Web Based Tools: Emerging Paradigms in the Field of Academic Research

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ABSTRACT
Progress of every profession, academic discipline, and society at large rides on the back of research and development. Research generates new information and knowledge. It is a standardized process of identifying the problem, collecting data or evidence, tabulating data and its analysis, drawing inference and establishing new facts in the form of information. Therefore, research is a long process and a lot of time is required to complete research work. The information and communication technology, especially the internet and the www, descended from the cyberspace help researchers a lot in this regards. There are a lot of web-based programmes, tools, sites, and open source initiatives that help researchers to make the process more efficient and organized and thus save the time of the researchers too. The research domain of library and information science has witnessed a rapid increase in the use of web-based tools in recent years.

This paper addresses some web-based tools, websites, open-source initiatives that would help academic community especially research scholars immensely to customize search engines, to search relevant documents of his/her subject interest, to organize and manage citations, to assemble topic related articles and other documents in one place, to get access to open access & other e-resources and many more.

Key Terms: Web-Based Tools, Google CSE, DOAB, DOAJ, Liferea, Zotero, RSS Feed, Visuwords

INTRODUCTION
Various steps are involved in the research process; the most vital steps are the identification of the problem, literature review, relevant data collections, analysis, interpretation, organizing citations, etc. A lot of time is required for searching papers, reading and reviewing them, analysis of data as well as organizing citation. There are many tools, programmes, websites, software and open source initiatives which guide researchers at each and every step during the entire process of research work.

Such as, Google Custom Search is a platform provided by Google that allows us to feature specialized information in web searches, refine and categorize queries and create customized search engines, based on Google Search. Liferea is a web feed reader/news aggregator that brings together all of the content from our favourite subscriptions into a simple interface that makes it easy to organize and browse feeds. Its GUI is similar to a desktop mail/news client, with an embedded graphical browser. Zotero is free and open-source reference management software to manage bibliographic data and related research materials (such as PDFs, images, audio and video files, snapshots of web pages, etc.). The BASE is one of the world’s most voluminous search engines, especially for academic web resources. The BASE provides more than 100 million documents from more than 5,000 sources. We can access the full texts of about 60% of the indexed documents for free (open access). The primary aim of DOAB is to increase discoverability of open access books. Libraries can integrate the directory into their online catalogues, helping scholars and students to discover the books. The directory is open to all publishers who publish academic, peer-reviewed books in open access and should contain as many books as possible, provided that these publications are in open access and meet academic standards. The open DOAR
provides a quality-assured listing of open access to global repositories. The aim of the DOAJ is to increase the visibility and ease of use of open access scientific and scholarly journals, thereby promoting their increased usage and impact and so on.

**DATA ANALYSIS**

Google Custom Search Engine

Google launched “Google Custom Search” service on October 23, 2006. It is a platform provided by Google that allows web developers to feature specialized information in web searches, refine and categorize queries and create customized search engines, based on Google Search. The service allows users to narrow the 11.5 billion indexed webpages down to a topical group of pages relevant to the creator’s needs. It allows anyone to create their own search engine by them. Search engines can be created to search for information on particular topics chosen by the creator i.e. it allows creators to select what websites will be used to search for information which helps to eliminate any unwanted websites or information. Creators can also attach their custom search engine to any blog or webpage.

As Custom Search is based on Google’s core search technology users get high quality, relevant results. We can customize a lot of our search engine, including:

- Apply our site’s look and feel to the search box and results page
- Use search features such as refinements, autocomplete, and promotions to enhance our users’ search experience
- Understand our users’ behaviour by linking our search engine with Google Analytics

**Steps**

- Sign in to Custom Search Engine
- On the Google Custom Search home page, click new search engine
- In the Sites to search section, add the pages you want to include in your search engine
- Select the language of your search engine
- Click Create
- To add your search engine to your site, click Get Code on the next page. Paste the HTML code in HTML Box of your site
Linux Feed Reader

Liferea is an abbreviation for Linux Feed Reader. Liferea is a web feed reader/news aggregator that brings together all of the content from our favourite subscriptions into a simple interface that makes it easy to organize and browse feeds. Its GUI is similar to a desktop mail/news client, with an embedded graphical browser.

It supports a number of different feed formats including RSS/RDF, CDF, Atom, OCS, and OPML, many of which its contemporaries cannot. By sorting subscriptions into folders, the user can read all headlines of a folder at once. By enabling a filtering preference, all previously read headlines of the folder can be hidden.

Similar to the mail client Evolution, Liferea supports search folders, which allow the user to save searches. Each search folder contains all headlines that match its user-defined search rules.

