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Editorial

Citation-Linking between Open Access Journals

[Alireza Noruzi](#), Ph.D., Editor-in-Chief

Introduction

Open access (OA) journals fill a gap in the literature by establishing an online forum for discussion of empirical, theoretical and practical aspects, and policies related to their field. They facilitate scholarly communication between researchers who are investigating and working towards possible solutions.

OA journals offer many advantages that scholarly print journals cannot match. One of the main advantages is the capability of reference-hyperlinking, which allows readers to jump directly and easily from reference-links to cited references (e.g., journal articles, books, book chapters, conference papers, patents and web resources).

A *reference-link* (also called *citation-link*) is a hyperlinked reference located at the end of a scientific article, which usually contains all the bibliographic information needed to identify, retrieve and evaluate the cited document. Reference-linking is a natural application of the hypertext links on scholarly OA journals, providing direct connections between two OA journals or articles. Reference-links in OA journals allow readers to directly access and browse the full-text of the cited references by simply clicking on the hypertext links. [Hitchcock et al.](#) (1997) argue that *citation-linking* improves access to online journals. *Citation-linking* can also be used to *interconnect* journals ([Harnad & Carr](#), 2000).

Reference-linking enable readers to identify and retrieve the cited documents by following the hyperlinks between citing article and cited references. *Reference linking* facilitates citation indexing. The new generation of citation indexes like *Google Scholar* and *CiteSeer* are based on this assumption. They mine reference-links in scientific documents (e.g., articles, books, conference papers, etc.) to build an effective citation index. This process is also called *bibliomining* (mining bibliographic information in scientific documents). Web citation indexes, such as *Google Scholar* and *CiteSeer*, use a method called "*autonomous citation indexing*" to automatically compile an online citation index by extracting references and citations and context of citations into a database.

The primary advantage in using Google Scholar is that it leads a researcher to the latest articles; that is, it goes forward in time rather than solely backward; it identifies relationships between articles, breaking through disciplinary and geographic boundaries ([Noruzi](#), 2005).

Types of hyperlinks to OA journal

It is necessary to explore the extent to which hyperlinking in scholarly journals is analogous to citing. Links to an OA journal may be of two types:

1. **Citation-links:** Considered the analogy to academic citations in traditional print journals. For example, a reference-link from [an article published in Webology](#) to [an article published in D-lib Magazine](#) (search command on Yahoo: linkdomain:dlib.org +domain:webology.org).
2. **Non citation-links:** Called here non-qualified links. For example, links coming from weblogs, web directories, e-journal lists, etc. For instance, links from Blogspot.com (linkdomain:webology.org +domain:blogspot.com)

Materials and Methods

This study examined whether Yahoo reveals all the citation-links to six OA journals. As a test case, the home page of six OA journals in the field of library and information science were chosen. The articles reference-linking to the six OA journals were identified using Yahoo.com. Yahoo.com was set to search the worldwide for pages in all languages. Site collapse (which means that only one page from each site is displayed) was turned off. A search was carried out on Yahoo to determine the total number of reference-links to each journal. For example:

linkdomain:dlib.org/ +domain:ariadne.ac.uk

Reference-links can be used to examine inter-journal and intra-journal communication. Table 1 gives a global understanding of the ways in which six OA journals build reference-links to each other (see Table 1). Table 1 shows the total number of citation-links citations to each journal. The journals at the beginning of the rows are *citing journals* and the journals on top of columns are *cited journals*. For example, *D-Lib Magazine* was cited 90 times by *Ariadne*.

Table 1. Inter-journal citation-links

Citing Journals	Cited Journals					
	D-Lib Mag.	Ariadne	First Mon.	Info. Res.	Cybermetrics	Libres
D-Lib Magazine	-	47	23	4	0	1
First Monday	30	16	-	18	3	0
Information Research	45	15	23	-	0	0
Libres	5	2	0	2	0	-
Ariadne	90	-	8	4	0	0
Cybermetrics	2	0	4	3	-	0
Total	172	80	58	31	4	1

The journals examined for this study have very different characteristics. For example, the size and number of issues per volume and the number of citation-links are different per journal. The results show that *D-Lib Magazine*, *Ariadne* and *First Monday* are highly inter-linked and inter-related. These journals have the highest number of citation-links from other journals in the set.

It should be noted that some of citation-links to *Information Research* are inactive, because the journal changed the host ([the old host](#)). Moreover, *Information Research* cited *D-Lib Magazine* in-text ([1 citation](#)) or via www.webcitation.org (15 citations) and <http://dx.doi.org> (1 citation). Further, in some cases reference-links are to the home page of the journals rather than to papers published in the journals.

All self-citations were excluded from the counts. It should be noted that in some cases, authors cite an article in one of these journals, but there is no hyperlink to the full-text of the article on the web site of the citing journal. For example, Shirley Hyatt and Lynn

Silipigni Connaway, "[Utilizing e-books to enhance digital library offerings](#)," *Ariadne* (2002) cited an article published in *First Monday* without a hyperlink to the full-text.

Conclusion

This note presents the results of a search for citation-links to the home page of six OA journals, on the Yahoo search engine. It seems that the exact web equivalent to print journal "citations" is "reference-links" also called "citation-links". It can be concluded that reference-links in OA journals are equivalent to conventional citations.

Reference-links can be conceptualized as representations of the relationships between OA journals and scientific documents on the Web. The hyperlinked connectivity network seems to represent the real inter-relationships and inter-communication between OA journals. Hyperlink network analysis of OA journals enables researchers to identify an invisible network of inter-journal and intra-journal communication. Hyperlink network analysis has rendered visible a latent network among journals.

Citation-links increase readership and at the same time they give a journal (its papers) a better ranking on the search engines especially Google. Citation-links also increase *link popularity*, *traffic* and *visibility* of OA journals. There may be potential for studying a set of OA journals from a given field or continent, which would provide an indication of the characteristics of cross-continental journals.

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