

# Evaluation and Creation of Web-based Resource Guides using SubjectsPlus

T. R. Manu<sup>1\*</sup> and Nabi Hasan<sup>2</sup>

<sup>1</sup>Assistant Librarian, Indian Institute of Technology Delhi, New Delhi – 110016, Delhi, India;  
manutr@library.iitd.ac.in

<sup>2</sup>Librarian and Head, Indian Institute of Technology Delhi, New Delhi – 110016, Delhi, India

## Abstract

The Resource Guide is a unified platform curated and administered by subject specialists, librarians, and liaisons, offering users access to a wide array of resources. Traditionally known by various names such as Pathfinder, bibliography, virtual reference collection, online guide, online tutorial, toolkit, or web guide, it serves as a comprehensive tool. Its primary purpose is to assist users in locating resources specific to their subject areas, staying updated on new resources, and connecting them to relevant, easily understandable information. At Central Library, IIT Delhi, diverse platforms like the library website, social media, online catalogues, Pathfinder, single search engine, and mobile app are utilized to promote library resources. However, these platforms may lack subject-level resources. This raises the question of designing and developing an online platform or resource base that consolidates and enables users to access various resources, including print resources, e-resources, professional development resources, open-access resources, and social media resources. This endeavour aims to meet the present and future needs of users in their respective disciplines. To explore this concept further, a pilot implementation of a web-based resource guide has been initiated at Central Library, IIT Delhi. This paper investigates how SubjectsPlus, an open-source tool, can facilitate the creation and management of web-based resource guides that promote the use of library and scholarly resources on the web.

**Keywords:** Library Resources, Open Access Resources, SubjectsPlus, Resource Guides

## 1. Introduction

Libraries continuously enrich their technology by implementing new applications/tools to promote library resources and services to fulfil user requirements. However, they have been playing a dynamic role in promoting library resources by implementing various discovery tools and connecting users with their library resources to enhance usage, creating awareness and providing access to multiple resources on a single platform. Information seekers are becoming increasingly specific in their information requirements. Traditionally, libraries have been using bulletin board services, one-way interaction, notices, announcements, email alerts and TOC to connect resources with users. However, they have gradually implemented the online catalogue, websites, federated search services, web-scale discovery services,

web 2.0 tools, scholarly search engines, etc. Libraries are also going ahead with creating union catalogues and sharing their resources via national & international union catalogue platforms such as WorldCat, IndCat, NUCSSI, SUNCAT, NDLI, Shodhganga, Ethos, NDLTD, DART etc., to widen accessible resource base.

Open Access (OA) resources on the Internet attract significant attention from users. Libraries started working with faculty and students to evaluate the quality of Internet resources before making them available to users. Although libraries have been trying to find new ways to encourage their users to access library resources, they found that resource guides serve as a gateway to managing library and Internet resources as these have features for meeting library needs.

Resource guides are intended to serve as a gateway to scholarly resources curated by the subject specialist/

\*Author for correspondence

librarian/liaison where users can access all types of resources that cover both print and electronic, subscribed resources accessible via library premises and open access resources categorized by subject, course and topic. Traditionally resource guides are known as Pathfinder, bibliographies, library guides, online guides, online tutorials, tool kits, web guides, subject guides, research guides, online and social bookmarking, content management systems, etc. It helps promote the use of resources & keep users up to date with new resources.

