

Digital Library Research: Current Developments and Trends

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Abstract : *Data Communication Technology has changed the substance of library work. Electronic library is an assortment of enormous and differing stores of advanced articles and electronic data, which can be gotten to by countless topographically, appropriated clients. This segment gives a review of flow slants in advanced library research under the accompanying headings: computerized library design, frameworks, devices and innovations; computerized substance and assortments; metadata; interoperability; gauges; information association frameworks; clients and ease of use; lawful, authoritative, monetary, and social issues in advanced libraries.*

Keywords: *Research methodology, academic, Digital Library, College Student.*

1. INTRODUCTION

The beginning of computerized libraries during the 1990s and their quick development lately has opened up new observation over a wide-going of issues identified with plan, execution, advancement and assessment of advanced libraries.

Advanced libraries are rapidly getting broadly acknowledged, even liked, data sources in zones, for example, science, designing, instruction, business, among numerous others. We completely anticipate that the move from printed archives to carefully organized and conveyed reports won't just develop, yet quicken. In this way, we expect that advanced libraries will become necessary and basic foundation for the countries of Europe and North America, and around the globe.

Advanced libraries have been characterized in an assortment of ways. For example, the Digital Library Federation (2002) characterizes them as:

... associations that give the assets, including the specific staff, to choose, structure, offer scholarly access to, decipher, appropriate, protect the honesty of, and guarantee the industriousness after some time of assortments of advanced works so they are promptly accessible for use by a characterized network or set of networks.

This definition involves three key components, which add up to the theoretical framework basic digital libraries, namely:

1. People
2. Information Resources and
3. Technology

An exploration into research areas that have recently been searched or found challenging throws up issues in all three areas.

This section begins our assessment of the universe of computerized libraries by inspecting the significant patterns and difficulties that specialists of advanced libraries experienced in three computerized library gatherings held in the year 2002:

1. Joint Conference on Digital Libraries;
2. 6th European Conference on Research and Advanced Technology for Digital Libraries; and
3. 5th International Conference on Asian Digital Libraries.

These conferences are not only the main international digital library events during the period, they are also well known by their coverage of digital library research and development at a global level.

To provide an integrated and logical view of research trends, the issues discussed in these conferences should be summarized in eight major categories:

1. architecture, systems, tools and technologies;
2. digital content and collections;
3. metadata;
4. interoperability;
5. standards;
6. knowledge organization systems;
7. users and usability; and
8. legal, organizational, economic, and social issues.

2. ARCHITECTURE, SYSTEMS, TOOLS AND TECHNOLOGIES

Within this category lie all technical, infrastructural and algorithmic and system-related components of digital libraries. Some of the key issues here are:

- Open networked architectures for new information environments.
- Audio visual and multimedia information retrieval systems
- Content management system.
- Intelligent systems for indexing, abstracting and information filtering.
- Harvesting and interoperability technologies.
- Collaborative, visual, 2D and 3D interfaces.

3. DIGITAL CONTENT AND COLLECTIONS

This class alludes to individual computerized objects and to accumulations of items in vault enveloping an assortment of materials in various advanced organizations. One significant test as to metadata is the assortment of computerized data groups

In this class there are difficulties related with advanced substance: for test transformation of pieces of literature into computerized position and the formation of advanced just materials with the end goal of a specific advanced library. What's more, conversation have been done on issues identified with computerized substance and assortments. These include:

- collection development strategies, policies and management;
- identifying collections of information which are not accessible or usable because of technical barriers;
- formulating strategies for sustainable and scalable collections;
- inspiring the development of new collections;
- the creation of digital objects and electronic publishing;
- the creation of new category of digital objects; and
- issues related to digital preservation and Web archiving.

Metadata

Advanced Library venture is to give a framework that manages interoperability among heterogeneous, independent computerized library administrations.

The engineering of metadata incorporates characteristic model intermediaries, property model interpretation administrations, metadata data offices for search administrations, and neighborhood metadata storehouses.

Basic and enlightening metadata are two general classes of metadata of specific importance.

One significant test as to metadata is the assorted variety of advanced data groups and the manners by which they ought to be depicted in various assortments with various objective crowds and employments.

Issues for metadata researchers include:

- human and algorithmic approaches to metadata provision;
- choosing from a wider range of metadata formats;
- applying metadata standards across digital collections;
- metadata harvesting;
- developing metadata extensions for pedagogical purposes; and
- mapping between different metadata formats.

4. INTEROPERABILITY

The prerequisite for interoperability gets from the way that different computerized libraries with various structures, metadata positions and fundamental advancements wish to viably interface, something they can do through applying a scope of basic conventions and principles.

