Positioning Open Access Journals in a LIS Journal Ranking

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This research uses the h-index to rank the quality of library and information science journals between 2004 and 2008. Selected open access (OA) journals are included in the ranking to assess current OA development in support of scholarly communication. It is found that OA journals have gained momentum supporting high-quality research and publication, and some OA journals have been ranked as high as the best traditional print journals. The findings will help convince scholars to make more contributions to OA journal publications, and also encourage librarians and information professionals to make continuous efforts for library publishing.

According to the Budapest Open Access Initiatives, open access (OA) denotes "its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself."[1] Therefore, an OA journal is referred to as one that is freely available online in full text. Conversely, a non-OA journal is one that needs subscription and thus is not freely available.[2] There are scholarly journals that were subscription-based but are later converted to OA.[3]

Academic journal ranking serves as an important criterion for the scholarly community to assess research quality and for librarians to select the best publications for collection development. Because of the complexity of publication behaviors, various approaches have been developed to assist in journal ranking, of which comparing the rates of citation using citation indexes to rate journals has been popularly practiced and recognized in most academic disciplines. ISI's *Journal Citation Reports* (JCR) is among the most used rankings, which "offers a systematic, objective means to critically evaluate the world's leading journals, with quantifiable, statistical information based on citation data."[4] Yet, citation-based journal rankings, such as JCR, have included few open access journals on their lists. Of these limited OA journals, many were either recently converted into open access or are publicly available with conditions. The relative exclusion of OA journals creates two deficiencies for scholarly communication. First, these rankings may not accurately portray the full picture of journal publications to reflect an ongoing advancement in scholarship. Second, they

may discourage the open access movement by marginalizing the majority of OA journals. In fact, some OA journals have successfully built reputations, attracting high-quality articles and sizable numbers of citations. This research is an attempt to add selected OA journals to the journal quality rankings using library and information science (LIS) as an example. It is helpful to detect the position of OA journals in journal rankings so that scholars can recognize the progresses of OA publishing and make active contributions to support the OA movement. Such rankings will also encourage librarians and information professionals to improve the existing library publishing enterprise and make continuous efforts for journal practices.

Background

In a series of articles, Mukherjee reports his studies on a group of 17 fully open access LIS journals published in the period of 2000–2004.[5] By calculating the citation rates of research papers in these journals, he uses journal impact factors and other indexes to evaluate their contribution to scholarship. The impact factors and total citation counts are matched to those available in JCR for traditional LIS journals in the same time span, with results indicating that some LIS OA journals have an impact comparable with JCR journals. To be specific, "the actual number of Web citations in the case of some of these for at least seven OA journals was a bit lower than ISI's high-ranked LIS journals, but much higher than median-ranked journals."[6] His study is representative of the very few investigations that have tried to position OA journals in scholarly journal rankings. Yet the problem of Mukherjee's research is that he attempts to manipulate a simple comparison between two sets of data from different citation data services: one from ISI's Web of Science (WoS) and the other from Google Scholar (GS). A high degree of correlation between indexes of these two databases, as discovered by Meho and Yang,[7] does not necessarily

ensure the validity of a direct match between the absolute numbers. For absolute numbers, GS returns more citations than both Scopus and WoS databases.[8]

An easy solution is to calculate the citation indexes of both OA and non-OA journals from the same data source. WoS citation records do not allow direct comparison because many OA journal articles are not included; however, GS offers a good dataset with which to work. Many studies have measured the quality of GS searches and the similarities between WoS and GS.[9] The correlation between datasets from the two sources is consistently found to be significant. Additional studies also recognize GS as a reliable citation provider for bibliometric work,[10] particularly for the retrieval of OA article citations.[11] Furthermore, GS returns more citations from conference papers, books, and dissertations/theses, which show evidence of wider scholarly impact. There are some disadvantages of using GS for citation analyses. For example, GS's data coverage is better for certain academic fields (such as social sciences, arts, and humanities) where books and conference papers constitute a large part of formal publications.[12] Also, due to the short history of GS, its database contains fewer citations for old publications.[13] However, these limitations will not affect our use of GS for OA journal ranking because this analysis is based on new data from 2004 to 2008 and within a single discipline.