## 2. Review of Literature

A literature review was conducted to determine the best practices and experience of libraries in implementing Resource Guides using SubjectsPlus. The authors found many case studies, reviews, and research articles that had discussed subject guides' creation using web-based LibGuides software with web and library-subscribed resources. However, only a few studies focused on SubjectsPlus software and practices in creating Resource Guides and managing library content. SubjectsPlus can be used for library content management, A to Z databases and electronic resources, and subject liaison directory management, and it allows social bookmarking, Del.icio.us, Flickr, or RSS feeds, catalogue links, news sources, FAQ in their best experience at Holland College's library subject guides (Moses D and Richard J, 2008). A study with Ithaca college students and faculty compared guides and different versions of the SubjectsPlus software. They created two subject guides and three-course guides. Anthropology and biology subject guides were created using SubjectsPlus early version and 0.9. Respectively, courses "We are What We Have Eaten," "Journalism History," and "The Blues" guides were created in SubjectsPlus 0.9., and the study helped determine features that were considered most appealing for each guide (Cobus-Kuo L and Gilmour R, 2013). A study described the two different approaches of Wichita State University and Butler Community College libraries, respectively, using SubjectsPlus and LibGuides software to build library content. It was found that LibGuides has a modest price tag. Still, no programming knowledge is required for a librarian and "SubjectsPlus is free, open-source software, but the librarian needs the smallest level of technical expertise to build it. SubjectsPlus can manage subject, course, and topic resources. The system can handle other

library functions like subscription database links, staff directories, etc (Blackburn G, and Bastin J, 2011).

Several studies assessed the functionality, and relative strengths and weaknesses of open-source subject guide applications such as *SubjectsPlus*, *LibData*, *Research Guide*, *My Library* and *Library Course Builder*. SubjectsPlus is designed to dynamically manage the three aspects of a library website: subject guides, A-Z database list, and staff list. It is relatively straightforward and easy to maintain library content (Corrado EM and Fderick KA, 2008). This study extended to examining the open-source social book markings, i.e., del.icio.us, blog, wiki and content management system application "SubjectsPlus allows comfortable room for customisation, form colour, design, and content layout, and search functionality" (Wang J, 2012). The study describes open-source software solutions, implementation processes, and customisations of SubjectsPlus software to manage the subject resources at the Wichita State University libraries. It was found that database access and electronic resource maintenance are flexible in SubjectsPlus because it displays the database name, access types (Off campus, the open, library only or limited access), links to the database description page, and database types indicates (Full text, some full text). It is also used to manage course-specific, miscellaneous topic guides and library staff directories (Blackburn G and Walker M, 2010). SubjectsPlus and Library á la Carte are the best alternatives for LibGuides. These can be run on a local server with affordable technical expertise from the librarians. SubjectsPlus is a widget-based environment that allows the creation of a single page and multiple flexible-content boxes, and it can be edited in a WYSIWYG format (Francis, M, 2014). "SubjectsPlus can be successfully installed without any knowledge of MySQL, but if the librarian does have some knowledge, you can make additional changes to the look and feel of the SubjectsPlus interface (Kujenga, A, 2012).

A conversation between LibGuides (Monica Ruane Rogers, from the California University of Pennsylvania and a member of the IRSQ editorial board) and SubjectsPlus expert (Andrew Darby from the University of Miami) discussed the strength of each platform and their features. It found a lot of overlap features, although LibGuides offers more features (Rogers MR, and Darby A, 2021). Implementing resource guides using SubjectsPlus is not unfamiliar in India, and a few libraries use it. Authors from the Indian Institute of Technology Gandhinagar

Library have presented a case study on creating resource guides to connect users with library resources. They have described the implementation process and the features of SubjectsPlus (Kumbar et al., 2015). SubjectsPlus is one of the open-source software for resource guide creation.

### 3. Objectives

The objectives of the pilot implementation of a web-based resource guide undertaken at Central Library, IIT Delhi, are:

- To promote the use of library resources and scholarly resources on the web.
- To showcase the resources on a single platform irrespective of their type.
- To enable users to access the subject/course/topic-wise resources from a single point.
- Build resources that support users' academic, research and professional work.
- Build partnerships, interactions, and strong connections with a user community.
- Develop subject skills and expertise within a library.

