A Case Study of Web-based Citation Management Tools with Japanese Materials and Japanese Databases

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A CASE STUDY OF WEB-BASED CITATION MANAGEMENT TOOLS WITH JAPANESE MATERIALS AND JAPANESE DATABASES

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Introduction
Tools for managing information are essential when we store or use information as citation sources.   In past decades we used a paper notebook or 3x5 inch cards to manage information, but with the development of technology, a variety of advanced automated tools are now available for that purpose. Especially, new web-based citation management tools for the Web 2.0 environment are able to expand our capabilities in managing and using information, and these tools have become essential to scholarly research.

The benefits of web-based citation management tools can be readily seen. They are listed below.

1. It is easy to import and export records from online databases. Citation management tools are able to connect many online databases to search records.

2. The information on imported date, data source, and a link if the record was imported from the web, are automatically stored in the web-based citation management tools. If the searched item does not have a permanent location on the web, it is possible that the item was moved from the location, and/or modifed. Therefore, this kind of information is important.

3. Web-based citation management tools are designed to capture visual and audiovisual information on the web. This function greatly extends the ability to retrieve information.

4. Web-based citation management tools can be shared by a group and are great tools in collaborative work and in class.

These benefits listed above are fundamentally important for scholars and students of Japanese studies as well as for all other areas of study. I have studied the usages of web-based citation tools for Japanese materials, focusing on Web 2.0, and the critical issues that have emerged in using citation management tools with Japanese records.

I examined the technologies and issues of web citation management tools RefWorks, EndNote web, and Zotero twice, in March 2008 and in August 2008. Part of the results done in March were presented at the OCLC CJK User Group meeting in Atlanta in March 2008 and at the CEAL (Council on East Asian Libraries) CJM (Committee on Japanese Materials) in Atlanta in April 2008. In this article, I will discuss more about how we can utilize these tools for Japanese materials in an efficient and useful manner.

Methodology
Using Japanese records in Humanities, I examined the web-based citation tools listed below, chosen by their popularity in North American academic libraries, and compared the results. These tools are
1. RefWorks,
2. EndNote Web X/2(trial version), and
3. Zotero 1.0.7.

Library databases listed below were examined with the citation management tools to compare how well they work for Japanese materials.

For monographs: 1. WorldCat First Search, 2. Library of Congress catalog[i], 3. Webcat Plus[ii], 4. NDL OPAC[iii]. For articles: 5. CiNii[iv], 6. MagazinePlus.

The examined criteria were:
1. Accuracy of import and export of Japanese bibliographic information.
2. Availability of Japanese characters.
3. Features related to Web 2.0.

I used Chicago Style manual to examine the citations that were converted from each imported records into RefWorks, EndNote, and Zotero.

I examined RefWorks, EndNote, and Zotero twice in March, 2008 and twice in August, 2008. Both were done at the University of Illinois at Urbana-Champaign using Windows run by American OS.

Introduction of web-based citation management tools
Before I compare the three citation management tools according to the above criteria, allow me briefly to introduce RefWorks, EndNote Web, and Zotero and compare their functions.

1. RefWorks
RefWorks is currently the most common citation management tool that academic libraries in the North America offer to their users. It is a web-based tool which lets users access RefWorks from anywhere by using their passwords. It also allows users to create their own libraries to manage citations on the web. However, when users leave their organizations, they will not be able to keep their accounts. It is available for individual subscriptions. Other features are the function to import data from EndNote; Write-N-Cite, which allows users to copy the citation into their paper; and the ability to share selected information with other users of RefWorks.

Some databases are able to export records to RefWorks directly, and RefWorks also provides an Online Search Database function for more than 100 databases including Library of Congress, journal databases such as PubMed, and other academic library databases as well.

2. EndNote Web
EndNote Web is the integrated version of EndNote desktop from Thomson Scientific. It was developed to allow multiple users to share information in the EndNote library.   EndNote Web version 8.0 is designed to display and format Unicode, which supports various non-Roman characters such as Chinese, Japanese, and Korean. Imported record can be transferred between the EndNote desktop and EndNote Web. Currently EndNote Web is available only for institutional purchase, but it will become available to individuals in the fall of 2008.

Some databases have the function to export records to EndNote directly as well as RefWorks, and EndNote also provides many filters similar to RefWorks for online search databases.