Instead of relying on journal impact factors to compare OA journals, this analysis adopts the *h*-index approach for journal ranking. The *h*-index is an improvement over simple citation measures, emphasizing the total number of citations or publications, and it works properly for comparing publications in the same field.[14] Since first proposed in 2005, its benefits of quantifying the impact of research outcomes have been widely recognized. Studies show that for citation analyses at the article level, "the Spearman rank order correlation between citation ranks and *h*-index

(with self-citations excluded) was 0.9, significant at the 0.01 level";[15] and, at the journal level, "the Spearman correlation between the ISI JIF and the *h*-index—used because both the JIF and *h*-index have non-normal distributions—is strong and very significant: 0.718 (p<0.000)."[16] The *h*-index is especially known for its robust performance and its combined effect for both quantity (number of publications) and quality (citation rate) in a balanced way.[17] The fact that the *h*-index works well for the calculation of journal citations for a definite period makes it an appropriate measure for OA journal analysis in this research.

Various studies have tested the *h*-index and its value in assessing journal impact in some academic fields. For example, by using the evidence of convergent and discriminatory validity, Hodge suggests the real utility of the *h*-index for social work journals and points to "its compatibility with the profession's applied research culture and its ability to be used with essentially all journals in which social workers publish."[18] Harzing and van der Wal apply the *h*-index to assess journal impact in the field of economics and business and realize its advantages for a more accurate and comprehensive measure of journal impact.[19] With a discovered strong correlation between a journal's impact factor and its quality,[20] we are confident of the application of the *h*-index in OA journal assessment.

Methods

In this research, both OA and non-OA LIS journals from 2004 to 2008 were combined for an *h*-index analysis to position OA journals in the journal ranking. The selection of this time frame was based on the consideration that many OA journals were launched before the new millennium and thus had time to establish their reputations by the mid-2000s. This time frame also allowed a window for journals published as late as 2008 to receive citations. A group of 85 core LIS journals was assembled from the following sources:

• JCR's collection of 61 journals, which are considered to represent the core journals in LIS by ISI, in its "Information Science & Library Science" category of the 2008 edition.

• Nisonger and Davis' list of journals, rated by LIS education deans and ARL library directors, to supplement the journal list in JCR.[21]

• Directory of Open Access Journals collection of a total of 116 OA journals in LIS, retrieved at the end of 2010.[22]

• Mukherjee's list of 17 OA journals, which are freely accessible in full text and represent a group of core OA LIS journals in the data selection.

JCR's list served as the basic collection of LIS journals, which was re-evaluated and also supplemented by adding relevant journals from other sources listed above. The following criteria were used for the journal selection.

• Journals not published in English were removed because both GS and WoS databases do not properly handle names with diacritics, which are common in many other languages.

• OA journals with initial publications after 2004 were removed to give every journal the same time period to accrue citations. Exceptions include journals that were originally published in print and converted to open access after 2004.

• Non–peer-reviewed journals were removed. The decision was based on manual inspections of journal articles that are not research in nature. Such journals are *American Libraries*, *EContent*, *Information Outlook*, *Library Journal*, *Online*, *Public Libraries*, *School Library Journal*, and *The Scientist*.

In this research, several journals are subscription-based but become open access after an embargo period of various lengths. For example, *Information Technology & Libraries* has a six-month embargo period, and *Learned Publishing* opens its articles to the public a year after they are published. A complete list of these conditional OA journals is available in table 1. The different lengths of OA embargo pe-

TABLE 1	
Journals with Conditional Open Access	
Journal	**Embargo Period**
American Archivist	3 Years
*College & Research Libraries**	6 Months
Health Information and Libraries Journal	3 Years
Information Technology and Libraries	6 Months
Learned Publishing	1 Year
Library Resources & Technical Services	1 Year
LIBRI	1 Year
Research Evaluation	2 Years
* *College & Research Libraries* became an OA journal from Spring 2011	

riod may have an impact on the citation accumulation—the longer the embargo period, the fewer the opportunities a journal has had for people to access its articles published during the period of 2004–2008. Some of these journals moved toward OA after 2004, making the situation even more complicated. Yet, due to the small number of such journals, the differences were negligible in the ranking. In the analysis, these embargoed journals are clearly listed as "conditional" to separate them from either OA or non-OA journals.

Many journals, such as *Journal of Education for Library & Information Science*, made featured articles or even an occasional entire issue open access as a marketing strategy. Because their OA rate was much lower than 50 percent, these journals were not treated as OA or even conditional OA journals.

