

A REVIEW OF ZOTERO AS A REFERENCE MANAGEMENT SOFTWARE FOR POSTGRADUATE DISSERTATION

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Abstract

Zotero as a platform for formatting references, is one of the many known reference management software tools that help researchers in selecting and recording cited material based on variety of citation styles. The paper aimed at reviewing its enormous contributions when adopted in Technical Report Write-ups. Critical review of three selected papers was made within the timeframe of 2012, 2014 and 2018 publications in academia to produce enough contributions to knowledge from the past down to present. Zotero came to discourse in 2006 by the Centre for History and New Media at the George Mason University and free to be downloaded as open-source software add-on to the Firefox browser. An icon is shown in the address bar when it is installed, so that any of the thousands of supported sites like PudMed, Google Scholar, Wikipedia, and many others are browsed and cited. Its features are that References and Scholarly materials are automatically detected; Researcher can easily click to save the materials cited, the webpage, or PDFs of academic works; Keyword tagging of content is also supported. Other features are Cloud synchronization functionality – where all materials added to library is uploaded to the Zotero servers which becomes available from any web browser. The software facilitates collaboration in a shared libraries between teams of users that can be accessed privately or publicly.

Keywords: Formatting References, Reference Management Software, Referencing Tool, Reviewing Zotero and Zotero.

Introduction

Zotero as contemporary of Mendeley referencing tool is being quiet unpopular and underutilised among PhD Scholars despite its simplicity and free access. In this paper, review of Zotero as a Referencing Tool was done with the aim of highlighting its enormous contributions when adopted in technical report write-up by PhD researchers and scholars. The paper emphasised that the software is the most available and none difficult tool to access than many other reference manager software (RMs) including Mendeley. Zotero came around 2006 as free, open-source software add-on for the Firefox browser plugin. When it is installed, shows icon in the address bar to be used in browsing thousands of sites – from which are PudMed, Google Scholar, Wikipedia, etc (Anandraj et al, 2012).

Managing References (RMs) is the most daunting parts of scholarly research works. Necessity to format references based on a variety of citation styles has made the RMs an essential tool for scholars at all levels. And these variety of RMs available makes it difficult also to know which tool to select. Researchers in the modern era know that one of the difficulties of the information-saturated culture that we live in is the difficulty of sorting and keeping track of a wide variety of information. The problem was not new, it were believed to have been existing for decades (Anandraj et al., 2012; King et al., 2003).

The emergence of RMs was attributed with so-many names given to them: from Reference Management Softwares, to Citation Management Software, to Personal

Bibliographic Management Softwares, to Reference Database Software, and many other names. They evolved over time to contain many features such as plug-ins to work with word processors, the ability to search online databases for literature, numerous citation styles including custom styles, and advanced searching and tagging. Softwares such as EndNote added online components to their desktop applications while others developed completely online solutions such as RefWorks. Instead of creating a stand-alone application, others came as an add-on to some browsers (King et al., 2003).

From the foregoing, a reference management software tool called Zotero came around since 2006 as an online bibliography program that can be integrated with Firefox, Chrome or Safari. The main GTPR Bibliographies [Library > Bibliographies] are imported via Zotero. To contribute to bibliographies, researcher/user must create an individual account with Zotero and then send a group request to GTPR. Once he/she has joined the GTPR Zotero group he/she will be able to add references even to the group library, which will automatically synchronise with the GTPR website. With Zotero, various citation and bibliography styles are supported by a large array of plugins. Once the research portion of researcher's work is completed and they have moved into the process of technical report writing, Zotero can help even more (GTPR, 2021).

Reviews on Zotero's Performance

Originally, Zotero (www.zotero.org), developed in 2006 by George Mason University's Centre for History and New Media (CHNM), the name Zotero originates from the Albanian language "to master or acquire" (Dingemane, 2008).

Performance is an action or process of carrying out or accomplishing an action, task, or function (Dictionary.com, 2021). Performance of Zotero as a software suitable in PhD technical report writing

cannot be overemphasised for beginners, as the tool is obtainable free for download. Zotero was an add-on to the Firefox web browser that tries to assimilate the "important aspects of older versions of softwares (like EndNote) - the capability to save author, title, and publication fields and to export that material as configured and the important aspects of contemporary softwares and web applications (like iTunes and del.icio.us), such as the capability to interrelate, tag, and search in innovative ways (Anandraj et al., 2012).