Screen Shot 4: Home page of Liferea

Screen Shot 5: Creating New Folder from Subscription Tab
Zotero is a free and open-source reference management software to manage bibliographic data and related research materials (such as PDFs, images, audio and video files, snapshots of web pages, etc.). Notable features include web browser integration, online syncing, generation of in-text citations, footnotes, and bibliographies, as well as integration with the word processors Microsoft word, Libre office, open office.org writer, and neo office. It is produced by the Centre for history and new media at George Mason University.

Features
Zotero shows an icon when a resource (book, article, thesis) is being viewed on many websites (such as library catalogues, PubMed, Google Scholar, Google Books, Amazon.com, Wikipedia, and publisher’s websites). Clicking this icon saves the full reference information to the Zotero library. Zotero can also save a copy of the webpage, or, in the case of academic articles, a copy of the full-text PDF. Users can then add notes, tags, attachments, and their own metadata.

Items are organized through a drag-and-drop iTunes-like interface and can be searched. Selections of the local reference library data can later be exported as formatted bibliographies. Furthermore, all entries including bibliographic information and user-created rich-text memos of the selected articles can be summarized into an HTML report.

First download Zotero software from https://www.zotero.org. Then install the software. Then install Zotero connector (Zotero Connectors automatically sense content as you browse the web and allow you to save it to Zotero with a single click). That saves to Zotero from your browser.
Bielefeld Academic Search Engine: BASE

The BASE is one of the world’s most voluminous search engines, especially for academic web resources. The BASE provides more than 100 million documents from more than 5,000 sources. We can access the full texts of about 60% of the indexed documents for free (open access). The BASE is operated by Bielefeld University Library.

It has indexed the metadata of all kinds of academically relevant resources—journals, institutional repositories, digital collections, etc. which provide an OAI interface and use OAI-PMH for providing their contents. The index is continuously enhanced by integrating further sources. The BASE is a registered OAI service provider. Database managers can integrate the BASE index into their local infrastructure (e.g. Meta search engines, library catalogues). Further on there are several tools and services for users, database and repository managers.

In comparison to commercial search engines, the BASE is characterised by the following features:

- Intellectually selected resources
- Only document servers that comply with the specific requirements of academic quality and relevance are included
- A data resources inventory provides transparency in the searches
- Discloses web resources of the “Deep Web”, which are ignored by commercial search engines or get lost in the vast quantity of hits
- Correction, normalization, and enrichment of metadata by means of automated methods
- The display of search results includes precise bibliographic data
- Display of access and terms of re-use for a document
- Several options for sorting the result list
- “Refine your search result” options (by author, subject, DDC, year of publication, content provider, language, document type, access and terms of re-use)
- Browsing by DDC (Dewey decimal classification), document type, access and terms of re-use/license.
**Directory of Open Access Books: DOAB**

The directory of open access books is a service of OAPEN foundation. The OAPEN foundation is an international initiative dedicated to open access monograph publishing, based at the National Library in The Hague.

The primary aim of DOAB is to increase discoverability of open access books. Academic publishers are invited to provide metadata of their open access books to DOAB. Metadata will be harvestable in order to maximize dissemination, visibility, and impact. Aggregators can integrate the records in their commercial services and libraries can integrate the directory into their online catalogues, helping scholars and students to discover the books. The directory is open to all publishers who publish academic, peer-reviewed books in open access and should contain as many books as possible, provided that these publications are in open access and meet academic standards.

DOAB supports the OAI protocol for metadata harvesting (OAI-PMH). Service providers and libraries can use the protocol to harvest the metadata of the records from DOAB for inclusion in their collections and catalogues.
CSV

Libraries and aggregators can also download the list of records in DOAB in a comma-separated format. Then they can import the file to Excel or some other software program for further use. http://www.doabooks.org/doab?func=csv

Metadata format: All books in DOAB are available in Dublin Core oai dc and MARCXML formats.

The Directory of Open Access Repositories: Open DOAR

Open DOAR provides a quality-assured listing of open access to global repositories. Open DOAR harvests and assigns metadata to allow categorization and analysis to assist the wider use and exploitation of repositories. Open DOAR is maintained by SHERPA Services, based at the Centre for Research Communications at the University of Nottingham.

Service Scope

Open DOAR is primarily a service to enhance and support the academic and research activities of the global community. Open DOAR maintains a comprehensive and authoritative list of institutional and subject-based repositories. It also encompasses archives supported by funding agencies like the National Institutes for Health in the USA or the Welcome Trust in the UK and Europe. Users of the service are able to analyse repositories by location, type, the material they hold and other measures. One key point about Open DOAR is that this information is of use not only to users wishing to find original research papers but also for third-party service providers, like search engines or alert services, who need easy to use tools for developing tailored search services to suit specific user communities.

