

E-Research Tools and Resources: The Librarian's Role in Navigating the Digital Knowledge Landscape

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ABSTRACT

This study seeks to explore different research tools accessible online and their uses in libraries for delivering innovative library services. ICT significantly contributes to library and information science; it aids in transforming libraries into efficient learning centers. In the online realm, it is crucial to recognize the needs of contemporary researchers, to reduce their challenges in research activities, and to inspire them to pursue studies across different areas. By offering research-related services, librarians can support new researchers, contributing to the nation's development. A set of pertinent databases will connect to resources, web applications, and research instruments to assist researchers throughout all stages of their work, becoming a valuable service of the library.

KEYWORDS: Research online tools, E-research, E-tools.

1. INTRODUCTION

WWW plays an important role in transformation of traditional libraries into digital library. Due to advancement it became essential for librarians to adopt of modern technology in library. Thus, role of librarian is changed in the digital era, librarian not only disseminate the information but also actively participate in research activities and motivates users for research. Librarians are facing problem of users' attraction towards Internet resources which decreased their frequency of visits to library. Reading habits of the modern users are decreasing due to the advancement of technology. It is found that students hardly visiting libraries and using print resources. In such conditions student finds difficulties in understanding the authentic sources of information in digital environment. Students hardly continue their higher education or research activities. It is essential to promote library users for reading and research activities. Librarians can create awareness of different online tools to carry out their research smoothly.

2. NEED OF THE STUDY

Researchers have difficulties at numerous stages of research, such as managing citations, data gathering methodologies, and writing evaluations (Casanave & Hubbard 1992). It is critical to understand the different

innovative strategies that provide a conducive environment for researchers. Every researcher in the present era must work smartly in order to carry out their qualitative study successfully.(Wisker, 2007).Librarians can build a list of e-resources and e-tools to encourage research among library patrons. By developing these abilities, librarians will have the opportunity to display their unique services in libraries.

3. OBJECTIVES

The main aim of the present study is to investigate the various online tools for researchers and to inform library professionals how to use these tools by provide innovative library services in digital environment.

- ✓ To find online tools for researchers for identification of research problems
- ✓ To investigate the tools for review of literature
- ✓ To understand and use tools for data collection
- ✓ To know the resources for writing effectively
- ✓ To find out tools for improving quality of research

4. SCOPE AND LIMITATIONS

The study is intended to understand various tools available on Internet. Google search engine is used to find out the availability of various tools. All the e-tools are useful for researchers. Due to the limitation of length of the paper researcher covered few popular tools which are arranged as per the stages of research.

5. METHODOLOGY

This paper is based on descriptive method of research. Researcher used survey method for finding various research tools available online. Various University sites, research organizations, open source software's searched to understand the role of researcher in digital environment and use of online tools to improve the quality of research.

6. STEPS OF RESEARCH

Researchers' needs to follow the various steps during research work. Researchers can use following online tools to make research work easy and improves quality of research writing.

6.1 Identification of Research Topic: Identification of research problem is crucial task researcher has to perform. Researcher should avoid duplication of research work as it will be waste of efforts, time and money. However, it is very essential to know whether the research is already done on the similar areas or no. Researcher should use various printed as well as online resources to know the detail idea about the availability of the research. The research should be useful to solve the problem of the society. Researcher can use various online tools before finalizing research topic. Various online tools are available for identifying the duplication of research work.A collaborative effort to create research platform by NDLTD, OCLC, VTLS and Scirus are useful tools for new researchers. The NDLTD contains more than 1 million records of electronic thesis and dissertations. Researcher can find out various repositories at national as well as International levels to understand the development of the subject areas.

Table No.1 E-tools for pre-research stages

Sr. No.	Online tools	Website	Remarks
1	The Dart-Europe E-thesis Portal	http://www.dart-europe.eu	provides access to thesis in Europe
2	EThOS	http://ethos.bl.uk	provides access to UK thesis and dissertations from British Library
3	Open thesis	http://openthesi.org	free repository of thesis, dissertations and other academic resources
4	UMI Dissertation Abstracts indexes	www.lib.umich.edu	provides an abstract of most North American doctoral dissertations
5	DOAJ	https://doaj.org/	DOAJ is an online directory that indexes and provides access to quality open access, peer-reviewed journals.
6	The Library of Congress Catalogue	www.loc.gov/library	It contains 18 million catalog records for books, serials, manuscripts, maps, music, recordings, images, and electronic resources
7	Shodhganga	http://shodhganga.inflibnet.ac.in	Inflibnet, provides a good platform for Indian researchers to deposit their Ph.D work
8	ShodhGangotri	http://shodhgangotri.inflibnet.ac.in	repository of Indian research in progress

Thus, by searching the identified research area, researcher can be further evaluated the topic by using online resources available in repositories. Next step of the research is to collect the resources available on your research areas it is called as 'Review of Literature', which is the most important task of the research.

6.2 REVIEW OF LITERATURE

A literature review is a text of a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular area on the topic. Literature reviews use secondary sources, and do not report new or original experimental work. (Wang 2009).

