



7 Things You Need to Know about Zotero

A white paper from Teaching and Learning with Technology at Penn State

Case Studies for Future Development

Zotero has a variety of uses beneficial to students and researchers:

- One way of using Zotero in the Penn State environment would be to teach students research methodology. The simple interface and ease of collecting data lowers the learning curve.
- Zotero can be used to catalogue online information sources which can be exported and then reimported into commercial packages such as EndNote or RefWorks.
- Zotero may be of interest to artists or designers as a way of easily collecting and tagging reference images.
- Zotero is another way of managing and categorizing bookmarks by tags or folders.

Examples on the Web

Zotero
<http://www.zotero.org/>

University of Michigan Zotero Documentation
<http://www.lib.umich.edu/exploratory/pdfs/zotero.pdf>

Who to Contact

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1. What Is It?

Zotero (<http://www.zotero.org/>) is a Firefox plug-in which allows users to capture and record bibliographic information about Web pages, images, and online journal articles, and export them as both a formatted bibliography or a text file suitable for EndNote import.

Unlike other bibliographic tools, Zotero can extract key metadata from Web pages and insert them into citations. Zotero has also been developing plug-ins for additional applications such as Microsoft Word and OpenOffice. The developers are currently working on Zotero Commons, a Web-based tool for collaborative tagging of citations. This tool was developed by the Center for History and New Media (<http://chnm.gmu.edu/>) at George Mason University and was funded by grants from the Mellon Foundation, the Sloan Foundation, and the United States Institute of Museum and Library Services.

2. Who's Doing It?

At Penn State, librarians and technologists from the University Libraries, Information Technology Services, World Campus, and elsewhere are exploring Zotero. The Libraries began offering introductory Zotero seminars in January 2008.

Beyond Penn State, other university libraries such as MIT (<http://libraries.mit.edu/help/zotero/>) and Stanford University (<http://www.stanford.edu/group/cubberley/files/ZoteroQuickStartGuide.pdf>) provide training, while others like the University of Michigan and Duke University are actively investigating Zotero. This tool has also been featured in articles from *PC Magazine*, the *Chronicle of Higher Education*, and the the 2007 Educause/New Media Consortium *Horizon Report* (http://www.nmc.org/pdf/2007_Horizon_Report.pdf).

3. How Does It Work?

Zotero is a free Firefox extension from Zotero.org (<http://www.zotero.org/>). Once the plug-in is installed, the user sees a Zotero icon at the bottom of the browser.

Whenever a Web page citation needs to be added, users click on the Zotero icon to open a citation information window. If they click the **Create New Item from Current Page** button, a new citation opens and extracts certain metadata—page title, URL, and date/time accessed are automatically populated. Other metadata, including author name, publisher, and publication date are populated if it is available on the Web page; users can also input other data as needed.

Other features include:

- Optimized for JSTOR, Flickr, YouTube, Google Scholar, ProQuest, EBSCO, and other online archives/databases. Click the Zotero icon in the URL address field to pull in key metadata.
- Create citations for offline resources such as books, journal articles, and personal communications.
- Organize citations by tag or folders; generate reports based on tags or folders.
- Take notes and attach files (e.g., PDF or Word files) as needed.
- Capture snapshots of Web sites and online images with metadata (note that there are interesting copyright implications).
- Zotero supports the OCLC OpenURL Resolver Gateway protocol (<http://www.oclc.org/productworks/urlresolver.htm>) for academic citations. Clicking the **Locate** button within Zotero will direct users to the appropriate database within the Libraries. See http://www.zotero.org/documentation/openurl_resolvers.

- Unicode friendly—Zotero can store foreign language citations.
- Export citations in formats which can be imported into other packages such as EndNote.
- Create formatted bibliographies in HTML and RTF in several formats including American Psychological Association (APA), Modern Language Association (MLA), Chicago Manual of Style, and others.
- Plug-ins available for Microsoft Word and OpenOffice which allow you to insert formatted citations from Zotero.