3. Zotero
Zotero is developed by the Center for History and New Media of George Mason University. It is a free open-source extension which runs on the Mozilla Firefox browser. It senses bibliographic information when it appears on the web, and its ability to harvest bibliographic information is not limited to databases; it is also able to mine other sources from across the web, such as from blogs and wikis. Users are able to open the Zotero interface layered on a web page and to capture the information from the current web page. Zotero also allows users to create their own libraries on their computers, but not on the web. Therefore, it is not accessible from other computers and not able to be shared with other users directly.

Zotero does not have filters for online database searches, but crawls among websites more freely than RefWorks and EndNote Web do.

As shown in Table 1 below, RefWorks is more manageable than EndNote Web, especially for undergrad students, and Zotero has more functionality to deal with media than RefWorks or EndNote does.

Table 1
Comparison—RefWorks, EndNote Web, and Zotero

	RefWorks	EndNoteWeb	Zotero
Access	password	No	No
Cost	Free	Free (If library offers)	Free
Usability	Easy	Intermediate	Easy
Your own library/folder	On the web	On your computer	On your computer
Importing bib info from databases	Yes	Yes	Yes
Citation style	Many	Many	Limited
Import/export other citation	Yes	Yes	Yes
Editing citation	Yes	Yes	Yes
Collecting info from web sites	Yes	No	Yes
Word processor use	Yes	Yes	Yes
Note taking	Yes	Yes	Yes
Sharing	Yes	Yes	No
Images	No	No	Yes
RSS	Yes	No	Yes

Result of Importing Japanese book citations from library databases into RefWorks, EndNote Web, and Zotero.
Japanese book records are searchable in Western library databases; however, Japanese characters are available only in the OCLC WorldCat and in the Library of Congress catalog among overseas library databases at the present. Needless to say, scholars want to take advantage of the ability to use Japanese characters in their citations from these two databases.

In addition, we are able to access Japanese databases from overseas. These databases are created to provide bibliographic information of Japanese materials in a Japanese language environment. I examined two most commonly used databases: WebCatPlus and NDL OPAC. Several issues have been recognized regarding these citation management tools that should be solved and improved so that these tools can be fully utilized by scholars working with Japanese text. First, I will examine what appears when we import and export records of Japanese materials to and from RefWorks, EndNote, and Zotero and try to find solutions.

1. OCLC WorldCat FirstSearch.
WorldCat FirstSearch is the most comprehensive bibliographic database produced by OCLC (Online Computer Library Center, Inc). FirstSearch offers a function to export records directly into RefWorks, EndNote, and Text file. It also provides Japanese interfaces along with seven other languages, such as Chinese and Korean. However, accurate citations can be imported only when the English interface is used to search for and export a record on WorldCat FirstSearch. Let's compare the way these common problems in WorldCat FirstSearch are handled using each of the following citation tools.

1-1. From WorldCat FirstSearch into RefWorks
When a record in English is located using the English interface of the search function, the imported record does not have problems, but if a Japanese record is located using the Japanese interface, these common problems appear in the imported citations: inaccurate information is often displayed; and the record does not provide Japanese characters.

The following three issues emerged as critical problems in exporting and importing Japanese book records into RefWorks from WorldCat FirstSearch using its Japanese interface.

1. The imported record lacks its title information.

2. RefWorks treats a book record as an article record when the record has more than two authors, and publishing place, publisher, date, note, and physical description are all listed under publisher.
3. When the record is a series, RefWorks treats it as an article record.
4. Accordingly, when we convert these imported records to citation styles, citations are also shown as incomplete or incorrect citation. For example, if an imported record has no title information, the title does not appear in Chicago Style.
5. When these imported records are cited in a paper with Write-N-Cite, citations are also shown as incomplete or incorrect.

Solution: Search record on the English interface to locate using Japanese characters.
When a record is searched in the WorldCat FirstSearch English interface using Japanese characters, the imported record in RefWorks appears with full bibliographic information followed by Japanese characters. Although there is some misidentification of the book's edition, publishing dates, place, and publisher, it is close to the English record that was imported into RefWorks. Interestingly, although the records on both English and Japanese interfaces look exactly the same, if the record is searched on the Japanese interface using Japanese characters, the imported record will not show Japanese characters, as mentioned previously.

