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The Importance of Access to the SCOPUS Database in the Economic Crisis Condition

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Abstract

Data acquisition and delivering information resources to clients are among the most vital functions of libraries. However, current political and economic crisis has imposed unpleasant effects on these functions. In such conditions, selecting information resources becomes an ever more complex task. This research intends to answer the question on whether or not the purchase of Scopus services in such a crisis, which makes the subscription of credible scientific journals much more difficult, is a beneficial choice for Iranian medical libraries. The problem will be answered by analyzing the accessibility to full text articles via “view at publisher” image links in Scopus database. Different studies have already been carried out on the abilities and features of Scopus database in scientometric and citation analysis. However, it seems that current study is the first research to examine the value and importance of existing link for accessing the full-text articles such as "view at publisher" link. This link is one of the remarkable features devised in Scopus which has a special importance for end users. Hence, access ratio to full-text documents cited in articles written by Iranian medical faculties was studied through the "view at publisher" link in Scopus, and also via a link devised in the A-Z list of full-text journals in the Iranian National Medical Digital Library database, available at URL: www.inlm.org, followed by comparing the results obtained through the study. Results showed the ability of Scopus to make full-text articles accessible for users' depending on the type and level of individuals or institutional subscription. Such ability itself could justify the necessity for subscribing to Scopus by the universities of medical sciences. Regardless of other features of Scopus such as scientometric studies, etc., this ability becomes more important when access to some articles depends on paying subscription fee either privately or institutionally. Moreover, this ability provides the end-users to have access to a large volume of free papers. So, Scopus could be introduced as a gateway/portal for an easier access to full-text documents of various databases.

Keywords: Scopus, citation analysis, databases, Iranian National Medical Digital Library

Introduction

The Iranian Ministry of Health and Medical Education, in an attempt to connect the universities of medical sciences to some well-known scientific databases, made a bulk-

purchasing in a consortium-like deal to subscribe to a number of reliable international scientific databases in medical and paramedical fields in 2007. The Rose-System Company, as the main cooperating agency in this program, created a proprietary home page named INLM[1] (Iranian National Medical Digital Library) with URL www.inlm.org to integrate the access link to all of these databases. So, there are some methods for users to search for what they need.

The first method is a direct referring to each database and searching in its content. Since different databases have diverse user interfaces, users are usually facing some difficulties. In addition, in this method one has to spend a lot of time to do a comprehensive search. Thus, the Rose-System Company begun to setup an integrated search system to solve this problem. The second method was the use of this integrated search system which the company authorities claimed that it has the ability to search for intended keywords in all databases and show the results as a whole. One of the bugs in this method was the inefficacy of the designed search engine and lack of proper facilities to restrict searching. In addition, the enormous volume of documents that the system had to search as well as the large number of retrieved records caused major problems such as inability of server in responding and slow loading speed, leading to subsequent users' frustration.

The third method was the use of A-Z list in INLM web page that contains a list of 6010 books and journals titles-- for which, according to the Ministry of Health consortium, the relevant full-text are accessible through one of the databases- and provides suitable links to related database(s) to access the full-text of each title. Thus, each user could refer to this list, browse its titles, select desired title(s), click on the related link and navigate within the full-text supplier database, search for different volumes and issues, and finally access the desired article(s) or contents. This method had some weakness too. The search was only performed based on the first word of the journal or book titles with no option for searching the titles of articles or other bibliographic facilities. Also, the users usually did not know what title may exactly have their required contents.

Also, the Scopus database, in addition to providing the possibility of citation and evaluative studies for librarians and researchers, is considered as a secondary source database and an appropriate location for researchers to find their required articles because of its widespread scope of coverage (over 18000 titles) and in particular the articles published in medical journals.

