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Free online tools simplify research

Programs are designed to capture web pages and create citations automatically, saving valuable time for students and faculty

By Dennis Carter, Assistant Editor

Primary Topic Channel: [Technologies](#) , [Emerging technologies](#)

Mohan Singh once had the painstaking job of compiling bibliographic information for a college professor, so finding a web-based program that collected and inserted research citations with the click of a mouse was a time-saving godsend for the University of Maryland graduate student.

Singh discovered Zotero, a tool created by George Mason University's Center for History and New Media that allows researchers and students to drag and drop web page references into a massive, searchable database.

Zotero, an open-source program first launched in 2006, automatically creates in-paper citations, footnotes, and a bibliography at the end of a research paper--a mistake-prone process that usually adds hours to a college project.

"There are so many errors that come up in creating [research references] that people don't think about," Singh said.

Reference management software has been available for more than 20 years, but those programs often were pricey and required IT know-how, whereas tools such as Zotero and iCyte--a program that lets users save and share online research material in the virtual "cloud"--are free and made for a broader web-using audience.

Zotero, available in more than 30 languages, adapts to almost any kind of citation required by a professor, offering thousands of styles for students to choose from, said Dan Cohen, director of George Mason's Center for History and New Media and co-author of *Digital History: A Guide to Gathering, Preserving, and Presenting the Past on the Web*.

Zotero has been downloaded more than 2 million times after starting three years ago with 10,000 users, Cohen said.

Zotero detects when a user is perusing a digital library such as Google Scholar or PubMed, and with one mouse click, the student or faculty member can save all reference information for that publication or article.

If the writer uses a part of that text in a research paper, for example, Zotero instantly formats a citation as a footnote, endnote, or bibliography item.

Simplifying the tedious citation process, Cohen said, is often popular with students and college faculty, but Zotero's

private groups feature also helps students improve their research through collaboration.

"Everything is automated," Cohen said, "and students are taking advantage of it. ... We're proud of [Zotero's] global impact."

First-generation computer reference tools included BibTex, a program created in 1985 used mostly by researchers with some knowledge of writing code.

Singh, who created research references for an economics professor, said he was familiar with BibTex and other early reference programs, but he recently did a web search for simpler online reference generators.

iCyte, a reference tool that requires customers to use Internet Explorer or Firefox 3, allows users to save web pages as they appear, even if the web site or specific page of origin is altered or deleted. iCyte saves the web link and the image of the page itself.

The program preserves just part of a page--a few paragraphs of text, for example--if only a section of the page is highlighted and saved. The saved information can be tagged with descriptions or phrases written by the user. Zotero has the same function, and users can search the program's database for descriptions and metatag keywords they've attached to research documents.

Singh said being able to save dozens of hours--or perhaps days--on long-term school projects was such a relief that he introduced Zotero to his classmates in the University of Maryland's Hearing and Speech Sciences graduate program.

"It seemed like a good thing to do for fellow students," said Singh, 35, a Catonsville, Md., resident. "I definitely thought [Zotero] had gotten to a level where non-nerdy people would appreciate it and really want to use it for research purposes."

Links:

[Zotero](#)

[iCyte](#)

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