Another solution to the displayed errors in RefWorks is to use the "Global Edit" function, which allows users to edit information manually, including copying and pasting from the WorldCat FirstSearch record, and adding Japanese characters.

1-2. From WorldCat FirstSearch into EndNote Web.
WorldCat FirstSearch offers the function to export records directly into EndNote. Unlike RefWorks, when a record with Japanese characters is imported from English interface, the record does not show Japanese characters. When the same record is imported from Japanese interface, garbled characters appear instead of Japanese characters. I set up UTF8 to display on the browser, and chose it on EndNote's import record function, however, I have not been successful in importing Japanese characters. EndNote does not have problems in importing Japanese records and does not drop information or misidentify information.

1-3. From WorldCat FirstSearch into Zotero
When WorldCat First Search's English interface is used to locate a record, Zotero displays full bibliographic information in the imported record. When the Japanese interface is used, Zotero senses bibliographic information and imports records most of the times, however the Japanese characters appear to be garbled. Accordingly, the converted citations into Chicago or MLS styles show the garbled characters. Zotero does not have issues of misidentification in importing bibliographic information. Also, Zotero sometimes does not sense the bibliographic information of the record and is not able to import any information. I have not figured out the reasons for this inconsistency.

Solution: Use the "Create New Item" function on the current web page and type in information, including Japanese characters manually.

2. Library of Congress.
Needless to say, the Library of Congress holds the largest number of Japanese materials in monographs, journals, and in other media with the most authoritative records in North America. Its catalog provides bibliographic information in CJK characters as well, however no citation tools are able to import Japanese characters at this time.

2-1. From Library of Congress into RefWorks
RefWorks searches and imports Japanese records from the Library of Congress catalog via its Online database search, but does not import Japanese characters.

2-2. From Library of Congress into EndNote Web.

EndNote Web imports Japanese records from the Library of Congress catalog, but does not import Japanese characters.

2-3. From Library of Congress into Zotero.
Zotero imports record from the Library of Congress catalog but is not able to show Japanese characters.

Solutions for importing records from Library of Congress are the same as the solution for WorldCat FirstSearch.

3. Webcat Plus.
WebCat Plus is a portal site of the national database for monographs and journals that Japanese academic institutions hold. It is produced by NII (National Institute of Informatics) via the NII NACSIS CAT system. Webcat Plus covers records not only in Japanese but also in other languages as well.

3-1. From Webcat Plus into Refworks
RefWorks does not have Webcat Plus in its online databases list and Webcat Plus does not have a function to export records into RefWorks directly.

Solution: Use RefGrab-it to capture the link information and store the URL. Then create a record manually.

3-2. From Webcat Plus into EndNote Web.
EndNote Web does not have Webcat Plus in its online databases list, and Webcat Plus does not have a function to export records into EndNote directly.

3-3. From Webcat Plus into Zotero.
Zotero does not sense bibliographic information of a record from WebCatPlus so does not import records. However, Zotero imports the location of the record in the WebCatPlus and stores its URL. Also, when users open Zotero's "Create New Item" from "Current Page", it allows users to create a new record in the users' own library manually.

4. NDL OPAC.
NDL (National Diet Library) OPAC holds the largest number of monographs, journals, and media collections in Japan. It is the Japanese equivalent to the Library of Congress catalog and one of its roles is to provide authority as well.

4-1. From NDL OPAC into RefWorks.
RefWorks does not have NDL OPAC in its online databases list and NDL OPAC does not have a function to export record into RefWorks directly.

Solution: Use RefGrab-it to capture the link information from a record on the NDL OPAC and store the URL. Then create a record manually.

4-2. From NDL OPAC into EndNote Web.
EndNote does not have NDL OPAC in its online databases list and NDL OPAC does not have a function to export record into EndNote directly.

4-3. From NDL OPAC into Zotero.
Zotero does not sense and import records from NDL OPAC. However, by clicking its Save Link to Current Page, Zotero can store the URL of the record from NDL OPAC and users can create a new item manually in their own library.

Neither RefWorks, EndNote Web, nor Zotero have been able to import records from Japanese databases directly at this time. This is because those Japanese databases have not been added as a searchable online database for those citation management tools. If they are added and Japanese records are

available, it would be great help for Japanese studies scholars. For example, RefWorks provides a link to request a Z39.50 site on their top page and collects information on the possible databases. I also noted that Zotero forum users have suggested various improvements, including the possibility of making the NDL OPAC website compatible with Zotero.