According to the definition, a secondary source is not expected to provide original documents (full-text articles) -because in that case it will be deformed and transformed into a first source database. Together with other citation databases, Scopus also set an appropriate link to the database or publisher in which the indexed full-text article is available. This service is designed for making contents more user-friendly and more economically oriented. Thus, the Scopus users experience an integrated environment for searching and accessing contents which is available either free of charge or with individual or institutional subscription. Such an environment can be more interesting for several reasons including lack of need to establish a connection between a user and a different database's user-interface, user-friendly environment, and also shortening the time needed for searching.

So, the aim of this study was to evaluate the rate of accessibility of full-text articles through the devised link in the Scopus databases and also to answer the question on whether the use of Scopus services can be a more appropriate way for searching within other

databases.

Literature Review

Since 2004 when the Elsevier Company established the Scopus database with appropriate facilities for performing citation studies and took out the monopoly of citation studies from the ISI's Web of Science database, many studies have been accomplished to evaluate the abilities and features of this database mostly by comparing its abilities and coverage level with that of the Web of Science database or the Google Scholar. Some of these studies are as follows:

Tober (2011) claimed that the most effective search engine for an overview of a topic is *Scopus*, followed by *ScienceDirect* and *Google Scholar*. With regard to the criterion "importance" *Scopus* and *Google Scholar* are clearly more successful than their competitors.

Meho and Yang (2007) examined the effects of using Scopus and Google Scholar on the citation counts and rankings of scholars as measured by Web of Science and reported that Scopus significantly alters the relative ranking of those scholars that appear in the middle of the rankings and using Scopus and Google Scholar, in addition to Web of Science, helps reveal a more accurate and comprehensive picture of the scholarly impact of authors.

Gorraiz and Sclogel (2008) in their study examined the competence of Scopus for citation analysis versus the Web of Science (WoS) and concluded that all of the 100 dominant journals in the field of pharmaceutical sciences in the WoS were covered by Scopus .In 2005, the impact factors of 82 journals and the immediacy index of 78 journals were reported to be higher in the Scopus database. Pharmacology journals with high impact factors in JCR[2] also showed high impact factors in Scopus and several journals with high impact factors observed in the Scopus database were not available in the JCR.

O'Leary (2008) believes that in the world in which the production of digital media and tools is steadily on rise, the Social Science Citation Index is not the only source for citation information. Moreover, the Scopus database-- the emerging rival of the ISI, is also available digitally. In addition, some companies such as Elsevier present citation information associated with the articles of journals they publish themselves. Besides, the Google Company has also entered into the business field of citation studies by introducing the Google Scholar (Beta).

Meho and Yang (2007) claimed that the Scopus database apparently collects citations from a collection sources similar to the ISI's and unlike the ISI which is an American company the Scopus database is a European corporation. The authors compared three citation resources (ISI, Scopus, and Google Scholar) and observed that the Scopus-database, compared with the SSCI (Social Science Citation Index), considerably affects the number and the source of citations which potentially change the ranking of author. They also found that the quality of citations in the Google Scholar database is not the same as seen in the ISI and Scopus databases.

De Moya-Anegon et al. (2007) compared the coverage of the Scopus database with that of the Ulrich's Directory-- an acceptable international reference source for journals--on the basis of subject, geographical coverage, publisher, and the language of publication. In general, the results of their coverage analysis study showed that the Scopus database has an entirely equal presentation in all subject fields except the art and humanities, a point which is also mentioned in the Scopus website. They concluded that it is the size of Scopus which makes this level of strength.

Methodology

The present research was conducted based on bibliographic studies and citation analysis. Initially, three journal titles were selected from the Iranian medical journals indexed in the Scopus database from 2007 to 2009. These three titles, the "Iranian journal of medical sciences", the "Iranian journal of public health", and the "Archives of medical sciences" contain all sub-categories of medical and paramedical sciences and known to be among the reliable and top ranking medical journals in Iran.

Among published articles in these three journals, 832 articles, written by the collaboration of at least one of the faculty members of medical universities affiliated to Iran's Ministry of Health and Medical Education were selected. In these articles, a total of 17847 citations were made.