The Open Archives Initiative (OAI) convention (OAI, 2002) is the most broadly talked about and explored standard for cross-storehouse interoperability. It permits circulated advanced libraries to open their metadata to a more extensive scope of search and recovery administrations and furthermore to separate metadata from Web databases. Z39.50 has additionally been referenced as another interoperability convention for online lists and different kinds of data recovery frameworks on the Web.

5. STANDARDS

Standards within the context of digital library research encompass all protocols and conventions that have been set for digital library architectures, collections, metadata formats, interoperability and so forth.

Some types of standards which have been the focus of research include:

- digital collection development standards;
- archiving and preservation standards;
- metadata formats (e.g. Dublin Core, MARC, IMS);
- cataloguing content and indexing standards;
- electronic publishing standards for books, journals and other media, OAI and Z39.50.

6. KNOWLEDGE ORGANIZATION SYSTEMS

This category refers to a range of tools used for organization, classification and retrieval of knowledge in a general sense. Digital library researchers operating in different contexts have investigated the potential of these tools for different purposes.

Some of the applications are:

- use of thesauri and classification systems for cross-browsing and cross-searching across various digital collections;

- classification systems and specialized controlled vocabularies to provide a general knowledge-representation facility for digital collections with a diverse range of materials; and
- use of differentiation to provide unified and organized access to different digital repositories through describing different layers of the digital collections.

One of the challenges is the way in which these tools can interact with each other. To this end research is under way to investigate issues surrounding mappings and interoperability among various knowledge organization systems (HILT, 2002).

7. USERS AND USABILITY

In order to develop usable digital libraries and to improve system design, developers have addressed user behavior and user requirements in different contexts including academic environments, schools, government departments and business.

The following areas have been the focus of a number of studies:

- empirical studies of users interacting with digital libraries;
- usability, accessibility and user acceptance of digital libraries;
- user-centered support for learning, teaching and research through the convergence of virtual learning environments and digital libraries;
- human-computer interaction; and
- evaluation of the behavior of diverse user communities based on their knowledge base, age level, and particular needs.

One of the major challenges in user studies is associated with the methodology and data gathering techniques. Researchers have tried to use a combination of tools and techniques to collect useful data for user evaluation.

8. LEGAL, ORGANIZATIONAL, ECONOMIC, AND SOCIAL ISSUES

Rights management, intellectual property and copyright issues are all legal aspects of digital libraries. Social issues in relation to digital libraries centre on the ways in which people view digital libraries and their usefulness. There are also economic issues such as commerce, shopping, marketing and business competition, all of which form part of the digital library research discussion.

This area touches on topics such as:

- intellectual property in the complex global market;
- legal issues associated with access, licensing, copying and dissemination of digital materials, economic, business and pricing models and strategies; and
- sustainability and survivability, new business models and marketing strategies.

Although these are the main research categories, the list is not exhaustive. Other issues include:

- evaluation issues out with the users and usability category, reference and question- answering services; and
- the development of different types of digital libraries.

Evaluation is a critical issue in digital library research. While user-oriented evaluation can be discussed in the users and usability category, evaluation also applies to digital library systems, their performance, the underlying technology and the information retrieval techniques utilized.