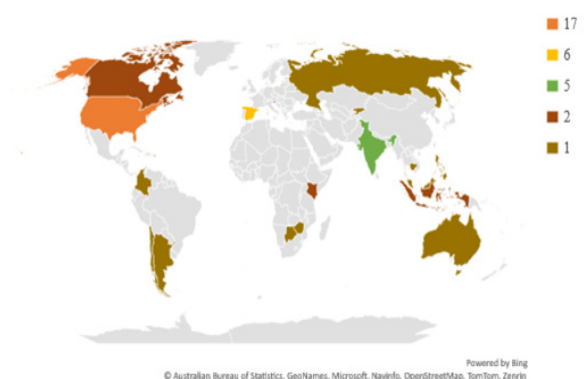
### 4. Choosing Platform

Choosing a software or platform for creating web-based resource guides involves examining individual library needs, technical expertise, infrastructure, features, etc. The platform must offer simple to use, quick to set up, cost-effective, user-friendly and attractive appearance and be flexible enough to meet the needs of the library in the future. Central Library, IIT Delhi evaluated

LibGuides<sup>1</sup> by Springshare, which is commercial and in the open-source category SubjectsPlus<sup>2</sup>, Library Course Builder (LibCB)<sup>3</sup> (last updated in 2012), Library a la Carte<sup>4</sup>, etc. Each of these has merits and limitations. These platforms are evaluated based on content creation, content support, integration, content discovery, add-ons and plug, reporting and statistics, user management and authentication and authorisation and community. It was found that SubjectsPlus is a cost-effective solution to connecting users with library resources, and so SubjectsPlus was selected as a viable software platform for creating web-based Resource Guides. Figure one presents the country-wise number of universities using SubjectsPlus. Most universities are in the United States (17), followed by Spain (06). In India, some prominent universities/institutions use the SubjectsPlus, including the Indian Statistical Institute, Delhi, Pondicherry University Library, Indian Institute of Technology, Gandhinagar, National Institute of Technology, Rourkela and Indian Institute of Management, Ahmedabad for resource guides creations and also maintain a website.

#### 4.1 SubjectsPlus

SubjectsPlus is an open-source software (developed by Ithaca College Library in the USA) that enables libraries to create and manage resources on a particular subject, course, and topic, irrespective of their format. It has a flexible way of presenting the resources, enabling end-users to access them using a web browser. It also allows the creation of an A-Z database list, FAQs, suggestion boxes, video management, website, library resource links, and library liaison/staff details. The technical requirements of the SubjectsPlus are that it runs based on the MySQL, Apache and PHP platforms. It can be run on Windows and Unix (with minimum configuration e.g., 16 GB RAM; 500 GB Hard disk) standalone with basic requirements, or a cloud server (8 GB RAM) is required to set up the SubjectsPlus server. The PHP  $\geq 5.3$  - 5.6, MySQL  $\geq 4$  - 5.6, Web server -- usually Apache, but some people have SubjectsPlus running on IIS and JavaScript enabled for the admin to work correctly or LAMP/MAMP/XAMPP/WAMP are major installation requirements. The standard



**Figure 1.** Country-wise number of universities using SubjectsPlus.

- 1 <https://springshare.com/libguides/>
- 2 <http://www.SubjectsPlus.com/>
- 3 <http://sourceforge.net/projects/libcb/>
- 4 <http://libraryh3lp.blogspot.in/2013/06/library-la-carte-resurrected-open.html>

Cascading Style Sheets (CSS) can be easily altered for a decent look and feel. The underlying scripts, style sheets, and database can be edited and customised, and Firefox is the preferred browser for SubjectsPlus. As of now, the latest version of SubjectsPlus is 4.6.

## 4.2 Advantages

- A summary of the advantages of a pathfinder service like SubjectsPlus are:
- Open access software.
- Easy installation and customization.
- Capable of creating and updating the independent web page.
- Automatic Link Checker.
- Direct Link to library resources.
- Creates A to Z list of e-journals.
- Enabled with social bookmarking like RSS Feeds, Delicious, Flickr and Twitter.
- Can create Google search boxes, catalogue search, and federated search.
- Comments/Feedback.
- Capable of managing a video library.
- Google Analytics can be added.
- Web responsive design.