In order to answer the study question, access to full-text of each of the 17847 cited documents within the 832 studied articles was examined through two methods: i) through the A-Z list of INLM and ii) through the" View at publisher" link of Scopus.

At the first stage, the title of cited journal or book was searched in the A-Z list of INLM. Then access to the full-text was examined by following the related link devised in A-Z list and the title of the article was searched. Later, the status of access to the full-text was recorded by a researcher-made coding system. In this coding system, each code was composed of four digits: two digits were allocated to determine the database-- starting from 01 and ending at 11, and one digit to determine the status of access (access to abstract, access to full-text or lack of access). In the Microsoft Excel application program, the number zero at the beginning of numbers is considered as meaningless and is eliminated automatically, so all codes started with a meaningless nine (9), i.e. 9010 was regarded as access to abstract through Proquest database and 9021 meant the access to full-text, was made through Wiley database.

At the second stage, the status of access to full-text of each document was examined through the "View at publisher" link devised under each cited document in the Scopus database followed by recording the results both individually and in parallel using the same coding system.

Finally, the data obtained from these two stages were compared and the final results extracted.

Findings

Number of published articles in each journal is shown in Table 1.

Table 1
Number of Articles Published in Each Journal According to the Year

Journal	Publication year 2007	2008	2009	
Archives of Iranian Medicine	100	113	107	320
Acta Medica Iranica	90	90	100	280
Iranian Journal of Public Health	62	66	104	232
sum	252	269	311	832

According to Table 1, the maximum number of articles was published in the *Archives of Iranian Medicine*. The number of published articles showed a growing trend in the *Acta Medica Iranica* and the *Iranian Journal of Public Health* during 2007 to 2009, nevertheless a reducing trend in the *Archives of Iranian Medicine* was shown in 2009. The increasing trend

for the *Iranian Journal of Public Health* was considerable.
Number of cited documents for each journal is shown in Table 2.

Table 2
Number of Cited Documents for Each Journal According to the Year

Journal	Publication year 2007	2008	2009	sum
Archives of Iranian Medicine	2334	2045	2172	6551
Acta Medica Iranica	1925	2073	2049	6047
Iranian Journal of Public Health	1198	1358	2693	5249
sum	5457	5476	6914	17847

As shown in Table 2, there was a high increment in the number of cited documents for the Iranian Journal of Public Health, especially in 2009.

The average number of cited documents for each journal is shown in Table 3.

Table 3
Average Number of Cited Documents per Article for Each Journal According to the Year

Journal	2007	Publication year 2008	2009	Three year's average
Archives of Iranian Medicine	23.34	18	20.3	20.54
Acta Medica Iranica	21.4	23	20.49	21.63
Iranian Journal of Public Health	19.32	20.58	25.9	21.93
Three journal's average	21.35	20.53	22.23	21.37

On average, each article was cited in 21.37±17.5 documents (Range: 0- 180).
The number and the percentage of documents types cited in each journal are shown in Table 4.

Table 4
Number and Percentage of Types of Cited Documents for Each Journal According to the Year

Journal	Publication year	unavailable	Book	Non-Review Articles	Review Articles	Conference proceedings	Letter	Others	Sum
Archives of Iranian Medicine	2007	456 19.6%	89 3.8%	1469 62.9%	215 9.2%	58 2.5%	29 1.2%	18 0.8%	2334100%
	2008	442 21.6%	83 %۴,۱	1166 57.0%	216 10.6%	75 3.7%	23 1.1%	40 1.9%	2045 100%
	2009	289 13.3%	38 1.6%	1474 67.9%	233 10.8%	78 3.6%	19 0.9%	41 1.9%	2172 100%
Acta Medica Iranica	2007	284 14.7%	55 2.9%	1253 65.1%	228 11.8%	61 3.3%	22 1.1%	22 1.1%	1925 100%
	2008	273 13.2%	43 2.1%	1389 67.0%	226 10.9	77 3.7%	25 1.2%	40 1.9%	2073 100%
	2009	362 16.4%	83 4.0%	1335 65.2%	198 9.7%	29 1.4%	28 1.4%	14 0.7%	2049 100%

