC
  - Abstracts and indexes
  - Dictionaries and encyclopedias

- Full text and multimedia materials
  - Print
  - E-books
  - E-journals

E-mail to peers
Behavioral Model of Information Seeking or Literature Searching

Motivations + Moves = Information-seeking behavior

- Motivations—Reasons for information seeking
- Moves—Strategies used to find information.
Strategies in Information Seeking

- **Sources:**
  - Recall
  - Asking friends, colleagues or experts
  - Consulting personal collections of books, periodicals and files
  - Conducting empirical investigations
  - Consulting libraries, research firms, electronic networks
  - Making use of information services

- **Methods:**
  - Analytical strategies
  - Browsing strategies
Selected Research on Information Seeking

- Eisenberg and Berkowitz (1996)
- Marchionini (1995)

Modes of organizational scanning

- Undirected viewing—Broad scanning
- Conditioned viewing—Assessment of information gathered
- Informal search—Search for more information to deepen knowledge
- Formal search—Planned procedure to obtain information about a specific issue
Model of information-seeking behavior

- **Starting**—Identifying sources of interest
- **Chaining**—Pointers from an initial source are followed
- **Browsing**—Semi-directed search in areas of potential search
- **Differentiating**—Filtering and selecting
- **Monitoring**—Keeping abreast of developments
- **Extracting**—Systematically going through the sources
Marchionini (1995)

- Browsing modes:
  - Directed browsing—Focused on a specific target and systematic
  - Semi-directed browsing—less focused and systematic but still purposeful
  - Undirected browsing—No real target and not systematic

- Model of information seeking
  - Recognize and accept an information problem
  - Define and understand the problem
  - Choose a search system
  - Formulate a query
  - Execute search
  - Examine results
  - Extract information
  - Reflect/iterate/stop
Steps in Information Seeking

1. Recognize the problem
2. Define Problem
3. Choose an information resource
4. Formulate/query
5. Execute search
6. Assess Information: Modify search, monitor developments or stop and synthesize
7. Extract information
8. Examine Results
9. Developments or Stop

The Information Seeking Process
Conclusion:

ICT has Greatly Affected the Information Environment and the Researcher.

The information-seeking process has remained the same but the tools have changed. As a result the information-seeking behavior of researchers has changed to include new tools and new formats of information. Librarians and other users of information must adapt to the changing technological environment:

- To be able to use electronic resources and access tools
- To be able to respond to new user information needs and information-seeking behaviors
- To be able to participate in the national, regional and global infrastructure.