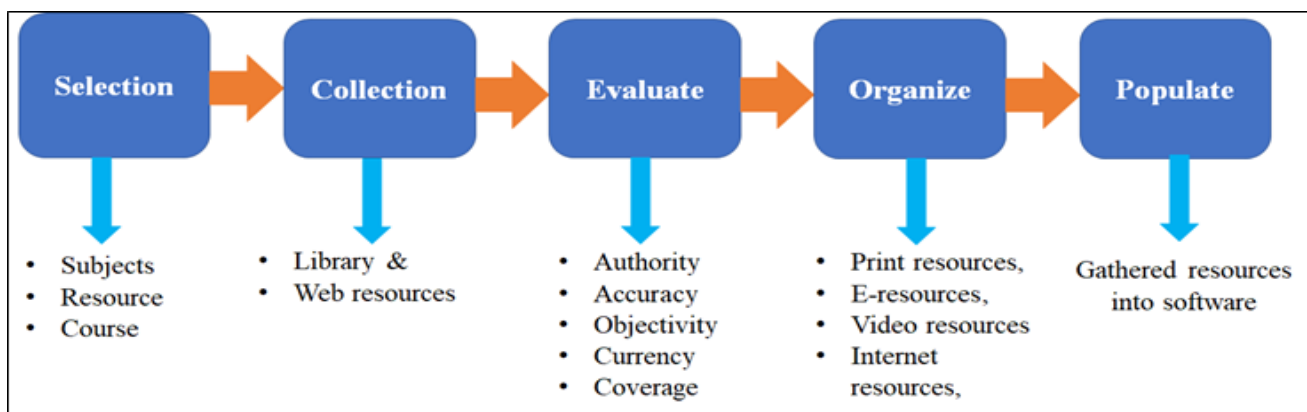
## 5. A Pilot Implementation

The pilot implementation of web-based resource guides using open-source SubjectsPlus software at Central Library, IIT Delhi, has enabled the examination of the feasibility of this platform and the features it offers to create resource guides and to compare with commercial platforms like LibGuides. Therefore, we have created

the resource guide on 'Plagiarism' and 'How to Cite Right Sources', which assist researchers in preventing plagiarism and citing the right source while involved in research activities. These guides include various resources on plagiarism, how to use the sources in research papers, guidelines for avoiding plagiarism, plagiarism detection software, online tutorials, and online games on various citation styles. It also covers library resources, including books, scholarly research articles, code of conduct, best practices in scholarly publications, and Central Library services on avoiding plagiarism and research publications. Systematic processes were applied to create these resource guides, including selecting subjects, collecting resources, organising, evaluating and populating the gathered resources.

## 5.1 Implementation Process

Figure 2 presents the SubjectsPlus implementation process at the Central Library, IIT Delhi. It covers the five major steps: selection, collection, evaluation, organising and populating entries. The selection step would be identifying the discipline/course/topic in which the library has enough resources, including print and user needed; in the collection step, gathering the library and web-based resources on the selected discipline/course/topic. Evaluation is a significant step to evaluate the quality of resources gathered. The resources from the web include open access resources, scholarly search engines, virtual reference collection, subject gateways, video resources, online reference resources such as encyclopedias, dictionaries, atlas, and other professional and academic development resources more need to be evaluated. Therefore, Central Library, IIT Delhi, applied



**Figure 2.** SubjectsPlus implementation process.



the traditional evaluation criteria. Once finalised, it can be organised based on categories or type such as print, e-resources, video resource, internet, virtual etc. The final step would be enriching the collected, evaluated, and organised resources in SubjectsPlus software's respective discipline/course/topic.

## 5.2 Basic Configuration

After installation, the basic configuration is required in the SubjectsPlus for creating subjects, resource categories, layouts, departments and library staff lists (Figure 3). We need to specify each department's name and telephone number. The following are required before starting: -

- Admin configuration of resource guide (administrator username and password, name of the resource guide, departments, library staff/ liaisons, contact address etc.): An administrator has the privilege to create the number of users of library liaisons and their contact details, with content-building permission, restricted depending on the subjects they have selected. This helps users find the right person to direct a question to while in talkback communication.
- Creating source categories (e-Journals, e-Books, OA source, virtual reference, video guides).
- Create guides (discipline/course/topic, plagiarism, biological science, humanities etc.)