The software come as a Firefox browser extension to work with it only. Web account for Zotero can be set up for back-up and convenience access by which it is synced with the application on any computer as a free, open source plug-in for the browser it came as add-on for. Users can simply click on an icon in the address bar to save the cited material in one's library without navigating away from the web. Currently, the software has an alpha version which is an independent of desktop client, as a Standalone, it works on Mac OS, Windows, and Linux, allowing for independence from the Firefox browser (Roux and Burke, 2014).

Based on the review, the software was variously described as follows:

Properties of Zotero

- i. Its capability to systematically yield or capture citation information or references from web pages, Zotero libraries, newspapers and online catalogues into **metadata**.
- ii. The ability to sort mp3 files, videos and web clips into its libraries. Document types (like video, letter, manuscript) that match the research works.
- iii. Download of full text and pdf files indexing.
- iv. Keyword tagging of content is supported. Tagging is possible with an infinitely rich text annotation.

- v. Synchronisation and data backup in the Cloud: Cloud Synchronisation is such that all contents added to libraries is uploaded to the software's server which will be available from any web browser henceforth.
- vi. Very powerful alliance amongst researchers: Facilitating Collaboration is by offering a joint library access between different number of privately or publically accessed users.

Installing Zotero

All Operating Systems (OS) could be compatible with Zotero Referencing Management Software. Install by downloading the latest release, to download: the link of <http://www.Zotero.org> could be clicked. The download button could be seen in red colour. Then click on the "Install Now" and then subsequently follow the instructions to the end. Installation can be standalone or add-on.

With Firefox, users must ensure to right-click and save the XPI file – Zotero is now accessed: In the main menu, go to Tools > Add-ons. Select 'Extensions' Click on the gear in the top-right corner and choose 'Install Add-on. From the File...' select .xpi that you have just downloaded, and click 'Install'. To finalise the process, Restart Zotero as standalone or Restart Firefox so that Zotero icon could be seen at the uppermost part of the Firefox window.

To initialise update with older installations, the plugin will automatically be updated to newer releases once the above process is performed.

Note that: BBT needs to be installed in Zotero, not Firefox. Out of the two versions of Zotero, the standalone and the add-on for Firefox browser. BBT with the standalone versions, is an extension of Zotero and comes with Zotero which is no longer available as a Firefox plugin.

After the first installation, user will be asked a few questions which need to be read instead of just clicking through.

Registration with Zotero

To register with Zotero:

While at the homepage of Zotero <http://www.Zotero.org>, an account is created so that the software management team will send user a verification mail on registered e-mail.

Then sign-in into registered email and click on the sent link by Zotero for confirmation of verification. As and when the verification process is complete, the registered email will be automatically sign-in into Zotero.

The account can now be synchronised to the users' library or be used to contribute in groups or be posted to the support forums. The library items, notes, links, tags, etc can be synchronized and transferred except the attached files like pdf, document, etc between the computer locally and the Zotero servers. It makes work possible with data from any computer with an extension of Zotero online.

Data synchronisation with Zotero web server has preferences at Tab and log-in into the Zotero synchronization server section.

Capturing Item's Metadata

The kinds of Item it processed include but not limited to books, articles, artworks, films, Sound Recording, PDF files, Documents, etc.

Items are accessed through their Metadata (titles, creators, publishers, dates, etc).

Items appear in the centre column while its metadata appear in the right column when clicked.

- i. Items can be added automatically to zotero library especially when the ISBN, DOI and PubMed ID is known. Items can be added via one of these identifiers by clicking the "Add Item

by Identifier” button at the top of the centre column of the Zotero panel, it can be typed or pasted in the identifier and press Enter.

Note that in this case, Zotero populates metadata fields automatically if the icon is seen in the address bar – by clicking on item of appropriate type. If full text of that item, like pdf is available, it will be automatically attached to the item.

The following databases are used for looking up item’s metadata: World Cat for ISBNs, Cross Ref for DOIs, and NCBI PubMed for PubMed IDs.

- ii. Items can also be manually added by clicking the New Item button in the Zotero toolbar, and then the appropriate item type is selected. Metadata can then be accessed and added by hand at the right column. This is important for adding primary documents.
- iii. PDF or any other file from your computer in Zotero can be included by simply dragging it to Zotero - it can also be dragged to save item as an independent entity. For added PDFs, users can download bibliographic data automatically from the internet in a right-click and then selecting Retrieve Metadata for PDF.