Service Aims

- Survey the growing field of academic open access research repositories and categorize them in terms of locale, content and other measures.
- Produce a descriptive list of open access repositories of relevance to academic research.
- Provide a comprehensive & authoritative list for end users wishing to find particular types of or specific repositories.
- Deliver a comprehensive, structured and maintained list with clear update and self-regulation protocols to enable the development of the list.
- Play a prominent international role in the organisation of and access to open access repository services.
- Support Open Access outreach and advocacy endeavours within institutions and globally.

The Directory of Open Access Journals: DOAJ

DOAJ was launched in 2003 at Lund University, Sweden, with 300 open access journals and today contains about 9000 open access journals cover all areas of science, technology, medicine, social science, and humanities.

DOAJ is a membership organization and membership is available in 3 main categories: Publisher, Ordinary Member, and Sponsor. A DOAJ membership is a clear statement of intent and proves a commitment to quality, peer-reviewed open access. DOAJ is a co-author to the principles of transparency and best practice in scholarly publishing (principles) and DOAJ members are expected to follow these principles as a condition of membership.
DOAJ is a community-curated list of open access journals and aims to be the starting point for all information searches for quality, peer-reviewed open access material. To assist libraries and indexers keep their lists up-to-date, it makes public a list of journals that have been accepted into or removed from DOAJ.

DOAJ publishes information for publishers on this site to help the publishers adhere to the principles and to assist them in completing an application. DOAJ also publishes a list of FAQs relevant to all members of the publishing community, particularly libraries and authors. All information on this site is available to both members and non-members.

**Aims & Scope**

The aim of the DOAJ is to increase the visibility and ease of use of open access scientific and scholarly journals, thereby promoting their increased usage and impact. The DOAJ aims to be comprehensive and covers all open access scientific and scholarly journals that use a quality control system to guarantee the content. In short, the DOAJ aims to be the one-stop-shop for users of open access journals.
The centre for research communications at the University of Nottingham currently runs a suite of SHERPA Services for the Open Access community. SHERPA Services compiles and maintains the RoMEO service, which gives summaries of the archiving rights that different publishers allow authors to retain. To complement this, SHERPA Services also runs the JULIET service, which summarises the archiving responsibilities and requirements that funding agencies give as a condition of funding grants. Open DOAR is the third part of this repository service, listing available open access repositories.

**Universal Digital Library**

This site, launched by Carnegie-Mellon University, ambitiously aimed to provide access “to all human knowledge, anytime, anywhere.” The project ended in 2008, however, it does still connect to a large array of books and other materials, from a variety of sources. For viewing UDL books it will need either DjVu plugin and/or Tiff plugin (Windows, Linux, MAC)

**Materials Indexed**

- Books database type: electronic book collection, full text
- Collection interface language: English
- Materials language: multiple languages
- Broad category: multidisciplinary.

**Project Gutenberg**

Project Gutenberg is a volunteer effort to digitize and archive cultural works, to “encourage the creation and distribution of eBooks”. It was founded in 1971 by Michael S. Hart and is the oldest digital library. Most of the items in its collection are the full texts of public domain books. The project tries to make these as free as possible, in long-lasting, open formats that can be used on almost any computer. As of 3 October 2015, Project Gutenberg reached 50,000 items in its collection.

The releases are available in plain text but, wherever possible, other formats are included, such as HTML, PDF, EPUB, MOBI, and Plucker. Most releases are in the English language, but many non-English works are also available. There are multiple affiliated projects that are providing additional content, including regional and language-specific works. Project Gutenberg is also closely affiliated with Distributed Proofreaders, an internet-based community for proofreading scanned texts.

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- How-To and FAQs: In-depth information about many topics.
Open Library

Open Library is an online project intended to create “one web page for every book ever published”. Open Library is a project of the non-profit Internet Archive and has been funded in part by a grant from the California State Library and the Kahle/Austin Foundation. It provides access to much public domain and out-of-print books, which can be read online. Its book information is collected from the Library of Congress, other libraries, and Amazon.com, as well as from user contributions through a Wiki-like interface. It has 272 partner libraries. Open Library already digitized 2.7 Million of books. 319.5 million books have been downloaded in 2017.

The motto of this project is “Libraries free for all”.
The Education Resources Information Center (ERIC)

It is an online digital library of education research and information. ERIC is sponsored by the Institute of Education Sciences of the United States Department of Education. The mission of ERIC is to provide a comprehensive, easy-to-use, searchable, Internet-based bibliographic and full-text database of education research and information for educators, researchers, and the general public. Education research and information are essential to improving teaching, learning, and educational decision-making.

ERIC provides access to 1.5 million bibliographic records (citations, abstracts, and other pertinent data) of journal articles and other education-related materials, with hundreds of new records added every week. A key component of ERIC is its collection of grey literature in education, which is largely available in full text in Adobe PDF format. Approximately one-quarter of the complete ERIC Collection is available in full text. Materials with no full text available (primarily journal articles) can often be accessed using links to publisher websites and/or library holdings.