Journal	Publication year	unavailable	Book	Non-Review Articles	Review Articles	Conference proceedings	Letter	Others	Sum
Iranian Journal of Public Health	2007	277	17	757	104	12	13	18	1198
		%23.1	%1.4	%63.2	%8.7	%1.0	%1.1	%1.5	100%
	2008	158	47	926	139	47	21	20	1358
		%11.6	%3.5	%68.3	%10.2	%3.4	%1.5	%1.5	100%
	2009	386	74	1727	361	93	17	35	2693
		%14.4	%2.7	%64.1	%13.4	%3.5	%0.6	%1.3	100%
Sum		2927	529	11496	1920	530	248	197	17847
		%16.4	%3.0	%64.4	%10.8	%3.0	%1.3	%1.1	100%

According to Table 4, 2927 (16.4%) cases were not identifiable because of some incomplete bibliographic information or the non-English language of the original documents cited in our target journals.

The number and the percentage of access status for each cited document-- following accomplishing the first stage of the study-- is shown in Table 5.

Table 5

Number and Percentage of Status of Access to Cited Articles through A-Z List of INLM

Journal	Publication year	Unavailable status	Lack of access because fault of bibliographic information or non-English language	Lack of access through INLM		Access to full-text through INLM	Access to abstract through INLM	Sum
				Lack of the title in A-Z list	Lack of access to full-text and abstract in spite of being the title in A-Z list			
Archives of Iranian Medicine	2007	0	456	844	182	667	185	2334
		%0	%19.6	%36.1	%7.8	%28.6	%7.9	%100
	2008	1	442	802	166	510	124	2045
		%0	%21.6	%39.2	%8.1	%24.9	%6.2	%100
	2009	16	289	836	221	641	169	2172
		%0.7	%13.3	%38.5	%10.2	%29.5	%7.8	%100
Acta Medica Iranica	2007	1	284	687	168	621	164	1925
		%0/1	%14.7	%35.7	%8.7	%32.3	%8.5	%100
	2008	0	273	798	167	663	172	2073
		%0	%13.2	%38.5	%8.0	32.0%	%8.3	%100
	2009	0	362	631	179	666	211	2049
		%0	17.6%	%30.9	%8.7	%32.5	10.3%	%100
Iranian Journal of Public Health	2007	18	277	342	127	305	129	1198
		%1.4	%23.1	%28.6	%10.6	%25.5	10.8%	%100
	2008	9	158	464	221	324	182	1358
		%0.7	%11.6	%34.2	%16.3	%23.8	%13.4	%100
	2009	0	386	907	234	895	271	2693
		%0	%14.4	%33.6	%8.7	%33.2	%10.1	%100
Sum		45	2927	6311	1665	5292	1607	17847
		%0.3	%16.4	%35.3	%9.3	%29.7	%9.0	%100

Table 5 shows that by searching the title of journal in which the cited document was published, the full-texts of 5292 citations (29.7%) were accessible through out at least one of the journals of INLM's A-Z list. In 1665 cases (9.3%), although the title of journal was available in the A-Z list of INLM, no abstract was accessible. In 6311 cases (35.3%), even the title of journal in which the cited document was published, found to be absent from the A-Z list of INLM. In total, 7976 documents (44.6% = 9.3% + 35.3%) were inaccessible through any of the INLM's databases.

Table 6 shows the number and the percentage of access status to each cited document after accomplishing the second stage of the study.