Organizing and Retrieving Citations

Before adding items to zotero library, “Collections” permit categorized arrangement of items in group. Items may be placed in multiple locations in the library.

- i. To rename collection, right click the “Collection” and select “Rename Collection”, and type the new name.
- ii. To remove collection: right-click on the “Collection” and select “Remove Collection”. Note that removing collection does not result to deleting the items in the collection.
- iii. To delete item in collection: items can be deleted by researcher/scholar by

pressing Ctrl-Delete. Alternatively, right-click the item selected and select “Delete selected Item[s] From Library.

- iv. “Tags” also called “keywords” in other contexts, allow for detailed characterization of an item, allowing the formation of ad-hoc collections after adding items to your library. The tag selector is located at the bottom of the left column and shows all the tags that have been attached to the items shown in the center column. The tag selector allows tags to be globally renamed and deleted.
- v. With Firefox, user can create notes from the webpage directly by visiting in Firefox. User can highlight the text required to copy into a note by right clicking and selecting “Zotero” in the menu that pop-up. “Create Zotero Item and Note from Selection” can then be selected. A new “Web Page” item will now be created in library for the visited webpage, with a note containing the selected text.
- vi. Apart from collections and tags, a third way to express relationships between items is by setting up “relations”. Relations can now be set up between any pair of items in a library. To do this, an item is selected in the center column and then “Related” tab of the right-hand column is selected. Then click the “Add” button, and select one or multiple items from the same library in the pop-up window or command or shift and click “OK”. The selected items will now show up as related items in the “Related” tab, and clicking an item will take you straight to that item.

Study Design

In order to understand and assess the Role of Zotero as a Referencing Tool through discovering its enormous contributions in Technical Report Write-ups, critical review of three selected papers was made within

the timeframe of 2012, 2014 and 2018 publications in academia. This idea of selecting three different publications within the timeframe of at least two years in history is believed to produce enough contributions to knowledge from the past. In each case, secondary data was collected, presented and analysed according to the aim of the study.

All the three papers published on Zotero Referencing Management Software were

presented differently; first as a conference paper in 2012, second as a journal article in 2014 and third as a seminar paper in 2018. The papers were systematically selected through the search engine of ResearchGate and Google Scholar sites so that timeframes would give the required information on how the chosen reference management software of Zotero stood out in the discourse from past to present day.

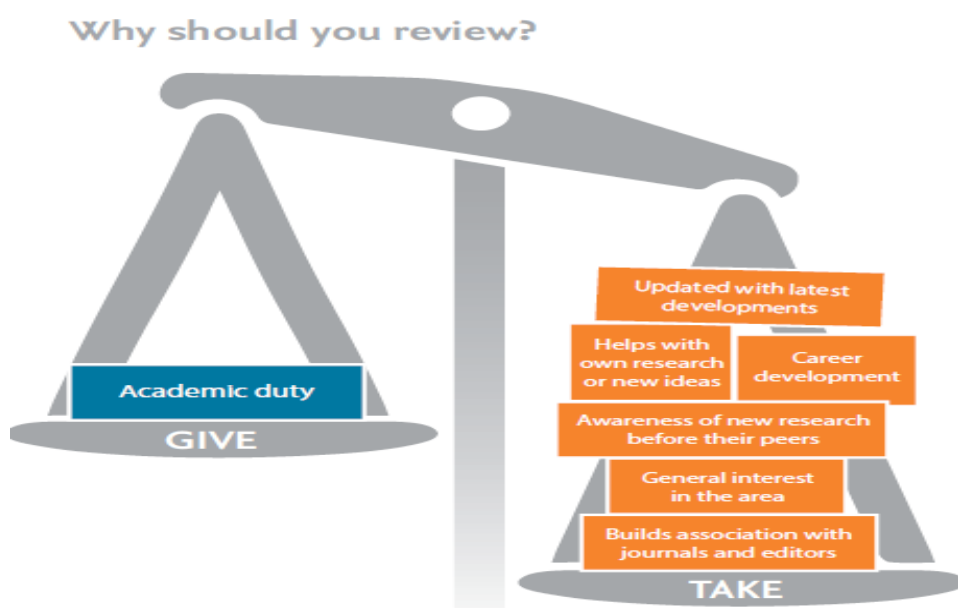


Figure 1: Adapted from ELSEVIER, 2012. Sourced: How to review manuscripts.