The ERIC Collection, begun in 1966, contains records for a variety of publication types, including:
- Journal Articles
- Books
- Research Syntheses
- Conference Papers
- Technical Reports
- Dissertations
- Policy Papers
- Grey Literatures
- Other Education-Related Materials

ERIC provides the public with a centralized Web site for searching the ERIC collection and submitting materials to be considered for inclusion in the collection. Users can also access the collection through commercial database vendors, state-wide and institutional networks, and Internet search engines. To help users find the information they are seeking, ERIC produces a controlled vocabulary, the Thesaurus of ERIC Descriptors. This is a carefully selected list of education-related words and phrases used to tag materials by subject and make them easier to retrieve through a search.

BiblioVault

BiblioVault helps scholarly publishers preserve and extend the value of their books, providing long-term secure storage of digital book files for member presses, as well as a wide range of scanning, printing, transfer, conversion, and distribution services.

Launched in late 2001 by the University of Chicago Press, BiblioVault operates under the umbrella of Chicago Distribution Services, which also oversees a digital printing center, the Chicago Digital Distribution Center (CDDC). The Andrew W. Mellon Foundation supported the development of BiblioVault and the CDDC with three grants totaling $3.2 million.

The BiblioVault repository serves more than 90 scholarly presses and contains digital files for more than 40,000 books. Most books published over the past ten years exist as electronic files originally used to print the hard copy. Older books that exist only in hard copy can be scanned to create electronic files. Publishers can deposit both types of files in BiblioVault.
The Internet Public Library (IPL, ipl2) was a non-profit, largely student-run website managed by a consortium, headed by Drexel University. Visitors could ask reference questions, and volunteer librarians and graduate students in library and information science formed collections and answered questions. The IPL opened on March 17, 1995. On January 1, 2010, it merged with the Librarians' Internet Index to become ipl2.[1] It ceased operations completely on June 30, 2015.

The digital collections on the site were divided into five broad categories, and include Resources by Subject, Newspapers & Magazines, Special Collections Created By the ipl2, and Special Collections for Kids and Teens. As of March 2011, it had about 40,000 searchable resources.
Bartleby

Bartleby.com is an electronic text archive, headquartered in New York and named after Herman Melville’s story “Bartleby, the Scrivener”. It was founded under the name “Project Bartleby” in January 1993 by Steven H. van Leeuwen as a personal, non-profit collection of classic literature on the Website of Columbia University. In 1997 it moved to its own domain, bartleby.com, and was called “The New Bartleby Library”, where it continued to publish highly accurate transcriptions. In September 1999 Bartleby.com was incorporated and started to focus on reference works, including the contemporary 6th edition of the Columbia Encyclopaedia.

It gives access to fictions, nonfictions, reference tools, verse, etc.

Ibiblio

Ibiblio.org is an online public library with freely available software and information, for topics such as music, literature, art, history, science, politics, and cultural studies. With between 12 million to 16 million worldwide transactions per day, it is a resource used frequently by audiences of all interests and backgrounds.
ODLIS. Online Dictionary for Library and Information Science

ODLIS includes not only the terminology of the various specializations within library science and information studies but also the vocabulary of publishing, printing, binding, the book trade, graphic arts, book history, literature, bibliography, telecommunications, and computer science when, in the author's judgment, a definition might prove helpful to librarians and information specialists in their work.

Visuwords

VisuWords is a web-based visual dictionary and thesaurus tool and faceted navigation helps to search for words to look up their meanings and associations with other words in a visual interface.

Features

- It helps to visualize word definitions and derivations in an interactive colorful dashboard.
- It shows how it's connected to other words (synonym, antonym, derivation, etc.).
- We can zoom in and out with the help of the mouse.
- We have to hover the mouse cursor over word node to view its meaning.
- By Double-clicking nodes, we can expand them even further.
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**Gregorian to Julian and Julian to Gregorian**
The Gregorian calendar was proclaimed by Pope Gregory XIII and took effect in most Catholic states in 1582, in which October 4, 1582, of the Julian calendar, was followed by October 15 in the new calendar, correcting for the accumulated discrepancy between the Julian calendar and the equinox as of that date.

A lot of sites are available to convert Gregorian date to Julian date and vice versa. One such site is http://keisan.casio.com/exec/system/1227575091.
CONCLUSION

Research generates new information and knowledge. But research is a time-consuming process. Formulating problems, literature review, data collection, analysis, drawing an inference, etc. take a long time. Sometimes, researchers become frustrated by the time it takes to complete and publish a research paper. There are a lot of web-based programmes, tools, sites that help researchers to make the process more efficient, organized and time-saving. Web tools and technologies are shaping and redefining the research process in myriad ways and have also become helpful tools for writing thesis and dissertations.

REFERENCES