



Technology in Research

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Received: Jul 15, 2017

Accepted: Jul.25, 2017

Online Published: Aug. 10, 2017

Abstract

Research is an onerous task. The process is tedious and time consuming but with the advent of technology the researcher can cut down on time by aptly using online research tools. This paper tries to raise awareness about the various tools available for every stage of research. Research begins with searching for information using Google books, Google scholar, Invisible web, etc. Data could be collected and managed using Heurist reference database, Cogitum Cociter, Google drive, Google Docs, Zoho notebook etc. at the same time portions of any webpage could be clipped and chunks saved using iCyte, Memonic, etc. Lumifi, Zotero, Drop Box could be used for collaboration. Visuals for the research, could be managed by Cogitum Image Co tracker and Cogitum Foto Tagger. For data analysis SPSS statistics package could be used along with AnSWER and Excel. Bibliographies could be completed using, RefWorks, Endnote, Easybib and Citelighter. Researchers could use the full screen writing environment called Write Room for writing research.

Keywords: Technology in Research, Research Tools, Collaborative Tools, Data Analysis, Writing Research

1.0 Introduction

Research is an ongoing process and each academician is involved in it. Faculty engaged in teaching cannot be away from it and is required to produce and publish research papers and contribute to the existing corpus of knowledge by bringing in new ideas, critical thinking and in-depth analysis. It is an arduous task and managing time along with full time teaching, examination duties and family responsibilities is extremely difficult. Adding to this is the commuting time that is required to reach the University. In a metropolitan city managing traffic jams and fighting pollution on everyday basis takes its toll. All this adds to undue stress and drains the body of its vitality. Under these circumstances managing in-depth research is really a challenge as there is no time to visit libraries and update oneself with the latest information. Online resources are one of the sources that can provide hope. Online resources can help at all the stages of research and save time as well as efforts. This paper highlights all the necessary tools that can be used right from collecting information, saving and highlighting portions of webpage, data collection, collaborative tools, and tools for data analysis, writing bibliographies, and a writing environment for writing research. The awareness and possible usage of these tools will go a long way in doing research along with managing family and

teaching responsibilities. A detailed step wise description of the tools available for various stages of research is provided below.

2.0 Searching for Information

Research begins with searching for information. With the right resources and correct information half the task is already done. Scholars can use eminent databases like Ebcohost, Sage, Science Direct, Elsevier, Ingenta Connect etc. to get standard papers but they are not free. Information could also be procured online with the following tools:

2.1 Google books and Google Scholar

It is a service from Google that can be located at <https://books.google.co.in/>. These books provide scanned versions of books either full text or selected chapters. Google scholar searches for e journal articles and book chapters from different sources. Scholarly literature across various disciplines could also be searched (The University of Edinburgh, 2018).

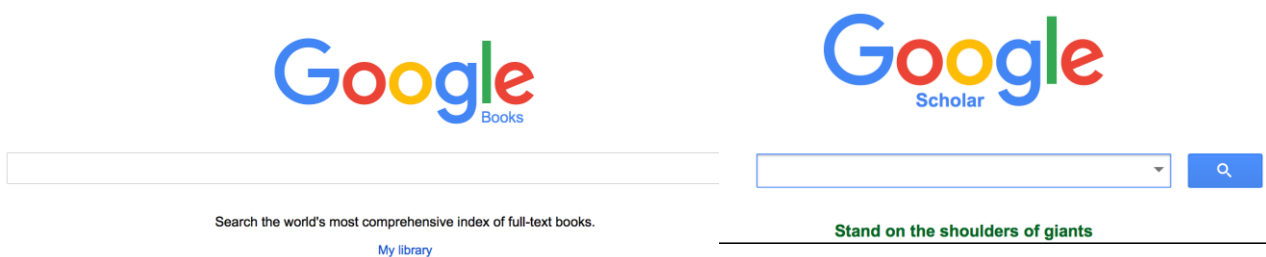


Figure 1: Google Books and Google Scholar

2.2 Invisible Web

There is a dark invisible web. Library collections and huge databases are in accessible to the users of general Internet search engines (Lewandowski and Mayr, n.d.). For this deep web searching researchers could use Web Crawler (Image below) Deep Peep, WWW. Virtual Library, Infomine, Complete planet, Deep Web Tech, Incy Wincy, etc.

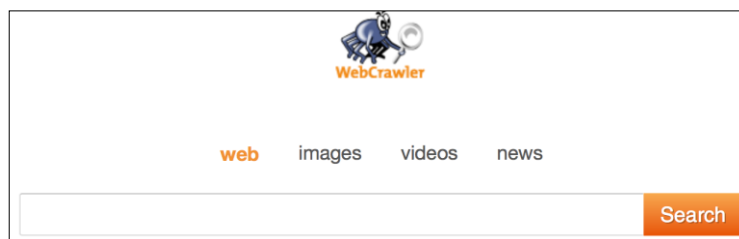


Figure 2: Web Crawler

3.0 Data Collection

Data collection and its management is a herculean task. The following tools make the task a lot easier.