We did not detect any journal title changes or journals that had merged with other titles within the sample between 2004 and 2008. So, the sample remained stable in these respects throughout the period of analysis.

Research articles that contained references were included after each individual article was manually examined on its original publication and cross-checked on the citation tool, while reviews, col-

umns, reports, and similar contributions were excluded. Citation data of all journal articles were gathered from GS to make the assessment consistent and reliable. For the calculation of the *h*-indexes and related parameters, *Publish or Perish*,[23] a software tool developed by Harzing, was used to extract citation data from GS.[24] Using its journal impact analysis function, each journal's title was individually entered for calculation, and spelling variations (such as "and" and "&"), as well as abbreviated and altered journal titles, were searched. Quotation marks were added as alternative searches. During the analysis of each journal, articles of the five years as returned by *Publish or Perish* were individually verified against the article list compiled previously. The major concern in the journal impact analysis was journals that had common words in their titles: for example, *Library Quarterly* might also return *Public Library Quarterly*. Several searching strategies were adopted to improve accuracy, such as excluding selected title words or deselecting irrelevant articles. Because the *h*-index provides a robust measure, insignificant inclusion of wrong articles would create very minimal impact on the results of an analysis, unless highly cited articles were missed or incorrectly presented. It is fortunate that such inaccuracies were easily fixed by careful manual inspections. The analysis was conducted in December of 2010.

Findings
Strong Correlations between the h-indexes and Journal Impact Factors
Table 2 lists correlations between the *h*-indexes and impact factors of LIS journals year by year. The impact factors are from JCR, and therefore only journals available in JCR are included. JCR added a small

number of new journals and removed a few old journals during the period studied. The 2008 additions include *Journal of the Association for Information Systems*, *Journal of Informetrics*, and *Library Hi Tech*. New journals in 2007 include *Health Information and Libraries Journal*, *Journal of Computer-Mediated Communication*, *Journal of Global Information Management*, *Learned Publishing*, and *Serials Review*. In contrast, *Canadian Journal of Information and Library Science*, which was listed in the early years in JCR, did not appear in 2008 and 2007. Some journals were not available on the 2008 JCR list although they were ranked in 2009, such as *International Journal of Computer-Supported Collaborative Learning* and *Information Technology & Management*.

Except for 2004 (a moderate correlation found), the correlations between the *h*-indexes and impact factors of LIS journals are high, which indicate the reliability of the *h*-index evaluations at the journal level. This finding is consistent with the results of the other studies mentioned above, increasing confidence in using the *h*-index to position OA journals in the journal rankings.

Because the major databases that provide impact factors of LIS journals have been reluctant to include more OA journals in their rankings, researchers do not have a clear picture of the current academic status of OA publishing. Therefore, it will be good if citation data providers like the JCR can periodically introduce new OA journals that meet their ranking criteria, such as OA journals that serve a broad subject area with a large readership and authorship and that have been in practice for a certain period of time so that a scholarly reputation has been adequately established.

Uneven Performance of OA Journals in the Ranking

Of the 85 LIS journals studied, 27 are OA journals open to everyone without subscription requirements and eight are conditional OA journals with an embargo period of six months to three years; the OA journals thus total 42 percent of all the journals assessed. All but two of the OA journals (93 percent) are published in Europe and North America, as compared to 98 percent of the non-OA journals published in the two regions. As for the frequency of publications, there is no obvious difference between OA and non-OA journals.

Table 3 has a complete list of the LIS journals ranked using *h*-values. Several OA journals are ranked high in the list, notably *Journal of Computer-Mediated Communication* and *Journal of Medical Internet Research* in the top ten and *The D-Lib Magazine* at number 11 (*Journal of Medical Internet Research* is not listed as a LIS journal in JCR); these journals have a high *h*-index comparable to other traditionally top-ranked LIS journals. Because the *h*-index is very discipline-specific, some top journals that do not belong exactly to LIS, such as *MIS Quarterly* and *Journal of Management Information Systems* for business and *International Journal of Geographic Information Science* for geography, could be excluded from the ranking. OA journals would then increase their ranks by several positions. Some other OA journals are also ranked highly: *Journal of the Medical Library Association*, *First Monday*, *Information Research*, and *Journal of Digital Information*, all of which perform better than such reputable non-OA journals as *Journal of Documentation*, *Journal of Information Science*, and *Library & Information Science Research*.