- Resource population (particular records and resource that belongs to the subjects and category of sources).

SubjectsPlus provides interconnection facilities among the guides, sources and records (Figure 4) that belong to it. These connect each other and appear in the public view as guides > sources > records alphabetically. However, we can rearrange the position of source types that appear in the public view. If a record is related to multiple guides and source types, that single record can be linked to as many guides and source types.

## 5.3 Resource Guides – Implemented

The resource guides created through pilot implementation provide easy and structured access to extensive resources available over the Internet on how to avoid plagiarism and cite the right sources. These also help users find the resource to develop their awareness and avoid plagiarism in academic writing. It keeps users up-to-date with new resources on plagiarism and citations. These guides cover resources like what plagiarism is, guidelines for avoiding plagiarism, plagiarism detection software, tutorials, video sources and online games on plagiarism etc. (Figure 5).

How to Cite the Right Sources? The resource guide gives complete resources on citations and various ways to cite references in academic writing. This guide includes resources on reference sources, elements of authorities,

The screenshot displays the SubjectsPlus configuration interface. At the top, there is a navigation bar with links: SubjectsPlus, Records, Guides, FAQs, TalkBack, Videos, and Admin. A search bar for users is also present. Below the navigation bar, there are tabs for configuration: Basic Settings, Catalog, Guides/Records, Talkback/Video, and API. The 'Basic Settings' tab is active, showing a 'Save Config' button. The main content area is divided into three columns:

- Institutional Settings:** Includes fields for 'Name of this Resource' (e.g., SubjectsPlus, Research Guides), 'Institution Name' (Indian Institute of Technology Delhi), 'Institution Code', and 'Name of Library Administrator' (Central Library, IIT Delhi).
- Appearance:** Includes 'Titlebar Styles' (Regular Heading=ts-umcream, Alternative Heading), 'Header Switcher' (default), 'Use a theme' (Use a child theme to override the default theme), and 'Use your own CSS' (Not to be confused with 'Use a Theme').
- About:** Displays 'You are using SubjectsPlus v4.6.0'.
- User Settings:** Includes 'Columns To OMIT On User Form' (fields like fname, lname, title, department, position\_number, classification, priority, supervisor, tel, fax, intercom, room\_number, user\_type, personal\_information, emergency\_contact) and 'Columns To Require On User Form' (fields like title, position\_number, classification, priority, tel).

Figure 3. SubjectsPlus configuration.