Zotero contains several options which can help researchers organize and format citations. You can organize your collection of citations in separate folders (aka “collections”), by adding tags, or both. Zotero prints out detailed reports, including abstracts and notes, based on your folder organization or based on specific tags. Zotero also allows you to export a formatted bibliography into HTML and RTF, and includes options for several bibliographic formats including the American Psychological Association (APA), Modern Language Association (MLA), and Chicago Manual of Style. Zotero can export items into different formats including one which can be imported into EndNote. Download the plug-in for Microsoft Word or OpenOffice to insert citations from Zotero directly into Word documents in the formatting style of your choice.

4. Why Is It Significant?

Zotero has a number of benefits not available in other tools which make it ideal for small research projects. It has an ability to automatically extract certain types of metadata, such as the URL, date and time accessed, and title from common online archives such as Flickr, Google Scholar and YouTube. This not only reduces manual transcription on the part of the student user, but also improves accuracy.

The interface is easier to learn than other commercially available bibliographic management tools, some of which may require special preconfigurations before citations can be added and formatted. Zotero includes robust note management capabilities as well as tagging, which can help students track resources they find. Finally, Zotero is free and students who are at the beginning of learning the research process may find Zotero more appealing than a tool which could cost over \$100. Even more experienced scholars may prefer Zotero over some commercial tools depending on their situation. Zotero is open-source and there is a commitment from the Zotero developers to allow unrestricted access to users and opportunities for outside developers to add functionality and ensure continued development.

5. What Are the Downsides?

One drawback is that Zotero is only available for Firefox, Netscape, and Flock (<http://www.flock.com/>). Users who are more familiar with Internet Explorer or Safari would need extra training to install and learn Firefox. Fortunately, Firefox is equally supported on all the major operating systems. Another issue is that citations are tied to your local Firefox profile, so it is not as easy to transport or share with other users as in other applications. Users who switch computers would need to learn to export and import Zotero data between Firefox profiles (but see the next section for Zotero’s plan to make a collaborative version of the tool). Zotero’s bibliography formatting options are also more limited. While most of the widely-used formats are available, it does not include many specialty journals, and reformatting of bibliographies is not instantaneous.

6. Where Is It Going?

The Zotero developers have been focusing on integrating Zotero with other services. In recent upgrades, Zotero has included tools to integrate with the online photo sharing service Flickr, the online video service YouTube, Microsoft Word, OpenOffice and blogging platforms. Zotero features will continue to be added by the project developers, but the most exciting prospect is creation of extensions by third-party developers—an activity that will surely follow as its popularity increases.

Another initiative, called Zotero Commons (<http://www.zotero.org/blog/zotero-and-the-internet-archive-join-forces/>), is being developed in collaboration with the Internet Archive, funded through a grant from the Andrew W. Mellon Foundation. The Zotero Commons will be a set of Web-based services for data sharing, annotation, and scholarly collaboration hosted by the Internet Archives and will provide users with a permanent archive of digital content, the ability to share resources publicly, and opportunities for discovery of resources, as well as enabling new collaboration opportunities since contributions to the commons are credited to users. This could have a huge impact on the academic community and how it engages in research and scholarship. Similar to Wikimedia Commons, the Zotero Commons will also allow upload and publication of open-source images and documents.

7. What Are the Implications for Teaching and Learning?

Zotero provides excellent support for scholarly research from Web-based resources, meeting many of the detailed requirements of faculty, and providing a usable interface demanded by students. Zotero is an ideal tool for teaching students basic research methodology such as finding, cataloging, and selecting data resources. The output functionality of the formatting tools can increase the quality of bibliographies in student papers dramatically.

Scholars may also find Zotero a nice complement to their existing bibliographic software. The tool is lightweight, yet collects the full set of Dublin Core metadata automatically from semantic documents and a select set of reference databases; for other sources, Zotero has a well designed interface for manual entry of metadata. Another benefit is that the data can be exported to other documents in a variety of formats including EndNote, RDF, HTML formatted bibliography, or RTF bibliography.

Zotero is also one of the first research tools to leverage the concept of tagging, which is growing more popular among Web 2.0 tools. In addition to collecting metadata, Zotero organizes user-generated information including snapshots, images (e.g., from Flickr), notes, attachments, tagging, and related items. Zotero may be a tool in which students can learn both research and Web 2.0 skills.