TABLE 2 Correlation Coefficients Between *h*-indexes and Impact Factors of LIS Journals					
	2004	2005	2006	2007	2008
Coefficient R^2	0.578	0.729	0.801	0.729	0.819

Rank	Journal	*h*-index	OA Status	JCR*
	TABLE 3			
	LIS OA (*Italic*) and non-OA journals Ranked by *h*-index			
1	Information & Management	62	Non-OA	6
2	MIS Quarterly	60	Non-OA	1
3	Journal of the American Medical Informatics Association	54	Non-OA	2
4	Journal of the American Society for Information Science and Technology	49	Non-OA	12
5	*Journal of Computer-Mediated Communication*	44	OA	14
5	Journal of Management Information Systems	44	Non-OA	6
7	Information Processing & Management	43	Non-OA	15
8	Scientometrics	41	Non-OA	8
9	*Journal of Medical Internet Research*	37	OA	**
10	International Journal of Geographical Information Science	34	Non-OA	20
11	*D-Lib Magazine*	33	OA	n/a
12	Journal of Health Communication	32	Non-OA	10
13	Journal of the Association for Information Systems	29	Non-OA	16
13	Telecommunications Policy	29	Non-OA	22
15	Information Systems Journal	28	Non-OA	5
15	International Journal of Information Management	28	Non-OA	26
17	Information Society	27	Non-OA	27
17	*Journal of the Medical Library Association*	27	OA	18
19	Government Information Quarterly	26	Non-OA	13
20	*First Monday*	25	OA	n/a
21	Annual Review of Information Science and Technology	24	Non-OA	4
21	*Information Research – An International Electronic Journal*	24	OA	28
21	*Journal of Digital Information*	24	OA	n/a
21	Journal of Information Technology	24	Non-OA	11
25	Journal of Academic Librarianship	23	Non-OA	35
25	Journal of Documentation	23	Non-OA	17
25	Social Science Computer Review	23	Non-OA	32
28	*International Journal of Computer-Supported Collaborative Learning*	22	OA	n/a
28	Journal of Information Science	22	Non-OA	19
30	Library & Information Science Research	21	Non-OA	23
31	Information Technology & Management	20	Non-OA	n/a

TABLE 3 LIS OA (*Italic*) and non-OA journals Ranked by *h*-index				
Rank	**Journal**	***h*-index**	**OA Status**	**JCR***
32	*College & Research Libraries****	19	Conditional	31
32	*Health Information and Libraries Journal*	19	Conditional	30
32	Journal of Global Information Management	19	Non-OA	21
32	Online Information Review	19	Non-OA	25
36	Information Systems Research	18	Non-OA	9
36	Journal of Informetrics	18	Non-OA	3
38	ASLIB Proceedings	17	Non-OA	38
38	Reference Services Review	17	Non-OA	n/a
40	*Learned Publishing*	16	Conditional	37
40	Library Hi Tech	16	Non-OA	50
40	Library Trends	16	Non-OA	56
40	portal – Libraries and the academy	16	Non-OA	24
44	*Information Technology and Libraries*	15	Conditional	33
44	*Research Evaluation*	15	Conditional	28
46	*Ariadne*	13	OA	n/a
46	*Law Library Journal*	13	OA	53
46	*Reference & User Services Quarterly*	13	OA	52
46	Serials Review	13	Non-OA	45
50	*Electronic Journal of Knowledge Management*	11	OA	n/a
50	Electronic Library	11	Non-OA	43
50	Program: Electronic Library and Information Systems	11	Non-OA	54
50	Social Science Information	11	Non-OA	51
54	Interlending & Document Supply	10	Non-OA	39
54	International Information & Library Review	10	Non-OA	n/a
54	Journal of Librarianship and Information Science	10	Non-OA	36
54	Library Collections Acquisitions & Technical Services	10	Non-OA	46
54	*LIBRI*	10	Conditional	58
59	*Informing Science The International Journal of an Emerging Transdiscipline*	9	OA	n/a
59	*Journal of Knowledge Management Practice*	9	OA	n/a
59	Knowledge Organization	9	Non-OA	41
59	Library Quarterly	9	Non-OA	46
63	*American Archivist*	8	Conditional	n/a
63	Journal of Education for Library & Information Science	8	Non-OA	n/a

