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ADVANCED SCIENTOMETRIC DATABASES AS AN OBJECTIVE CRITERION OF SCIENTIFIC ACTIVITIES

Abstract

The article is devoted to the analysis of some of the features and characteristics of the most popular database systems: Web of Science and Scopus; as well as to the study of the improvement of the qualitative aspects of scholarly journals considering their requirements the given systems put forth. It touches upon the ideas that scholarly journals should oversee their quality and care for their academic reputation which will inevitably result in the increase of quality citations and a positive change in their scientometric status.

In conclusion, the article states: the 2 databases prove that despite all the shortcomings, the operating mechanism that evaluates journals, as well as gets regulated and determined by the number of citations, remains the only tool providing a more or less objective criterion that guides academic and related institutions during the process of evaluating researchers or the quality of researches.

Keywords: Web of Science, Scopus, journal, citation, scientometric databases.

The 214-N resolution[1] by the RA Government dated 26th February 2015 brought about a drastic change in the situation that has been prevailing in the publishing sphere of the Armenian academic works for over 2 decades (in a sense, much longer). Pursuant to the resolution, the requirement of 3 articles, previously represented for the defense of PhD dissertation, became stricter, moreover, it made demands of either 6 or 3 articles (in this case the emphasis was put on the quality of articles and the fact that at least one of them should be published in a journal registered in a Web of Science or Scopus database). As far as the Doctor of Science dissertation is concerned, 20 academic articles are required, at least 5 of which must be published in a registered journal.

It goes without saying, that the Armenian academic society has always been interested in the above mentioned database systems (see at Gzoyan, Hovhannisyan, Aleksanyan, Ghazaryan 2015), however, the processes of university accreditations, toughening of academic titles and degrees provision boosted an increase in the interest.

This very increase explains the choice of our subject which is about the analysis of some of the characteristics and features of the international journals and the given systems.

[1] RA Government Resolution. 26th February 2015, 214-N/ RA Government Resolution on making changes and additions in N 327 resolution dated 8th August 1997 and making changes in N 662 resolution dated 20th July 2001 https://www.e-gov.am/gov-decrees/item/25569

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Since the published academic work turned into a mechanism to share the results of one's own research with the academic community, and why not, to secure one's copyright, scholarly journals have become internal and essential components of the academic life, which would be impossible and maybe undesirable to imagine without these components.

Nonetheless, scholarly journals have stopped being a mere platform for publications since the second half of the 20th century and have been already viewed as more serious and efficient tools. Definitely, we should first of all consider their significant and irreplaceable role in terms of the scientometric mechanisms.

Still in the 30's of the 20th century, the British mathematician Samuel Bradford discovered that in case of any scientific field, the fundamental data are centralized in less than 1000 journals. He drew the conclusion that only the most valuable "core" of the journals succeeds in formulating the basic data of all the scientific systems. Moreover, the most significant articles get published in a small number of journals. (Bradford 1985, 176-180)

Bradford's researches were later reasserted by other studies, as well. The study of 7621 journals in 2008 showed only 300 journals include articles that feature 50 percent of all the citations.[2]

Above all, these studies show there is no need to follow all the journals and periodicals to reveal the quality and level of researching activeness of scholars or the leading researches of this or that sphere. It is enough to pay attention to the part that, let's say, "does matter". And here one should draw the only inference possible: scholarly journals should oversee their quality and care for their academic reputation, which will inevitably result in the increase of citations and a positive change in the scientometric status.

Given the history, the first attempt of indexing publication citations was embarked on still in 1873 (Shephard's citation), which was about legal citations, though. (Index Medicus has launched its activities since 1879)[3]. (Morris 2004, 3)

As for the processes of citation in scholarly journals, the first successful attempt was completed by the index of article citations inserted by ISI (Institute for Scientific Information) founded by Garfield in 1960. This paved a way for the formation of a unit such as the "Sciense Citation Index". The SCI later entailed the SCIE (Science Citation Index Expanded) as a scientometric database of natural sciences. Additionally, the Social Scienses Citation Index (SSCI) was included for human and social sciences, and, finally, the Arts & Humanities Citation Index (AHCI) as a citation index of Arts was also added.