Table 6

Number and Percentage of Status of Access to Cited Articles through the "View at Publisher" Link of Scopus

Journal	Publication year	Lack of access because fault of bibliographic information or non-English language	Unavailable status	Lack of the "View at publisher" link	Lack of access to abstract or full-text	Access to abstract		Access to full-text		Sum
						Through non-INLM databases	Through INLM's databases	Free	Through INLM's databases	
Archives of Iranian Medicine	2007	502	0	425	71	159	222	329	626	2334
		%21.5	%0	%18.2	%3.0	%6.8	%9.5	%14.1	%26.9	%100
	2008	547	1	349	61	115	154	330	488	2045
		%26.7	%0	%17.2	%3.0	%5.6	%7.5	%16.1	%23.9	%100
	2009	134	15	698	65	170	242	330	517	2172
		%6.2	%0.7	%32.2	%3.0	%7.8	%11.1	%15.2	%23.8	%100
Acta Medica Iranica	2007	328	2	388	46	174	178	326	483	1925
		%17.0	%0.1	%20.3	%2.4	%9.0	%9.2	%16.9	%25.1	%100
	2008	318	0	460	73	157	196	351	518	2073
		%15.3	%0	%22.2	%3.5	%7.6	%9.5	%16.9	%25.0	%100
	2009	400	0	421	53	152	253	193	577	2049
		%19.5	%0	520.5 %	%2.6	%7.4	%12.3	%9.4	%28.3	%100
Iranian Journal of Public Health	2007	239	20	296	37	78	147	155	227	1199
		%19.9	%1.7	%24.7	%3.1	%6.5	%12.3	%12.9	%19.0	%100
	2008	190	9	320	53	105	211	169	301	1358
		%14.0	%0.7	%23.6	%3.9	%7.7	%15.5	%12.4	%22.2	%100
	2009	441	0	555	83	227	361	299	727	2693
		%16.4	%0	%20.6	%3.1	8.4%	13.4%	%11.1	%27.0	%100
Sum		3099	47	3912	542	1337	1964	2482	4464	17847
		%17.4	%0.3	%21.9	%3.0	%7.5	%11.0	%13.9	%25.0	%100
						3301		6946		
						18.5%		38.9%		

According to Table 6, the full-texts of 6946 citations (38.9%) were available through the "view at publisher" link devised under each cited document in Scopus. Of these, the full-texts

of 4464 citations (25%) were accessible through the INLM's databases and the rest obtainable free of charge. Also no "view at publisher" link was established for 3912 (21.9%) citations.

Discussion

Considering the results of this study, by comparing the access rate to the cited full-text documents through the A-Z list of INLM (29.7%) and the "view at publisher" link of Scopus (accessible cases through connecting to the INLM's databases) (25%), it was revealed that the number of successful access through the "view at publisher" link of Scopus was 828 cases (<5%) lower than that found through the A-Z list of INLM. Regardless of the possibility of access to full-text through the INLM's databases, it seems that the "view at publisher" link of Scopus failed to establish an appropriate link however, by considering the contents of Table 6, it is evident that the "view at publisher" link of Scopus supported the access to the full-texts of 2482 (13.9%) citations through establishing appropriate links to free publishers or collections.

A more precise study of the data shows that out of 828 citations with full-texts (accessible through the A-Z list of INLM but with no access to full-text through the "view at publisher" link of Scopus), 562 cases were found that produce access to free full-texts through the "view at publisher" link via the publishers' websites, implying that the “view at publisher” link of Scopus did not support the access to full-texts by establishing appropriate links to the INLM’s database. So, the "view at publisher" link of Scopus decreased the possibility of access to full-text in only 266 cases (approximately 1.5%) which is of low importance and negligible compared with cases for which Scopus supports access to their full-texts. Therefore, this shortcoming (lack of appropriate link of access despite the possibility of access through the INLM's databases) not only did not cause any significant changes in the value of Scopus, but also it increased the chance of access to full-text documents.