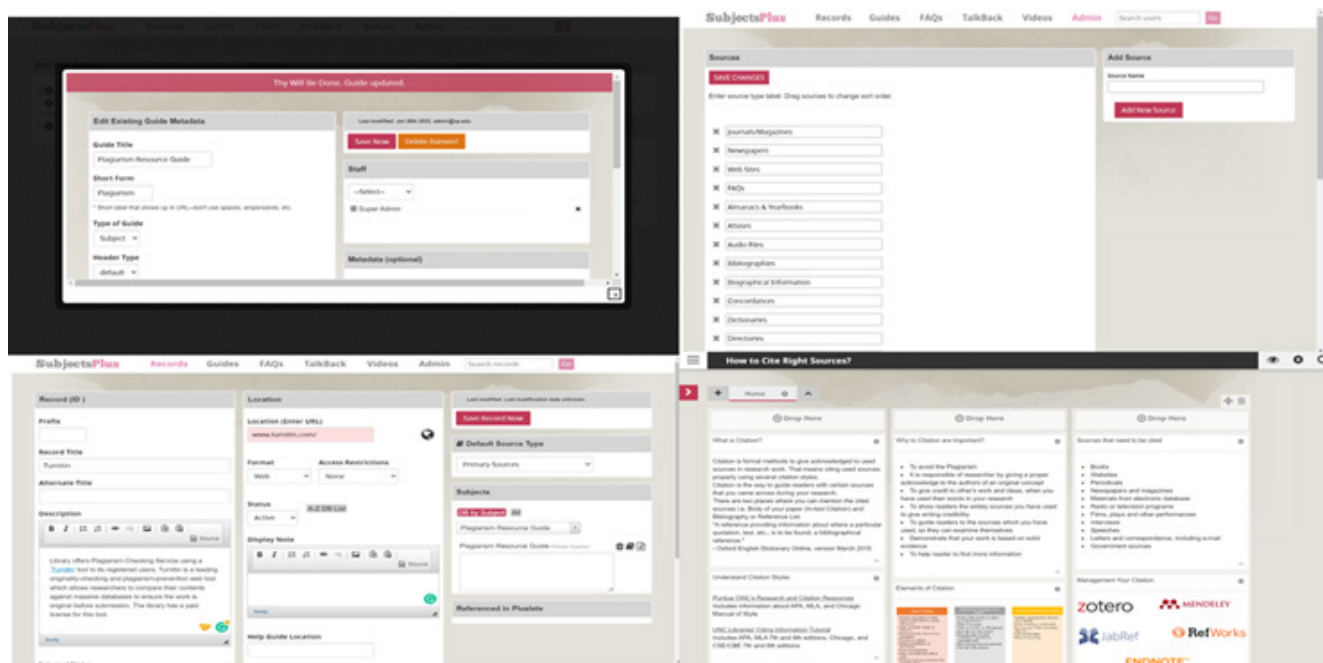


Figure 4. Guides > Sources > Records.