	TABLE 3			
	LIS OA (*Italic*) and non-OA journals Ranked by *h*-index			
Rank	Journal	*h*-index	OA Status	JCR*
63	*Library Philosophy and Practice*	8	OA	n/a
63	*Library Resources & Technical Services*	8	Conditional	34
63	*Webology*	8	OA	n/a
68	Canadian Journal of Information and Library Science	7	Non-OA	61
68	*Cybermetrics*	7	OA	n/a
68	*International Journal of Legal Information*	7	OA	n/a
68	*Issues in Science and Technology Librarianship*	7	OA	n/a
72	Collection Management	6	Non-OA	n/a
72	*International Review of Information Ethics*	6	OA	n/a
72	*Journal of Electronic Publishing*	6	OA	n/a
72	Journal of Information Ethics	6	Non-OA	n/a
72	Journal of Scholarly Publishing	6	Non-OA	40
72	Restaurator	6	Non-OA	57
72	*The Electronic Journal of Academic and Special Librarianship*	6	OA	n/a
79	Libraries & Culture	5	Non-OA	n/a
79	*School Library Media Research*	5	OA	n/a
81	*Information Technology and Disabilities*	4	OA	n/a
81	Microform & Imaging review	4	Non-OA	n/a
83	*LIBRES*	3	OA	n/a
83	*South African Journal of Information Management*	3	OA	n/a
85	*Electronic Journal of Information Systems in Developing Countries*	2	OA	n/a
* JCR ranking by impact factors in 2008 for the purpose of comparison only ** Not listed as a LIS journal in JCR *** *College & Research Libraries* became an OA journal from Spring 2011.				

Not only are some OA journals ranked among the top LIS journals by JCR, but their *h*-values are also very high. For example, the *h*-indexes of *Journal of Computer-Mediated Communication*, *Journal of Medical Internet Research*, and *The D-Lib Magazine* are 44, 37, and 33 respectively. Comparatively, some traditionally prestigious non-OA journals, such as *Library Trends*, *portal: Libraries and the Academy*, and *Journal of Librarianship and Information Science*, have *h*-values as low as 16, 16, and 10, respectively.

Around one-third of the OA journals are in the middle range of the ranking; eight journals have *h*-indexes between 10 and 25. Nonetheless, more than half of the OA journals (15 journals) appear at the bottom of the list with *h*-indexes lower than ten. Many of these least influential journals serve special groups with either a relatively small number of researchers or for mostly non-English researchers. Examples include *Information Technology and Disabilities* and *Electronic Journal of Information Systems in Developing Coun-*

tries with *h*-indexes as low as 4 and 2 respectively.

Journals Born OA or Converted into OA

Journals are born-OA if they originated in a digital form and were initially designed for open access. Typically, born-OA journals do not deliver print editions. Among others, *The D-Lib Magazine*, *First Monday*, and *Information Research* belong to this category. In contrast, some journals have a history of restricted access but converted to OA in recent years. Some of these journals offer an online companion to the print version, such as *Reference & User Services Quarterly*; the rest digitize their archived issues for free access or provide article preprints, such as *College & Research Libraries* (which became an OA journal in spring 2011). The American Library Association (ALA) has played an active role in converting its journals to OA or conditional OA. In addition to the two examples listed above, the ALA also changed *Information Technology and Libraries* and *Library Resources & Technical Services* to conditional OA journals. More studies are needed to explore whether such an OA conversion has actually brought more citations to these publications.

Discussion
OA Journal Ranking

As mentioned above, the *h*-index is discipline-dependent.[25] Comparing journal productivity and citation practices from different academic fields using the *h*-index can be questionable. This study includes some non-LIS journals traditionally included in JCR's ranking for the purpose of comparing *h*-values and journal impact factors but does not exclude them from the *h*-index based journal ranking. Most of such journals have a high *h* value because of their different readership. Readers should be aware of the limitation and interpret this ranking accordingly.

New journals are potentially disadvantaged in an *h*-index analysis because the duration of journal publication can affect the ranking. This study set a five-year citation window to assess selected LIS journals. An effort has been made to select OA journals that started publication no later than 2004. Yet there are exceptions for non-OA journals or even for OA journals traditionally on the JCR list. For example, *Journal of Informetrics*, one of the higher ranked journals by impact factors in JCR, was first published in 2007. With only two years of citation data in this analysis, its relatively low *h*-value (18) is unsurprising, although its impact factor based on a two-year accumulation of citations is very high. It is fortunate that such exceptions are few and do not significantly change the overall journal ranking.

