

Reflective Essay Two
Information Retrieval Systems
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LIBR 200

Information is only as valuable as it is able to be retrieved and utilized. Information has minimal value sitting on a shelf, filed away in an archive, or stored on a digital storage device. As the mechanisms for storing information evolve and improve and the amount of information expands, the importance of being able to retrieve relevant information efficiently increases. A fundamental part of library and information science is the information retrieval system. One definition of an information retrieval system is “a device interposed between a potential end-user of an information collection and the information collection itself” (Harter, 1986, p.2). The information retrieval system is made up of two main parts: the database and mechanism for retrieving information from the database. This essay seeks to explore the reach of information retrieval in our modern lives by looking at a few analog and digital information retrieval systems. The more one learns about information retrieval the more one realizes how pervasive and important information retrieval is to our society.

The library itself is a type of information retrieval system (Rubin, 2010, p.127). Within the library can be found various retrieval systems to help patrons find and use items from the library’s collection. The traditional card catalog, together with a classification system, provide an analog information retrieval system. This system allows patrons to look up items in the library’s

collection based on various predefined access points such as author or item title. The Dewy Decimal system, created by Melville Dewy in 1876, established a standardized subject-based classification system for organizing items within a library's collection. The Library of Congress classification system, developed around the late 1890s to early 1900s, is another popular standard for organizing items in a library's collection. These classification systems help organize content on library shelves by subject to help patrons find items that answer their information query.

Printed indexes and bibliographies are other devices for information retrieval that have been found in use as far back as the ancient Greek library in Alexandria. Librarians at Alexandria developed a list of authors and their works organized by subject to help focus patrons' attention to significant items in the library. This list was a precursor to the modern bibliography and index that are in use today. Using bibliographies and indexes library patrons can quickly find items related to a specific subject defined by controlled vocabularies. Another example of a modern information retrieval system that isn't used mainly in a library is the phone book. The phone book is a collection of residents' names, addresses, and phone numbers within a defined geographic area organized by the residents last name. The phone book also includes a list of businesses with their telephones and addresses categorized by business type. The phone book provides an organized method for retrieving the phone number or address of a neighbor or business one is seeking.

Innovations in computer and digital networking technologies have led to the replacement of many library's analog information retrieval systems with digital or electronic systems. The development of computer technologies have helped libraries transition to more automated

systems for operating on a day-to-day basis. MARC records (machine readable cataloging record) enabled libraries to replace physical card catalogs with computer access catalogs and later online public access catalogs (OPAC). Similar to the role a card plays in an analog library catalog, MARC records are a fundamental unit of an OPAC system. MARC records contain bibliographic information, (item description, access points for the item, subject headings, and the item classification number), in a format that can be stored and retrieved by a computer more efficiently. Patrons can search and find available items through a library's OPAC system which compares the patron's search query for matches of items within the library's database of MARC records. Computer networking advancements enhance an OPAC system to provide a patron access to a library's collection over the internet without having to physically be in the library. OPAC systems can also share the library catalog database between multiple libraries to help patrons retrieve the information they need even if the closest library doesn't have the item they need.

Internet search engines are another type of information retrieval system that have broadened the reach for people to retrieve information. Search engines have taken on the enormous task of indexing as much of the hypertext content available on the World Wide Web. By indexing the web address, (also known as uniform resource locator or URL), and hypertext content at that address, users of the internet can easily search for and find the information they need from internet sources. Early search engines like WebCrawler, Alta Vista, Lycos, Excite, and Yahoo web directory have laid the foundation for today's search engines like Google and Bing. The popularity of these information retrieval systems among society is massive and wide-spread. The Google search engine has become so popular in society that it is used as a verb when

referring to seeking information on the World Wide Web. Online commerce is an area of digital information retrieval systems that also pervades society today. Online shopping websites like Amazon and eBay provide their users a retrieval system for searching and finding goods and services that their users want to buy. These online retailers provide added value to customers by removing the need to travel to a store to buy an item. They also give customers personalized recommendations of items they may be interested in based on the customer's searching and shopping habits.

In addition to OPAC systems, search engines, and online shopping sites, computer and internet technologies enable many other digital information retrieval systems. There are various data catalogs on the World Wide Web acting as information retrieval systems for various kinds of private and public data available for use. For example, the Executive branch of the United States Federal Government created the website data.gov as a repository for storing metadata of Federal datasets. This data catalog is part of the Open Government Initiative to improve the public's access to Federal datasets by easily finding, downloading, and using data generated by the Federal government. Geographic information systems (GIS) are another type of information retrieval system focused on providing access to geospatial data. Online mapping sites like MapQuest, Google Maps, and OpenStreetMap provide web-based interfaces to databases storing geospatial information. Using these geospatial information retrieval systems one can enter location-based queries like "Where is the closest pizza restaurant?" or "Where is the closest movie theater?". GIS and online geospatial information retrieval systems open new information seeking opportunities for society today by answering the *where* of any *what* or *when* inquiry. Other less recognized information retrieval systems are personal or business email and file

system searching within modern computer operating systems. Digital media catalogs on personal computers and online websites also fall under this category. These provide access to collections of digital music, audio books, podcasts, film, and television shows.

Information retrieval systems continue to have a significant impact on modern society and can be found in many forms in our hyper-connected world. As information systems continue to evolve, libraries can find unique and creative ways to help expand access to the vast amounts of information available in modern society. Because of their pervasiveness in our lives it is important that professional librarians and information scientists better understand these systems to more effectively search and retrieve relevant answers for society's current and future information needs.

References

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