Table 2. Imported Japanese book record from library databases with citation tools.

	RefWorks	EndNote Web	Zotero
WorldCat First Search	*Able to import records *Japanese character available if use English interface	*Able to import records *No Japanese character available	*Able to import records *No Japanese character available
Library of Congress	*Able to import records *No Japanese character available	*Able to import records *No Japanese character available	*Able to import records *No Japanese character available
WebCat Plus	*Not able to import record	*Not able to import record	*Not able to import record
NDL OPAC	*Not able to import record	*Not able to import record	*Not able to import record

Results of Importing Japanese article citations from library databases into RefWorks and Zotero.
1. CiNii.
NII (National Information Informatics) has been working on methods to export bibliographic information into citation management tools. A direct export function for RefWorks and EndNote is not available, but NII offers three tools: Refer/BibBX, BibTex, and TSV within CiNii for formatting lists of references.

1-1. From CiNii into RefWorks
With formatting tools, Japanese records can be imported into RefWorks. RefGrab-it can import a record title, but CiNii places its own name on the top of the title of the record.

Solution: When using RefGrab-it, use the "Global Edit" function to modify the record from the imported URL, or input information manually.

1-2. From CiNii into EndNote Web.
With formatting tools, Japanese records can be imported into EndNote Web.

1-3. From CiNii into Zotero.
Zotero senses bibliographic information from the record in CiNii and imports Japanese records with Japanese characters.

2. MagazinePlus.
MagazinePlus is an abstract database for Japanese journals that covers more than 30,000 journal titles, from academic journals to commercial and foreign journals. It is distributed by Nichigai Asosietsu.

2-1. From MagazinePlus into RefWorks
RefWorks does not have MagazinePlus in its online databases list, and MagazinePlus does not have a function to export a record into RefWorks directly.

2-2. From MagazinePlus into EndNote Web.
EndNote does not have NDL OPAC in its online databases list, and MagazinePlus does not have a function to export a record into EndNote directly.

2-3. From MagazinePlus into Zotero.

Zotero does not sense bibliographic information from MagazinePlus.

Solution: When the MagazinePlus record window is open, use the "Snapshot" function to store information and create a new item manually.

Similarly to the results for the citations from Japanese databases for monographs, neither RefWorks, EndNote Web, nor Zotero have been able to import article records directly from Japanese databases.

Table 3. Imported Japanese article record from Japanese databases

	RefWorks	EndNote Web	Zotero
CiNii	*Able to import record with formatting tools	*Able to import record with formatting tools	*Able to import record *Japanese character available
MagazinePlus	*Not able to import record	*Not able to import record	*Not able to import record

Other sources on the web.
1. Google Scholar
Google Scholar has the ability to export a record to RefWorks and EndNote directly. RefWorks is able to import Japanese records with Japanese characters, but EndNote only shows garbled characters. Zotero senses records and imports from CiNii directly with Japanese characters.

2. Amazon.co.jp and LibraryThing.
It is apparent that the core of Amazon.com is created with information provided from publishers. The bibliographic information in Japanese on Amazon can be imported into RefWorks using RefGrab-it. Zotero is able to import Japanese characters from Amazon.co.jp without garbled characters and there is no mis-identified information. It imports the URL of the record from the data source.

LibraryThing is based on the Amazon database and founded mostly by European librarians. Zotero captures bibliographic information from each record and imports the URL of the record as well.

3. Wikis and blogs
Zotero was created to capture information from blogs and wikis. It does this well, but Zotero does not capture bibliographic information on the web consistently. In that case, manual input is required.

4. Publishers' homepages
If users can retrieve bibliographic information from the publishers' homepages to their citation management tools directly, it will make scholars' and librarians' work easier. However, so far, Japanese publishers' homepages are not designed for the purpose.

WorldCat.org and Google Book as citation management tools

1. WorldCat.org
In 2006, OCLC launched WorldCat.org, the largest library catalog on the web. It has enhanced new social-networking features to create a library, to cite, and to share not only bibliographic information on books and articles, but on media as well. Although it offers only five citation styles, it cites records instantly. I assume that WorldCat.org will improve rapidly as a citation tool, although its function as a citation tool is secondary to its main function as a library catalog. It also provides Japanese characters, but when the record is imported, RefWorks and EndNote Web do not show any Japanese characters.