A more subtle review of our data show that the total access to full-texts through the "view at publisher" link of Scopus amounts to 38.9%. By comparing this figure with the amount of access to full-texts through the A-Z list of INLM, it could be revealed that if a researcher starts searching for required resources in Scopus, the success rate in access to full-texts of target articles will increase up to 11%. Of course this matter (increase in the possibility of access to full-text article through searching in Scopus) does not mean that the Scopus database provides a comprehensive search as according to the results of this study, a researcher will lose access to the target full-texts by1.5% in this case. Moreover, when this tiny shortfall of the Scopus database is compared with several valuable advantages of this database such as additional access to free full-texts, shorter time spent on searching, simple, attractive, and user-friendly, easy-to-navigate interface combined with other extraordinary facilities, it could be deduced that this level of inadequacy is just a minor consideration. Therefore, if a user is aware of this information and statistics, it is more likely that this user prefers to search directly in the Scopus database rather than searching in any of the INLM's databases separately.

Our results also showed that in 6311 cases (35.3%), the title of journal in which the cited article appeared, was absent from the A-Z list of INLM-- indicating that the users had no access to the full-texts of given articles-- but the study of the data obtained from the "view at publisher" link of Scopus showed that in 525 cases (2.9%), despite having access to full-texts, their source titles were absent from the A-Z list of INLM, indicating that the A-Z list of INLM is incomplete.

As seen in Table 6, using the "view at publisher" link of Scopus resulted in free access to the full-texts of 2482 (13.9%) citations directly through the publishers' websites. In the other words, Scopus also provides the possibility of access to the full-texts of free journals by establishing a link to their publishers' websites.

It is clear that this level of free access to full-texts (13.9%) is considerable, especially when it is compared with the total amount of access to the full-texts through INLM's databases (29.7%) and this could be regarded by itself as a positive point in making decision on continuing Scopus subscription.

Even if no subscription is made to other databases, Scopus subscription alone can provide access to full-texts of more than 13% of the cited articles for free, all together by searching in a single and integrated platform. Paying attention to this point--despite the nature of Scopus which directly provides only the abstracts and references of articles-- is of prime importance when making decision on collection development.

It is concluded that the Scopus users can take advantage of several benefits at the same time by searching in this database. The widespread coverage of sources by Scopus provides the users with considerable part of contents of different databases integrated in the format of a single platform. Furthermore, the users can make sure that in case of losing access to a part of other databases' contents, this rate of missed information is inconsiderable and trivial when compared to the amount of accessible contents (for free), shorter searching time, and the availability of valuable facilities during searching and the use of results. According to the aforementioned items/reasons, subscription of Scopus is quite economical, although in comparison with some other databases, Scopus' subscription seems to be expensive.

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Endnotes

1. www.inlm.org
2. Journals Citation Report

References

De Moya-Anegón, F., Chinchilla-Rodríguez, Z., Vargas-Quesada, B., Corera-Álvarez, E., Muñoz-Fernández, F., González-Molina, & Herrero-Solana, V. (2007). Coverage analysis of Scopus: A journal metric approach. *Scientometrics, 73*(1), 53-78. doi: 10.1007/s11192-007-1681-4

Gorraiz, J., & Schloegl, Ch. (2008). A bibliometric analysis of pharmacology and pharmacy journals: Scopus versus Web of Science. *Journal of Information Science, 34*(5), 715-725. doi: 10.1177/0165551507086991

Meho, L. I., & Yang, K. (2007). Impact of data sources on citation counts and rankings of LIS faculty: Web of science versus scopus and google scholar. *Journal of the American Society for Information Science and Technology, 58*(13), 2105-2125. doi: 10.1002/asi.20677

O'Leary, D. E. (2008). The relationship between citations and number of downloads in Decision Support Systems. *Decision Support Systems, 45*(4), 972-980. doi:

http://dx.doi.org/10.1016/j.dss.2008.03.008

Tober, M. (2011). PubMed, ScienceDirect, Scopus or Google Scholar – Which is the best search engine for an effective literature research in laser medicine? *Medical Laser Application, 26*(3), 139-144. doi: http://dx.doi.org/10.1016/j.mla.2011.05.006