Figure 1 illustrated some of the purposes considered in the review processes. This review was based on the need to update developments in Zotero discourse as reference management software today. Hence, the review from the selected papers be used in vividly presenting some of the enormous contributions of how Zotero as a reference management software could help

in technical report write-ups. The choice for the three selected articles, according to Dada (2005) could be made based on the highest concentration of information needed within them. And the period of the survey (2012, 2014 and 2018), was believed that the influence of Zotero reference tool should be appreciable by research groups and forum globally.

Discussions and Analyses

Table 1: About Zotero

Zotero as Reference Manager	It was named as “to master or acquire”, Freely downloadable, Obtainable as Firefox extension/ plug-in as well as standalone of Firefox browser.
	Web account for Zotero can be set to synchronize with applications on personal computers.

Source: Researcher’s Review, 2021



Figure 1: Zotero Website Homepage

Source: Anandraj et al., (2012).

Table 2: About the Papers under Review

Authors	Titles	Type of Paper	Institution/Affiliations	Year Published
Anandraj et al., (2012).	Zotero: Reference Management Software	Conference (Paper One)	The Kerala Minerals & Metals Ltd. India	July, 2012
Roux, H. L. and Burke, I. D., (2014).	Collaborative Reference Management System	Journal Article (Paper Two)	Council for Scientific and Industrial Research, South Africa	August, 2014
Sharma, A. K., (2018)	Reference Management Software Tools: Zotero	Seminar (Paper Three)	Visva Bharati University, India	August, 2018

Source: Researcher's Review, 2021

Table 3: Highlights on Zotero

Performance of Zotero	In Paper One	In Paper Two	In Paper Three
Structure of the Papers	Introduced by an abstract and a brief overview of the developments in Zotero as reference management systems. Features and Performance of Zotero was majorly highlighted in the paper. From Downloading, Installing, Organising References and its Library, Searching and the different features of searching, Citing and Creating Bibliographies, Reports, Citation Styles, Synchronization, Backing- up of Library, Export and Import data, Advantages and Limitations.	Introduced by an abstract and a brief overview of the available management systems. The paper presented literature review of reference management systems as well as a review of trend in collaborative research and tools used to facilitate the process of shared referencing. The important highlight in the paper was the Comparison of Reference management tools where assortment of BibTeX software available on the market was revealed. It showed the key attributes of each.	Introduced all the known reference management tools including Zotero, then mentioned its features, kinds of Items it process, what can be done with Items, Installing the software, Capturing Items on it, Registering with the software, Using Online library, Interface and configuration of the software, Word processor Integration, Adding Citation & Bibliography,.
Conclusive Remarks	Contributions of Zotero for information in the database was stressed. Therefore students and researchers should find it a useful tool.	Zotero was mentioned as one of BibTeX software available on the market. This is usefulness of Zotero.	Features of Zotero as reference management software was highlighted.

Source: Researcher's Review, 2021

Conclusion and Recommendations

Zotero could serve as a good choice among PhD students for its effective and efficient performances. It kept track of the features with RMs requiring subscriptions like EndNote, RefWorks, etc as well as those requiring no subscriptions like Mendeley according to literature past and present, Table 1, 2, 3 and Figure 1 were presented as

findings with the following testimonies accrued from the papers reviewed.

1. Zotero has the ability of sensing potential items on a page currently being viewed. It's also able to enter the information into the database without the user having to manually do it. Its user should be careful though, as not all

- automatically entered information will be auto-complete or correct.
2. The software does not check for duplicates when entering data, therefore user must have to make sure that their library does not become duplicated. Once the citations are recorded, folders, tags, and saved searches avail the user the ability to retrieve and/or organize cited information in a way that makes meaning to them so important information does not get lost with time.
 3. The RM moves a little toward being a larger research tool with the capability to archive, annotate, and highlight web pages, attach related documents to records, and to interrelate items to each other when it comes to creating citations.
 4. It gives room for modification by users. It could be merged well with Microsoft Word, only that the citations are in themselves not always accurate.
 5. The software could benefit scholars with citations in the default installation mode, developers could encourage users to add to the project subsequently. Developers follow their goal of adding online capabilities to their project in subsequent releases. Having the library attached to single copy, Firefox is frustrating to users who have multiple machines/search engines and would like to be able to access their up-to-date library wherever they happen to be.
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