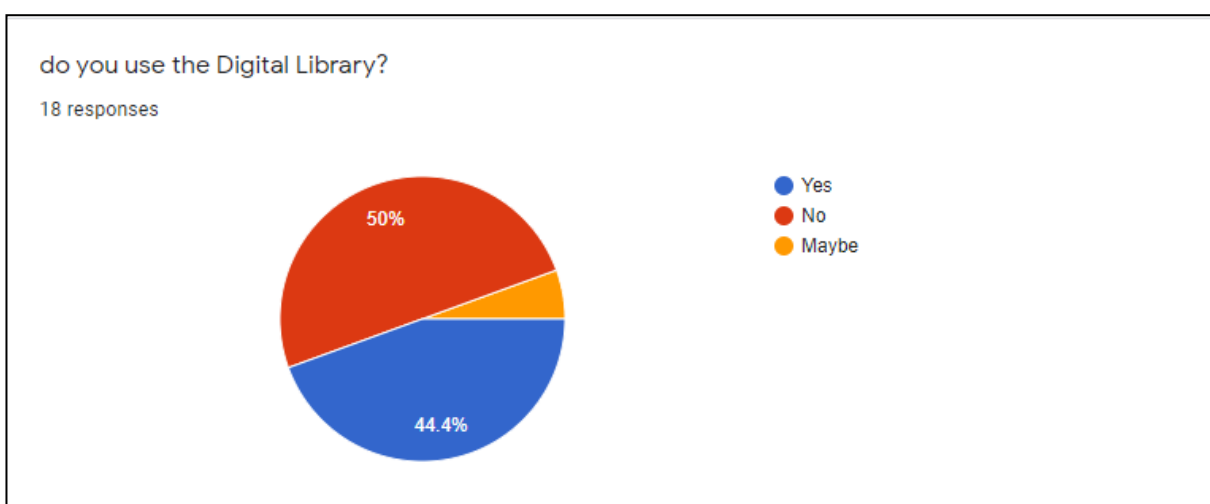
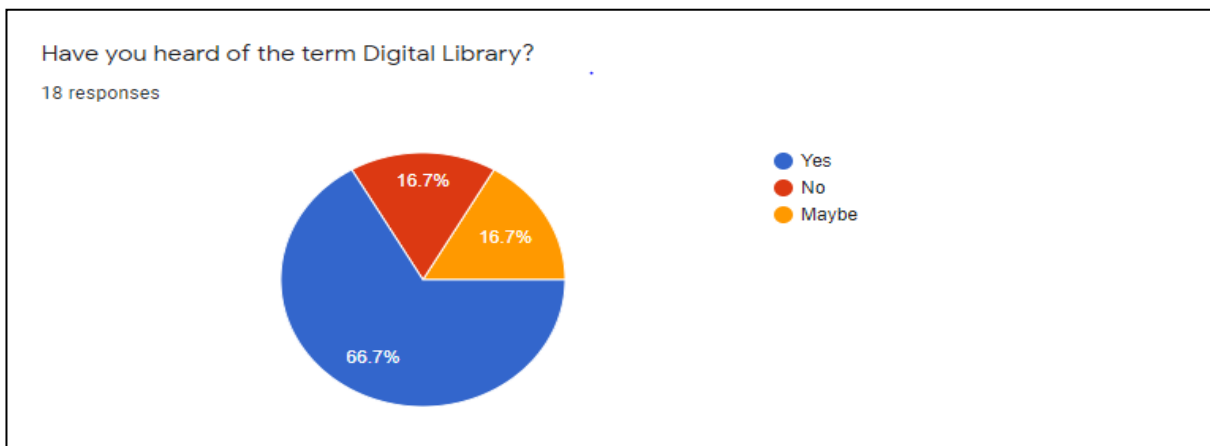
Research in digital libraries will span a broad range of subjects, disciplines, contexts and communities in the coming years