6.2.1 Explore the Literature:

The process of reviewing the literature requires different kinds of activities and ways of thinking. Researcher has to read various literatures available on the area which is relevant to his/her research topic. It is a crucial activity which helps to understand the development of the concept, opinions of the different authors and difficulties' faced by them. Research can find out various resources form primary resources such as books, periodicals, journals, thesis etc. There are many online resources available such as e-books, e-journals, databases, OPACs, Library Portals, Repositories of various universities etc.

6.2.2 Online tools for Review of Literature: Below table contains a collection of digital tools that are designed to help researchers explore the millions of research articles available on web.

Table no.2 E-tools for Review of Literature

No.	Online tools	Website	Feature
1	ERIC	http://www.accesseric.org	The single best index to scholarly and professional literature in education
2	UMI/ProQuest Digital Dissertations	http://www.lib.umi.com	The most authoritative database for information regarding doctoral dissertations and master's theses from over 1,000 graduate schools and universities.
3	Google Scholar	https://scholar.google.co.in	Provides a way to broadly search for scholarly literature across disciplines and sources.
4	LazyScholar	www.lazyscholar.org	Chrome extension to help your literature search.
5	Microsoft Academic Search	http://academic.research.microsoft.com	Find information about academic papers, authors, conferences, journals, and organizations from multiple sources.
6	SSRN	http://www.ssrn.com	Multi-disciplinary online repository of scholarly research and related materials in social sciences.

To explore the literature researcher can search various online databases related to their field such as Emerald, JSTOR, EBSCO, J-Gate, IEEE, LexisNexis, Scopus, ScienceDirect etc. Finding literature is quite easy than managing their references. Reference manager was most difficult task in research process. Traditionally, researchers need to maintain the record manually. Due to the emergence of software, e-tools; reference management became easy.

6.3 Reference Manager E-tools: Researchers are managing their resources online by installing software at their desktop. Researcher need not to remember the style format for citing references. By using different tools bibliography in desired format can be generated with a single click. Few tools are listed below:

Table no.3 E-tools for Citations, Bibliography Generation

Sr. No.	Name of the software	Website	Developer	Year
1	Aigaion	http://sourceforge.net/projects/aigaion/	Aigaion developers	2005
2	Bebop	http://people.alari.ch/derino/Software/Bebop/index.php	ALaRI Institute	2007
3	BibBase	http://bibbase.org/	Christian Fritz	2005
4	BibDesk	http://bibdesk.sourceforge.net/	BibDesk developers	2002
5	BibSonomy	http://www.bibsonomy.org/	University of Kassel	2006
6	Citavi	http://www.citavi.com/	Swiss Academic Software	2006
7	CiteULike	http://www.citeulike.org/	Oversity Limited	2004
8	colwiz	https://www.colwiz.com/	colwiz Ltd	2014
9	Docear	www.docear.org	Otto-von-Guericke University and University of California	2009
10	EndNote	http://www.endnote.com/	Thomson Reuters	1998
11	F1000Workspace	http://www.f1000.com/	F1000/Science Navigation Group	2015
12	JabRef	http://jabref.sourceforge.net	JabRef developers	2003

13	KBibTeX	http://home.gna.org/kbibtex/	KBibTeX developers	2005
14	Mendeley	https://www.mendeley.com/	Elsevier	2008
15	Paperpile	https://paperpile.com/	Stefan Washietl, Gregorgy Jordan, Andreas Gruber	2013
16	Papers	www.papersapp.com	Springer	2007
17	Pybliographer	www.pybliographer.org	pybliographer developers	
18	Qiqqa	www.qiqqa.com	Qiqqa	2010
19	ReadCube	https://www.readcube.com/	Labtiva	2011
20	refbase	http://www.refbase.net/	refbase developers	2003
21	RefDB	http://refdb.sourceforge.net/	refdb developers	2001
22	RefME	http://www.refme.com	RefME	2014
23	RefWorks	http://www.proquest.com/products-services/refworks.html	RefWorks / ProQuest	2001
24	SciRef	http://sci-progs.com/	Scientific Programs	2012
25	Wikindx	http://wikindx.sourceforge.net/	Mark Grimshaw	2004
26	WizFolio	http://wizfolio.com/	WizPatent	2008
27	Zotero	www.zotero.org	Roy Rosenzweig Center for History and New Media atGMU	2006

A librarian needs to create awareness about the availability of such tools to motivate research spirit among their users.

6.4 Data Collection E-tools:

Traditionally, data collection was very tedious job researcher needs to perform lengthy tasks to collect data. Questionnaire distribution and feedback collection was difficult and time and money consuming part of the research. Due to the advancement of ICT and Internet technology it becomes easy to collect the feedbacks from the users from different locations in minimum time. Few online tools are given below:

Table no.4 E-tools for Data Collection

Sr. No.	Name of E-Tools	Website
1	Survey Monkey	https://www.surveymonkey.com/
2	Typeform	http://www.typeform.com/
3	Google Forms	http://www.google.com/forms/about/
4	Zoho Survey	https://www.zoho.com/survey/
5	Survey Gizmo	https://www.surveygizmo.com/
6	Survey Planet	https://surveyplanet.com/
7	Zoomerang	www.zoomerang.com
8	PollDaddy	www.polldaddy.com
9	Qualtrics	www.qualtrics.com
10	QuestionPro	www.questionpro.com
11	LimeSurvey	www.limesurvey.org
12	Key Survey	www.keysurvey.com
13	Kwik surveys	https://kwiksurveys.com/
14	Ideal Ware	http://www.idealware.org/articles/fgt_onli

		ne_surveys.php
15	SoGoSurvey	http://www.sogosurvey.com/
16	Smart Survey	https://www.smartsurvey.co.uk/
17	eSurv	http://esurv.org/
18	Get Four Eyes	https://getfoureyes.com/
19	Research Gate	http://www.researchgate.net/
20	My Survey Lab	http://mysurveylab.com

By using the above tools researchers can create online questionnaire in various formats which can be distributed to the users. These tools not only help in data collection but also data analysis too. It store all the feedback in excel file along with the graphs and charts.

6.4.1 Online tools for connect with experts and researchers:

A set of tools that help researchers reach out to other researcher and find expertise for new collaborations, communicate your research to the general public.

6.4.2 Collaborative writing tools:

The quality of research is most important part of the research. Quality can be increased if research done collaboratively. Online platform helps researchers to share their ideas effectively. Few online tools are listed below which helps researchers improve the quality of research.

Table no. 5 E-tools for collaborative research

No.	E-Research tool	Website	Features
1	Academia	https://www.academia.edu/	A place to share and follow research and researchers.
2	AcademicJoy	www.academicjoy.net	AcademicJoy is useful platform to share research ideas and story in research and innovation.
3	Addgene	http://www.addgene.org	Addgene helps to connect with other researchers through this plasmid sharing platform
4	AssayDepot	https://www.assaydepot.com/	Pharmaceutical marketplace for life science research services
5	BiomedExperts	https://scienceintelligence.wordpress.com	Scientific social network to research, collaborate, and connect with researchers and medical experts worldwide
6	BiomedUSA	www.biomed-usa.com	Global open access hub for sharing and licensing of Biological Research Materials and related technologies.
7	Direct2experts	http://direct2experts.org/	A federated network of biomedical research expertise.
8	LabRoots	http://labroots.com/	Social network for researchers.
9	Research Connection	https://www.researchconnection.com	A searchable platform for research jobs and information.
10	ResearchGate	www.researchgate.net	Social network for researchers.

The above online tools help to enhance the knowledge of researchers. Researchers freely share their innovative ideas with other researcher who is pursuing research in similar field.

7. DATA EDITING E-TOOLS

Data editing tools helps to improve the quality of the research. Few tools are listed below which helps in editing, proof reading and critical writing.

Table no. 6 E-tools for Data Editing

No.	Name of E-tools	Website	Features
1	Grammarly	www.grammarly.com	Online proof-reader, improves word choice with context-optimized vocabulary suggestions.
2	Polish My Writing	www.polishmywriting.com	This tool helps in correcting spelling, style and grammar
3	<i>Ginger</i>	www.gingersoftware.com/proofreading	Advanced feature in Ginger that all your mistakes like a, an, have, the will also be pointed out.
4	<i>Slick Write</i>	www.slickwrite.com	Not only all your errors are recovered with the help of slick write but this tool also analyzes your writing and will give you suggestions so that your writing skills can be improved.
5	<i>Paper Rater</i>	https://www.paperrater.com	Article will be analyzed with the help of this tool and final score displayed on the basis of writing skills.
6	<i>Spell Checker</i>	www.spellchecker.net	It gives you the option to check your articles in many different languages.

Table no. 6 described online tools which helps researcher to correct spelling mistakes, grammatical corrections, suggestions for improving critical writing. Grammarly, Ginger, Slick Write, Paper Rater, Spell Checker are useful tools to improve research writings.

1. Plagiarism E-tools: This is the stage where researcher needs to verify the content before publishing their research work. Researcher can use below given tools to check the originality of the work which will help researchers to avoid duplication of work.

Table no. 7 E-tools for Plagiarism

No.	Name of E-tools	Website
1	Dupli Checker	http://www.duplichecker.com/
2	Copy Leaks	https://copyleaks.com/
3	Paper Rater	http://www.paperrater.com/
4	Plagiarisma	http://plagiarisma.net/
5	Plagiarism Checker	http://www.plagiarismchecker.com/
6	Plagium	http://www.plagium.com/
7	PlagScan	http://www.plagscan.com/
8	Plag Tracker	http://www.plagtracker.com/
9	Quetext	http://www.quetext.com/
10	Viper	http://www.scanmyessay.com/

Plagiarism is become major issue now-a-days in every field. Every researcher should be aware about online tools for self evaluation (Warn 2006).

CONCLUSION

Due to lack of awareness of online software and tools researchers have to face many problems during their research tenure. Instead of concentrating on their research objectives they wastes their valuable time on various things such as data collection, arrangement of references, style and format of citations, formatting texts, data analysis etc. All these essential tasks become easy with the help of above mentioned tools. Librarians can create 'Research e-tools Portal' to promote their library users. The above mentioned tools are essential for modern researchers.

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