Citation Managers
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Overview and Definition
Citation managers allow users to create a personal collection of citations to materials of interest or used for research, and to use those citations to generate bibliographies in a variety of formats. Many citation managers allow the user to organize collected citations into folders, making them useful for multiple projects, and some managers allow users to share collections of citations with collaborators or classes.

Basis for Current Interest
Making it easier for students and researchers to cite correctly and avoid plagiarism is something librarians have done for years, ranging from keeping copies of popular and frequently used style and publication manuals readily available to assisting students individually with research workflows and bibliographies. Citation managers offer these basic functions and more. Because each citation manager has slightly different functionality, however, finding the right citation manager for one’s workflow may depend on cost as well as personal preferences. Understanding both the features and capabilities of the various paid and free tools makes it easier to recommend specific tools and support our users.

Current Applications in Academic Libraries and Higher Education
As an extension of citation support services previously offered using style manuals, many academic libraries and institutions have provided access to and/or support for citation managers such as [EndNote](https://www.endnotesupport.com) (or [EndNote Web](https://www.endnoteweb.com)), [RefWorks](https://refworks.com), [EasyBib](https://www.easybib.com), and [NoodleTools](https://noodletools.com). In recent years, however, free and low-cost solutions such as [Zotero](https://www.zotero.org), [Mendeley](https://www.mendeley.com), have become available, and database vendors such as [EBSCO](https://www.ebscohost.com), [Gale](https://www.gale.com), and [ProQuest](https://www.proquest.com) have incorporated citation management functionality into their interfaces. The tools vary in their functionality and ease of use, however, making some simpler to learn and use, while others require more dedication in order to learn and take advantage of the full range of features.

In general, citation managers help students, faculty, and researchers manage their sources for research and generate bibliographies. Some have plug-ins for or integration with word processing programs including Microsoft Word, [Google Drive](https://drive.google.com), and [LaTeX](https://www.latex-project.org) that help users cite sources as they write their papers. Others are integrated into the interface of a vendor’s product. For example, EBSCO incorporates basic citation generation as well as the ability to manage and share collections of citations once the user has created a personal account. ProQuest incorporates this functionality and also integrates with a user’s RefWorks account.

Some citation managers feature the ability to share folders of citations as well as bibliographies among classes and groups, helpful for instructors sharing reading lists and collaborative projects or for research groups compiling lists of sources.

Applications in Academic Library Instruction
On October 1, 2012, the author sent an email to ACRL’s Information Literacy Instruction Discussion List (ILI-L mailing list) subscribers asking for information on their teaching of citation managers. Overall, respondents noted that they primarily taught citation managers to upper-level and graduate students, but some did introduce them to first- and second-year students when appropriate.

The three most commonly taught citation managers as noted by the 28 respondents were NoodleTools, Zotero, and RefWorks, in that order. Of those not specifically teaching a citation manager, many noted that they mentioned them, or demonstrated in-database citation tools. Lack of time was a common factor determining whether the librarian could cover citation manager functionality in a typical instruction session.

Tips and Trends, written by Instructional Technologies Committee members, introduces and discusses new, emerging, or even familiar technology which can be applied in the library instruction setting. Issues are published 4 times a year.
Several noted that they reserved teaching the more complicated and powerful tools – RefWorks and Zotero were specifically named – to upper-level students, and some librarians noted that they taught additional workshops on the tools.

Other respondents said they had personal preferences for specific citation managers that they taught in sessions, but mentioned citation managers other than their preferred tools as the students might find them useful.

Potential Value

Citation managers can help students cite the materials they find, making a sometimes tedious task a bit easier. Librarians can use citation managers to quickly generate formatted citations to articles and other materials while in the midst of a reference transaction or teaching a class. Using these tools makes it easier for students to meet the criteria of ACRL Standard 5.3: “The information literate student acknowledges the use of information sources in communicating the product or performance.” (ACRL 2000).

Simple citation managers are incorporated into some major database interfaces. For example, EBSCO offers access to a “Folder” where users can save preferences and search alerts, store selected database records for future use, and can share folders with classmates and/or professors. Emailing or generating citations from the Folder is simple and intuitive. ProQuest’s “My Research” has similar features. These basic functions can be easily integrated into an introductory information research session without consuming a large amount of time in class.