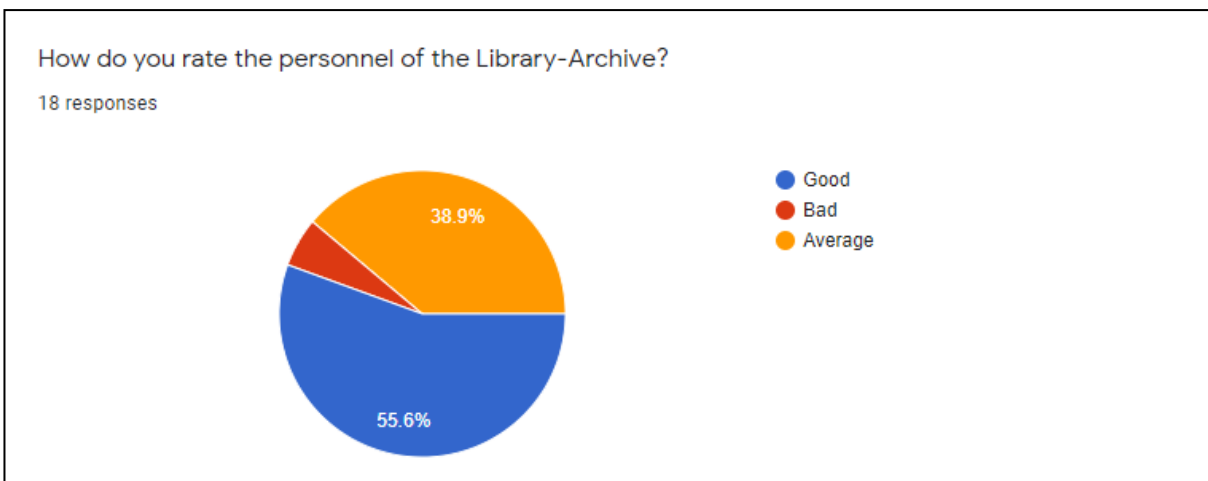
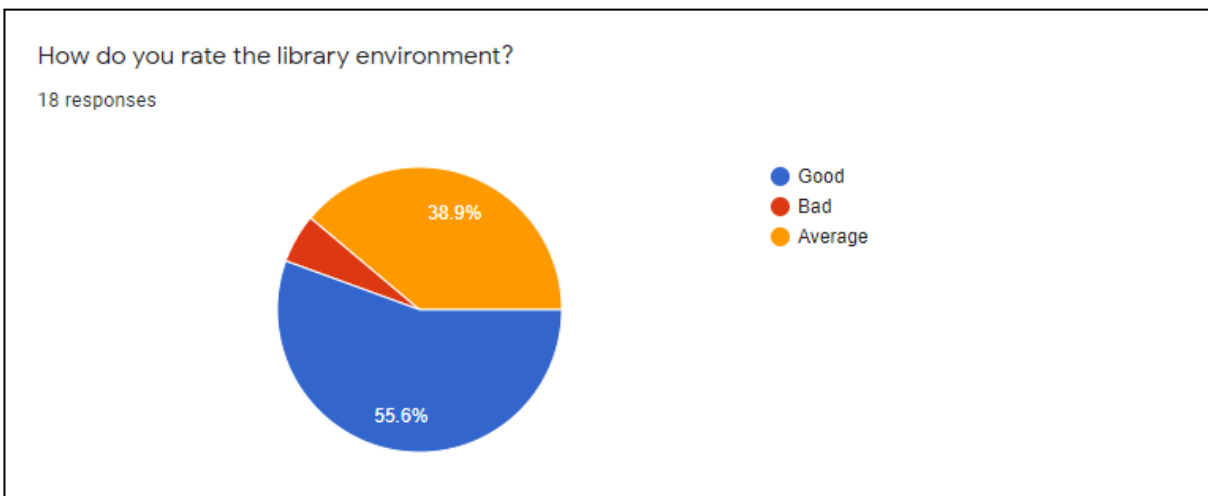
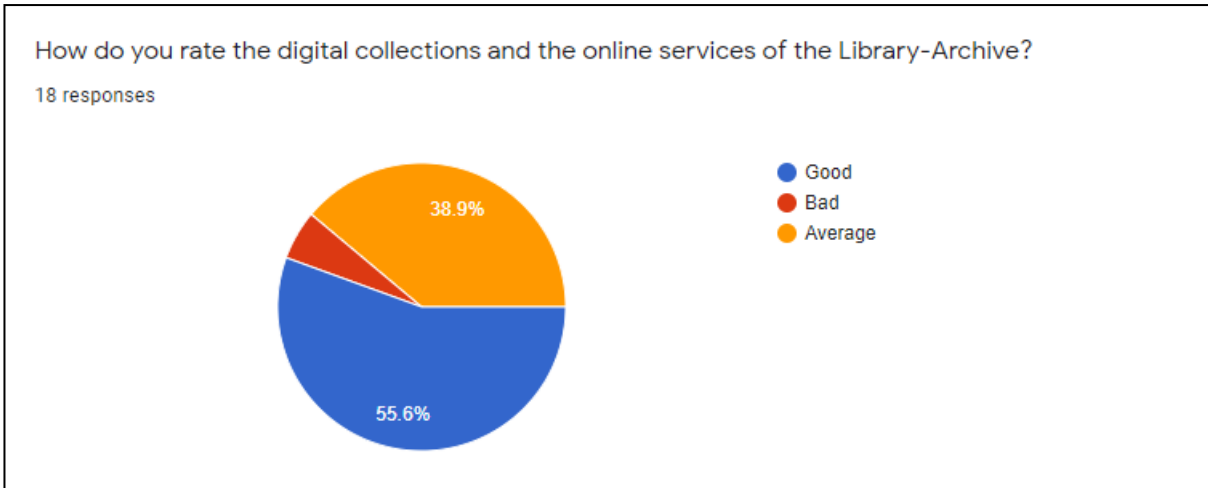
There are also a number of projects concerned with the design, development and evaluation of various types of digital libraries. For instance:

- digital libraries addressing different target audience such as children or undergraduate students;
- digital libraries addressing geographical locations, i.e. national digital libraries, rural digital libraries and state digital libraries;
- digital libraries addressing a particular subject area, such as computer science, medicine, mathematics and science; and
- digital libraries targeting a particular type of content, e.g. theses and dissertations, music digital libraries and video digital libraries.

Taken overall, these trends and challenges demonstrate the depth and breadth of research and development in digital libraries. The scope and scale of research calls for the participation of people from a wide range of disciplines and communities, including librarians, information scientists, archivists and computer scientists, as well as people working in the areas of technology, medicine, social sciences and humanities.

9. SURVEY OF DIGITAL LIBRARY:





10. CONCLUSION

To summarize, research in advanced libraries will traverse an expansive scope of subjects, orders, settings and networks in the coming years. This advancement mirrors the way that computerized libraries will work as institutional substances with a key task to carry out in our social, social and instructive exercises. Community oriented computerized workplaces, social advanced route and new types of advanced situations for scholastic, instructive, distributing and recreational purposes can be seen as the hotspot for future improvements in computerized library research.

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