3.1 Heurist Reference Database

Heurist is free and open source. Researchers can design, create, manage, analyze and publish their databases through a simple web interface, within hours (Heurist, n.d.). Sydney University

offers this service free. It captures and manages web bookmarks, bibliographic references, personal notes and a host of other specialized data types.

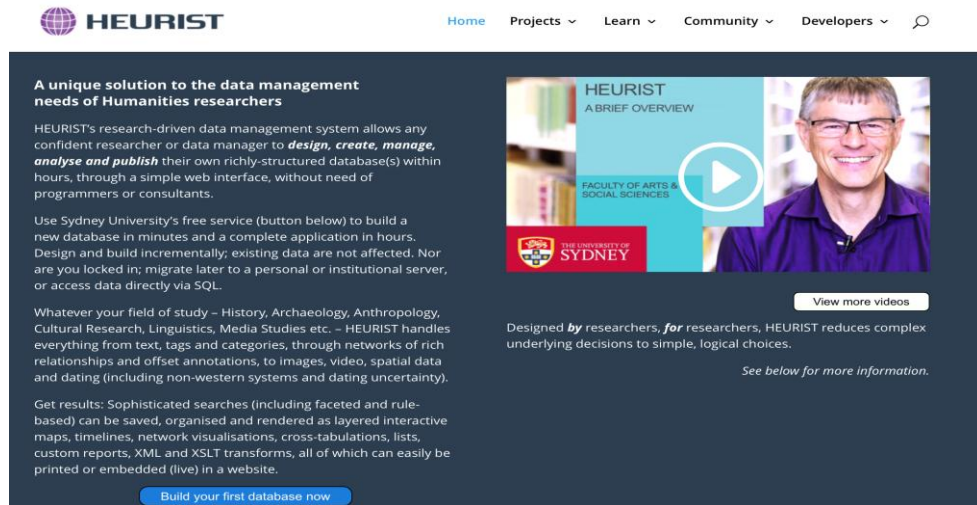


Figure 3: Heurist Reference Database

3.2 Ever Note

Evernote is a cloud based note-taking software. It is designed for creating, organizing and storing various types of files. It emphasizes more on making notes than uploading files from the computer. It syncs all changes across all accounts and is automatically updated (Moreau, 2017) . Evernote has built-in OCR for images with printed or handwritten text.

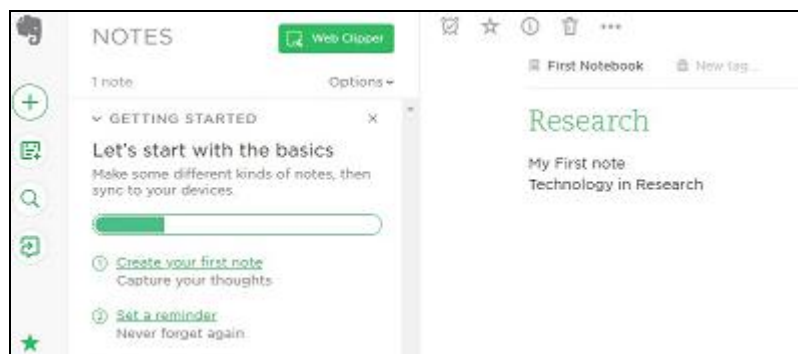


Figure 4: Evernote Software

3.3 Google Drive

Google drive is a file storage system. It allows users to store files and share them. It consists of Google docs, Google sheets and Google slides which could be used for research and sharing. These could be saved on Google drive. Documents could be uploaded to Google Drive cloud storage or Google drive app could be downloaded. Handy tools help in inserting footnotes and citations (ref-n-Write, 2018). Google suit offers tools for collaborative editing. It's fairly easy to sync and use them.

3.4 Zoho Notebook

It's a mobile app used for taking notes. With this app you can write notes, record audio, take a picture, make a list, sketch, and browse files and documents. Notes could be shared using email. It also allows you to sync with many devices.

3.5 Cogitum Cociter

This tool automatically captures text that is highlighted from the Internet after right clicking on it and selecting 'Grab selected text'. It adds the title, date and address of the site to the database. It's useful for forming the reference section (Cogitum, n.d.).

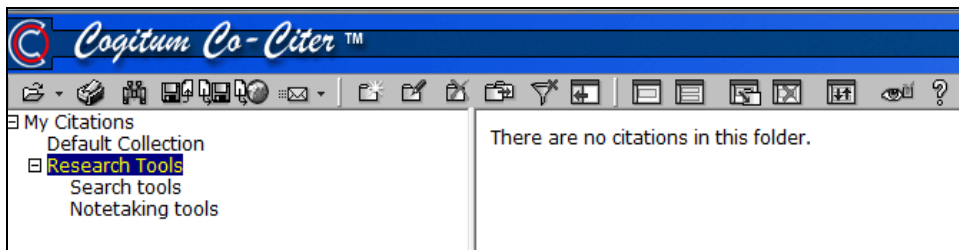


Figure 5: Cogitum Cociter

4.0 Managing Images

Managing images and keeping track of the source used to be a mammoth task but with the following software it is quite manageable.