2.Google Book
I also discovered that the combination of Google Book and citation tools works as citation management, since Google Book has the "My Library" function. RefWorks' RefGrab-it captures only the book title

and does not work with every piece of bibliographic information, but Zotero can import author and title using Japanese characters.

New features : Web 2.0
Since Tim O'Reilly clarified a definition of Web 2.0 in 2005, the idea has spread throughout the Internet world and the newly developed technologies have been recognized and adopted in many areas. The library world is not an exception. For example, the collective intelligence, social networking, and portable capability that are distinctive characteristics of Web 2.0[v] have been used heavily in libraries regardless of the variety of library. One of the examples of Web 2.0 in the library is found in the web-based citation management tools.

1. Group sharing.
RefWorks offers its sharing module, RefShare, to access folders or databases of information from other RefWorks users in the same organization. Similarly, EndNote Web provides a share group option. Zotero offers its "Synchronize Library" function to share information. Even though it is not direct access to other users' Zotero implementations, the synchronized library is able to share information.

Using these group sharing functions, users are able to do collaborative work, as well as exchange and accumulate information and knowledge. This function can be used in class, such as sharing references with others. This is a fine example of web 2.0 in the library.

2. RSS
Citation management tools such as RefWorks and Zotero are able to get information from RSS feeds.

3. Images, media.
The technologies to capture visual information and audio information have been developed significantly and their bibliographic information has been used in the library world as well.
For example, web-based citation management tools are able to store visual records as well as their bibliographic information from museum databases that present photos for each of their items.

RefWorks offers RefGrab-it to retrieve media information, and Zotero's interface also captures information about media.

4 . Portability.
RefWorks, EndNote Web, and WorldCat.org are portable tools, and portability is part of the definition of the Web 2.0 environment. Users are able to access their own folders/libraries anytime and from anywhere.

Information literacy
We now recognize that we are able to retrieve many kinds of information from all over the world regardless of material types and sources. It makes our research easier, faster, and richer than ever. One of the librarian's tasks is to give instruction about how to retrieve and manage information from the overwhelming pot. Citation management tools play an important role for this purpose.

In addition, we also need to realize the importance of authority and accuracy of information. Especially people of the younger generation sometimes do not see the differences between information provided from their institutions and free information from the web, and do not understand the issues of reliability or authority. It is a phenomenon of recent technology, especially of Web 2.0. Shared information can and does spread quickly without proof.

I would emphasize that citations in books and articles are often mis-cited. People need to be aware of this fact. Likewise, when people write papers and want to cite information, they should look up the original or primary resources. Any kind of information on the web, unless it is a scanned picture from the original, has been created by a human being. Incorrect information is all over, even in bibliographic records from library databases. It is critical to instruct users in how to manage

information correctly in this overwhelmed information world, and it is one of the most important tasks for librarians who deal with citation management tools.

Conclusion
We have been enjoying and taking advantage of the technologies of Web 2.0, and have been working more closely and globally with one another as a result. Yet, I would like to see more Japanese Studies scholars, especially from the humanities, more fully included and involved in utilizing Web 2.0 technology, and taking full advantage of its capabilities.   For instance, although these web-based citation tools examined in this article have been used in Japan, it seems that only scholars in science and engineering utilize them, but not scholars in the humanities. When I asked Japanese university librarians about the reasons for this omission in February, 2008, even though their libraries offer RefWorks, they raised some of the same issues as I did in my examination of Japanese records, and even said that they would not recommend RefWorks for college students because of the complications of managing citations. This is because they were created to manage Roman languages and are not designed for non-Roman languages. However, I assume these technical issues will be solved in the near future. In order to make that happen, we librarians need to instigate and lead conversations between users and software providers, recommend that Japanese databases be available for citation management tools, and make Japanese characters available as well.

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[i] Library of Congress catalog (http://catalog.loc.gov/)
[ii] WebCat Plus (http://webcatplus.nii.ac.jp/)
[iii] NDL OPAC (http://opac.ndl.go.jp/index.html)
[iv] CiNii (http://ci.nii.ac.jp/)
[v] O'Reilly. What is Web 2.0. http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-Web 2.0.html