Once students and researchers become comfortable with these basic vendor-based tools, they may be more comfortable with the concept of using a separate citation manager to curate collections of materials beyond the bounds of the databases. For example, items found in library catalogs, archives, institutional repositories, and web-based scholarly search tools can be documented through the use of a stand-alone citation manager.

Potential Hurdles

The challenges for those teaching and supporting these tools are many, however, and worth considering. Whether or not these challenges present significant problems will likely depend on an individual’s workflow and an organization’s instructional configuration.

Support: Librarians who present or mention citation managers frequently serve as the local support for the tools. This requires both time to keep abreast of new services or changes in services as well as time to assist users. Possible solution: Each librarian could develop expertise with one or two tools to distribute the work.

Compatibility: Vendor-based citation managers incorporate citations to materials in the vendors’ databases, not across vendors, and there may be no simple way to bring in citations from another vendor’s product. Possible solution: Select an independent tool that is not tied to one vendor.

Complexity: Some stand-alone citation managers may be far more complex than what users might need, or may take significant time to learn. For example, students in introductory courses or in courses outside their majors might not need to keep track of citations for more than a semester. In these cases, the more sophisticated tools may distract students from the work at hand. Possible solution: Teach a citation manager appropriate for the level of the learner.

Authenticated access: If access to an institution’s online resources ceases once a student or researcher leaves a university, access to an institutional tool may be lost. Possible solution: Consider recommending freestanding paid or free citation managers.

Interface availability: Some citation managers work well across browsers and on mobile devices, while others do not have well-developed interfaces for tablets. Possible solution: Determine the user’s workflow before recommending a specific tool.

Accuracy: On occasion, citation managers may produce faulty citations. Because these tools rely on quality input from the database or web site, flaws in the data may introduce flaws in the citation list. For example, when a title is entered in all
capital letters in a database’s record, the database’s citation generator may not correct the problem in the citation. Alternately, some managers may not detect proper nouns and capitalize them accordingly. Possible solution: Remind students and researchers to check the output to verify compliance with the standards of the required style.

Use on Public Workstations: Some tools are more suitable for use on public computers than others. For example, Mendeley has a bookmarklet that pulls citation information from journal web sites and prompts users to log in to their Mendeley accounts, but does not store personal information on local machines, making it a good candidate for installation in a computer lab or classroom. Unfortunately, though, Mendeley users are not able to upload pdfs or other documents to their databases solely via the web interface. Zotero only supports citation imports using the browser plugin, which keeps a copy of the user’s library on the local computer. Users can, however, copy and paste information into their Zotero libraries as they research. Possible solution: Demonstrate the web interfaces of standalone-tools, or encourage users to bring laptops to sessions.

Proxy Compliance: For libraries using a proxy server to manage access to online subscriptions and databases, getting citation managers that offer database search functionality to work with a proxy server can be challenging. Many databases already work with an institution’s link resolver, and RefWorks can be configured to do so, but the end user may have difficulties getting their own citation manager to work with proxies that embed URL information at the beginning and end of a URL. For example, the citation manager Papers only works with EZProxy servers. (“Preferences,” n.d.). Possible solutions will depend on a user’s institutional access configuration.

Cost: Some citation managers are expensive, and, because of their complexity, may not be suitable for all levels of researchers. Possible solution: Consider tools that offer a basic level of service for free but require a small fee for more storage.

Conclusion
For many in the instruction community, the relief students express when shown ways to cite sources quickly or manage research over a period of time proves the value of such tools. While most citation managers do require verification that citations are indeed in the correct format, students can focus their energies on the selection and analysis of sources and producing quality projects, rather than spending time poring over style manuals or using websites with out-of-date or incorrect citation information.

For librarians, running citation manager workshops can be a great source of publicity and an opportunity to connect with different patron populations. While new researchers may seek beginning assistance with databases and citation managers, experienced researchers with expertise in searching databases may drop in as well, offering an opportunity for further outreach. This can highlight the role of the librarian not only as a curator of information sources, but also as a guide to tools for information sharing, production, and management.

References
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Further Readings