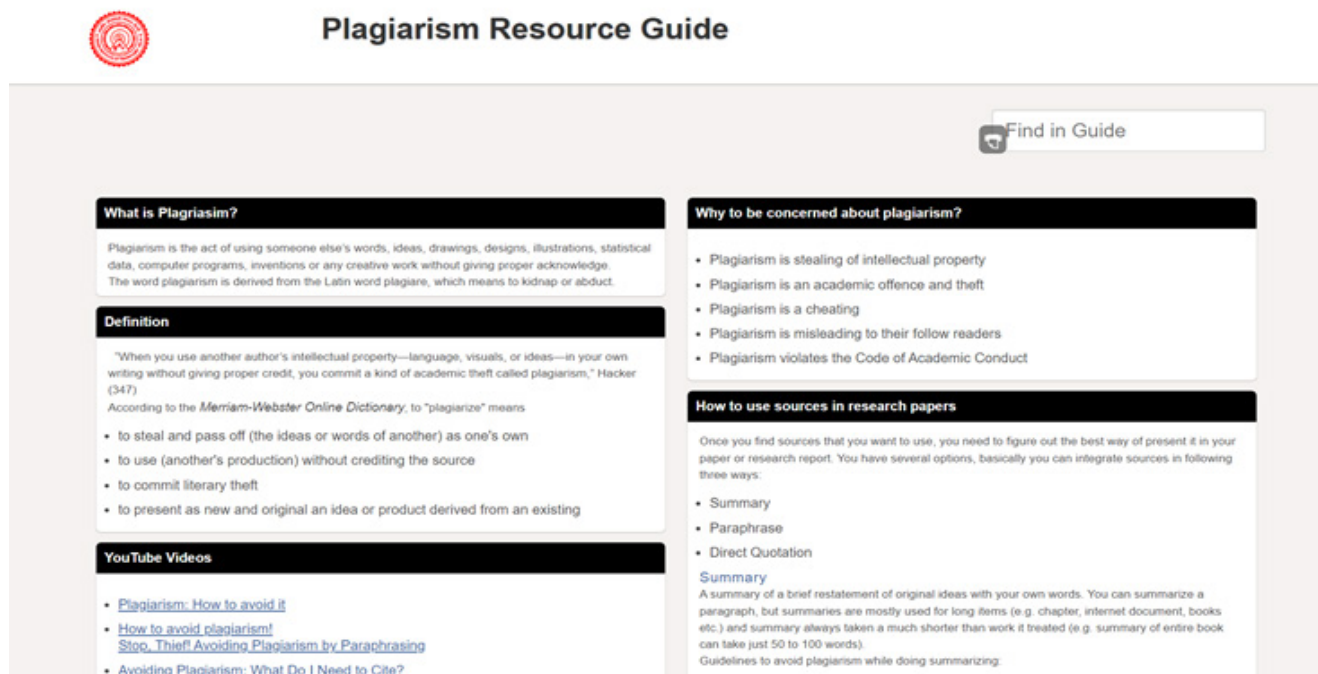


Figure 5. User view of the plagiarism resource guide.

sources that need to be cited, method of citing, citation style guides, manage citations, video and other sources on citation management, including code of conduct and best practices in scholarly publishing and Grammarly and other services related to plagiarism offered by the Central Library, IIT Delhi (Figure 6).

## 5.2 Takeaways

Through this implementation, it was determined that SubjectsPlus provides a custom feature and allows the creation of the major elements, like a dashboard, print resources, e-resources, professional resources, internet

**What is Citation?**

Citation is formal methods to give acknowledged to used sources in research work. That means citing used sources properly using several citation styles.

Citation is the way to guide readers with certain sources that you came across during your research.

There are two places where you can mention the cited sources i.e. Body of your paper (In-text Citation) and Bibliography or Reference List.

"A reference providing information about where a particular quotation, text, etc., is to be found; a bibliographical reference."

- Oxford English Dictionary Online, version March 2015

**Understand Citation Styles**

[Purdue OWL's Research and Citation Resources](#)  
Includes information about APA, MLA, and Chicago Manual of Style

[UNC Libraries' Citing Information Tutorial](#)  
Includes APA, MLA 7th and 8th editions, Chicago, and CSE/CBE 7th and 8th editions

**When Should You Cite?**

- **Direct Quotation** " " : Use quotations which support to your arguments and add credibility to your research paper
- **Paraphrase**: Putting some else ideas and information in your owns words or language
- **Summarizing**: Author's original works re-write into to a more brief statement
- If used source are not common knowledge: Common Knowledge is information that is generally known or can be found in numerous sources.

**Why to Citation are important?**

- To avoid the Plagiarism
- It is responsible of researcher by giving a proper acknowledge to the authors of an original concept
- To give credit to other's work and ideas, when you have used their words in your research
- To show readers the widely sources you have used to give writing credibility
- To guide readers to the sources which you have used, so they can examine themselves
- Demonstrate that your work is based on solid evidence
- To help reader to find more information

**Elements of Citation**

Printed Sources	Electronic Sources (web resources)	Audio and Multimedia Works
<ul style="list-style-type: none"> <li>• Author and editor (or other creator) individual or entity full names</li> <li>• Title of article, books or chapters</li> <li>• Name of books, journal and periodicals</li> <li>• Creator or editor</li> <li>• Name of publisher or distributor</li> <li>• Year of Publication</li> <li>• Place of Publication (Book only)</li> <li>• Volume and issue numbers (the journals only)</li> <li>• Page Numbers</li> </ul>	<ul style="list-style-type: none"> <li>• Name of the author or editor (or organization)</li> <li>• Title of the page</li> <li>• Title of the site (i.e. Homepage)</li> <li>• Date the site was created</li> <li>• Date the page was last modified or updated (or copyright date)</li> <li>• Date you accessed the material</li> <li>• The full URL address</li> </ul>	<ul style="list-style-type: none"> <li>• Author/organization/creator (if available)</li> <li>• Title of audio or multimedia</li> <li>• Format (e.g. Video recording, film etc.)</li> <li>• City of recording</li> <li>• Date of recording</li> </ul>

**Methods for Citing**

References must be address by a list of 'works cited' a 'references list' or bibliography

- In-text citation

**Sources that need to be cited**

- Books
- Websites
- Periodicals
- Newspapers and magazines
- Materials from electronic database
- Radio or television programs
- Films, plays and other performances
- Interviews
- Speeches
- Letters and correspondence, including e-mail
- Government sources

**Management Your Citation**

zotero Mendeley

JabRef RefWorks

ENDNOTE™

Figure 6. User view of the How to Cite Right Sources.

resources, and social networking resources. Each category contains a sub-category of resources on a particular subject. It serves as a gateway to scholarly resources and promotes the use of resources. SubjectsPlus is an open-source software for creating a resource guide.