With *h*-index analyses, "a journal that publishes a larger number of papers has a higher likelihood of generating a higher *h*-index,"[26] which present a similar problem in citation analyses based on impact factors. This is partly because journals publishing more articles tend to serve wider readerships, thereby attracting more citations. In this ranking, the top-rated journals published more issues on average than the bottom-rated journals. Hypothetically, OA journals are flexible in accommodating a large number of lengthy publications and can receive more article downloads, consequently collecting more citations than access-restricted journals. Nonetheless, the ranking, with many OA journals at the bottom, indicates that the number of articles published in a journal may be determined by the laws of supply and demand of articles and authors, if factors such as the history, editorship, and management style of the journal are not taken into consideration.

Time does not seem to be an important factor affecting the ranking of OA journals. The majority of OA journals selected for the analysis have been published for around ten years. Some have developed scholarly prestige in the short publication period, but others have not been so successful. Although both *Journal of Computer-Mediated Communication* and *LIBRES* started their business in the mid-

1990s, their *h*-values are in sharp contrast (44 versus 3).

OA Journals and Library Publishing

In recent years, there have been an increasing number of academic libraries that became involved in journal publishing as a new direction of supporting open access scholarly communication.[27] The Association of Research Libraries published a report that surveyed eighty research libraries in the United States and found that as high as about 65 percent of these libraries had already provided publishing services or were at the stage of planning such services.[28] Nearly 88 percent of these publishing services published peer-reviewed OA journals. With many smaller universities and colleges having lately joined the effort, the number of library publications must be much higher.[29]

While a promising step toward supporting OA journal publishing, academic libraries have faced many challenges in practice, including concerns on applicability, sustainability, and scalability of providing such services.[30] The primary challenge that most libraries have had is how to make their journals scholarly recognizable. This OA journal ranking has been able to list several OA journals as the top-ranked ones in the field, some of which are the products of library publishing such as *First Monday* by the University of Illinois at Chicago Library. It will be worthwhile to further investigate how OA journals born from practitioner sites rather than from for-profit publishers reflect the growth practitioner knowledge in librarianship. This ranking allows library practitioners to identify the successful services and learn from the valuable experience of the high-ranked OA journals.

Open access has been in place for more than two decades. It has created a positive impact on the citation rate of journal articles. The majority of studies on this topic have discovered a citation advantage of free publications, although a few scholars have argued that factors other than open access might have also influenced the patterns of citation.[31] LIS is one of the academic fields where a considerable number of OA journals have been created, and many authors have enthusiastically contributed to the OA effort. Similar academic disciplines with a scholarly tradition of free and wide information sharing have also observed prosperity in OA publishing and an OA advantage in supporting research, such as physics and computer engineering.[32] Academic culture has played an important role in the innovation of scholarly communication.

However, it should be noted that an increase in the number of citations and OA journal publishing may be a reflection of the larger open access movement. Scholars in other fields such as the humanities and social sciences where free information sharing is not a common practice have become more aware of the value of open access, more willing to participate in self-archiving, and already more involved in various OA activities.[33] In LIS, librarians have been among the driving forces behind open access. They now need to expand their services to other fields and help them in the design of more systematic and consistent OA strategies.

Conclusion

OA journals have gained momentum supporting high-quality research and publication. An *h*-index analysis for journal ranking has appraised the value of OA journals in the field of library and information science. Several OA journals have been rated as high as the best traditional non-OA journals. Considering the relatively short history of the open access movement, the achievements of these OA journals are not exaggerated. This encouraging news is good for the ongoing promotion of the new means of digital scholarly communication among researchers. The *h*-index method could also be applied to other disciplines, which promises a richer comparative analysis of publishing trends among the applied

social sciences in the future as the OA movement continues to evolve.

At the same time, there is a large group of OA journals rated poorly in the *h*-index ranking. No matter what causes are behind their citation conditions, it indicates that open access has a long way to go. The awareness and willingness of scholars to participate in OA is still a challenge for librarians and information professionals, who need to develop better approaches to improve the standing of OA journals. The successful stories of the top-ranked OA journals may provide some good examples.

Notes

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