4.1 Cogitum Image Co-Tracker and Cogitum Foto Tagger

Cogitum Image Co-Tracker tracks images as soon as the application is installed as IE add on. Just right click on the image and select 'Grab Image' and the photo is automatically saved. Similarly Cogitum Foto Tagger captures online images and adds tags to them. Just right click on the image and select 'Grab to fototagger' to add a tag. This could be exported to blog, flicker, HTML or sent by an email (Dube, 2009).

5.0 Content Clipping

Portions of **webpage** could be clipped and **saved** using the following software:

5.1 iCyte

iCyte once installed is available in the right click context menu. It saves a snap of the webpage online with the highlighted content. (Gibbs, 2009)

5.2 Memonic

Memonic is a free web based tool. Contents can be clipped as well as full webpages can be saved. Likewise a screenshot or document or web page excerpt can be clipped and saved. Notes can be organized in folders and they can be commented upon, edited or searched (Fitzpatrick, 2010).

6.0 Collaborative tools

Research needs handling of various types of files. Sometimes it can be very cumbersome. Research also needs collaboration. Sending files across becomes a challenging task but with collaborative tools both as be managed effectively. The following tools could be used for collaboration.

6.1 Dropbox

Dropbox is a free file hosting service. Researchers can save their photos, docs, and videos on the cloud and access them anywhere, anytime and from any device. This means that any file you save to your Dropbox will automatically save to all your computers, phones and even the Dropbox website. Researchers can edit documents, share, collaborate with others and backup important files (Cains, n.d.)

6.2 Sharepoint

Microsoft Sharepoint is collaborative software for sharing documents with collaborators and storing them. Sharepoint is integrated with Microsoft Office enabling researchers to share, manage and access information from any device (Irwin, 2017)

6.3 Lumifi

It's a collaborative research tools for students. Students and teachers can share, organize and evaluate information. Students can upload files and extract a fragment of information they need for research (Bryne, n.d.)

6.4 Zotero

It's an open source research tool. It is used for collecting, organizing, analyzing and sharing resources. It's useful for citations and referencing. References could be included in the text by dragging and dropping citation files from Zotero Library. It interacts with online applications and saves entire references or bibliographies. It runs both online and offline (Ref-n- Write, 2018).

7.0 Data Analysis

For **data analysis** *SPSS* statistics package could be used along with *AnSWR* and *Excel*.

7.1 SPSS (Statistical Package for the Social Science)

It's a system for analyzing data. It does statistical analysis by taking data from any type of file and generates tabulated reports (Arkkelin, 2014).

7.2 AnSWR

AnSWR is software for conducting large scale analysis of word-based data. This entails a set of methods for organizing, displaying, processing, summarizing, and interpreting information (Answer, n.d.).

7.3 Excel

Microsoft Excel is spreadsheet software that is good for quantitative analysis. It ha range of statistical functions like SUM, MIN, MAX etc which can be applied to cells to get results in seconds. It has various chart types to visualize data and generate summaries. An Excel add-in - --- Data Analysis Tool Pak can be used for complex statistical analysis (Ref-n-Write, 2018).

8.0 References

There are various styles of references. Each style has its specific format of writing the required information. Most of the time researchers forget style format wasting endless hours putting it in shape. The following tools generate references automatically reducing frustration and labour.

8.1 RefWorks

This software is web based. It creates in- text citations and bibliography. It also generates a list of references from your folder or RefWorks account. Citation placeholders must be inserted for RefWorks to add in- text citations (Ref-n-Write, 2018).

8.2 Endnote

It's reference management software. It creates citations and manages bibliographies and references across various styles. It is recommended by various universities (Ref-n-Write, 2018).

8.3 Easybib

It's a free bibliography generator and also provides citations, note taking and other research tools (Stover, n.d.).

8.4 Citelighter

It is all in one writing and research tool. Good for student's assignments as it helps through the entire process (Trautman, 2016).

9.0 Writing research

For writing research you could use a distraction free writing environment.

9.1 Write Room

It offers a light gray background with no bars or buttons but there are options provided in the menu. In this environment you can freely write and edit documents. It offers live word count and is synced with *dropbox*, *iphone* and *ipad*.

Other distraction free writing environments are Focus Writer, OmmWriter, Q10 Dark Room, Write Monkey, Creawriter, iAWriter, (Friedlander, 2011).

10. Conclusion

It's imperative for every researcher to remain updated and make utmost use of the technology that is available in research to save time and unnecessary efforts. Research is a time consuming and a tedious process but new technology will surely go a long way in reducing stress and promoting efficiency in doing research. Most of the tools mentioned above are provided free to the students by their universities. Most of the other tools could be downloaded for free in their basic versions.

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