- Keeps users up-to-date with new resources on their subjects.
- Provides access to scholarly information in digital form.
- It serves as an easy and single point of access to information.
- It is a Web platform for publishing and accessing.
- It offers numerous tools to deliver information to users.
- It connects users to relevant, timely and easy-to-understand information.
- It supports creating guides to research for students and class guides for faculty members.
- It supports collaboration with faculty members and researchers.

## 5.5 Challenges

Since SubjectsPlus is open-source software built with limited communities, it has some issues while

implementing resource guides. The significant challenges are:

- Lower-level security.
- Silent community.
- Bugs.
- Training the staff associated with Subject Liaison Service.
- Too delayed response issues arise when a person is on live chat via a talkback facility.
- Constant involvement is required for collecting new resources, maintaining the links, etc.

## 6. Conclusion

Resource Guides provide the ability to connect users with library resources anytime, anywhere and quickly respond to the users' needs via SubjectsPlus software. SubjectsPlus is a flexible software tool for creating resource guides at the institute level. It provides features to manage library content, databases, and searchable A to Z resources. Real-time feedback empowers the library because users can access the resources they need. They can write back to libraries with resource suggestions, and libraries can edit and update resources. Creating a

resource guide allows libraries to collaborate with faculty members and researchers to identify, evaluate and select the quality and right resources on specific subjects. And also, they can collaborate with the library team as subject liaisons, and it also helps the library team to understand their requirements and create resource guides. Overall, SubjectsPlus can be used to create resource guides instead of a commercial platform like LibGuides. It is the right solution for small libraries that may not be able to afford expensive LibGuides.

## 7. References

- Blackburn, G. and Bastin, J. (2011). Subject guides: Two different libraries, two different approaches. *Kansas Library Association College and University Libraries Section Proceedings*, 1(1). <https://doi.org/10.4148/culs.v1i0.1351>
- Blackburn, G. and Walker, M. (2010). Subject guides and more: Creatively transforming an open source management system. *The Code4Lib Journal*, (12).
- Cobus-Kuo, L. and Gilmour, R. (2013). Bringing in the experts' library research guide usability testing in a computer science class. *Evidence-Based Library and Information Practice*, 8(4), 43-59. <https://doi.org/10.18438/B8GP5W>
- Corrado, E. M. and Fderick, K. A. (2008). Free and open-source options for creating database-driven subject guides. *The Code4Lib Journal*, (2).
- Francis, M. (2014). Using LibGuides to enhance library services: A LITA guide. *The Australian Library Journal*, 43(2), 187-188. <https://doi.org/10.1080/00049670.2014.930396>
- Kujenga, A. (2012). *SubjectsPlus user manual*. Lithuania: EIFL. pp. 47.
- Kumbar, T. S., Asjola, Viral and Manu, T. R. (2015). Resource guides: Connecting users with library resources. In the *Global Conference on Emerging Trends in Business Librarianship*, Ahmedabad, India.
- Moses, D. and Richard, J. (2008). Solutions for subject guides. *Partnership: The Canadian Journal of Library and Information Practice and Research*, 3(2). <https://doi.org/10.21083/partnership.v3i2.907>
- Rogers, M. R. and Darby, A. (2021). A conversation about LibGuides and SubjectsPlus. *Internet Reference Services Quarterly*, 25(4), 121-126 <https://doi.org/10.1080/10875301.2021.1925614>
- Wang, J. (2012). SubjectsPlus: put it all together. *Technical Services Quarterly*, 29(4), 352-353. <https://doi.org/10.1080/07317131.2012.705759>