The Institute for Scientific Information was taken over by Thomson Scientific & Healthcare company in 1992, which led to the Thomson ISI company. (renamed to Thomson Reuters in 2006)

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Currently, the world boasts various scientometric databases that contain data on scholarly journals and periodicals with the difference of a number of factors, (for instance, Google Scholar, Index Copernicus (IC), Directory of Open Access Journals (DOAJ), Periodicals Index Online (PIO), PhilPapers, WorldCat, РИНЦ, etc.).

[2] See at: http://www.slideshare.net/ThomsonReuters/incites-russian

[3] Index Medicus - *NLM Technical Bulletin to Cease as Print Publication"*. National Library of Medicine- NLM Technical Bulletin. 2004-05-04. Retrieved 2008-04-16.

Anyway, we shall only touch upon the 2 most popular and advanced database systems- Web of Science and Scopus, within the framework of this very article.

To discuss the Web of Science (WoS) database system we should turn back to the Thomson Reuters company, since it is the producer of the system. Particularly, it is not the only one. WoS is strongly linked with the company's 2 other "products" - Researcher ID and Endnote Web. Now about them.

The Research ID is a free interactive environment where the given researcher creates his or her Identification Number (ID) and profile getting the chance to connect it to his/ her publications. The latter is clearly integrated with WoS and provides any scholar with a unique number, which makes finding his/ her works easier and faster.

The Endnote Web is a conditionally free web environment (program) which is integrated into the WoS system. It enables to considerably facilitate citation activities and optimize the process of writing academic works.

These 2 services delivered by WoS, refer to the activities held by researchers and scarcely would they relate to the objectives proposed by this article. So, it is not necessary to discuss them in a detailed way, nevertheless, we may possibly address them in our further studies. Let us only add, that some publications own similar services which make the quality oversight of the works represented by the authors and the process of studies more transparent and simpler.

We are, first of all, interested in the WoS service. It used to be called Web of Knowledge (till 2014), whereas the Web of Science was just its element. After 2014 constructive improvements it was renamed into Web of Science. WoS was generated by the mentioned Thomson Reuters company aiming at creating a universal filtering mechanism to classify the academic efficiency of scientific publications, events, universities and researches.

WoS includes several internal databases with specific thematic focuses and some outer resources. Educational and expert organizations may subscribe to the databases, granting their employees with the opportunity of having an access to the WoS relevant field from their company network computers.

In fact, this company has been engaged in the SCI citation index since 1961. Initially, its database entailed only 600 journals. This number has currently escalated into over 17000 as of September 2015 (SCIE, SSCI and AHCI all together- more than 13700). In addition, the company annually publishes the Journal Citation Report that includes Impact Factors of all the journals indexed by the company. Simultaneously, the list of frequently cited authors is published, which serves as a basis for the academic ratings of world universities.

WoS used to possess only 5 databases:

SCIE: Sciense Citation Index Expanded

SSCI: Social Scienses Citation Index

AHCI: Arts & Humanities Citation Index

CPCI: Conferense Proceeding Citation Index

BkCI: Book Citation Index

The rest of the databases were parallelly included in Web of Knowledge. At the moment, they are all entailed in the structure of WoS[4].

Scopus is represented as the world's largest database that indexes scientific, technical and medical journals (numbering more than 22000), over 370 compositors, 5.5 million conference articles, 29 million materials since 1996 and 21 million from 1823-1996.

[4] http://ipscience.thomsonreuters.com/product/web-of-science/?utm_source=false&utm_medium=false&utm_campaign=false

On top of this, Scopus features data on about 25.5 million patents. It has made serious steps to increase the number of 75000 registered books since 2013.

The Scopus database is being updated per day. Belonging to the Dutch Elsaver company, the system was previously named "SciVerse Scopus".

The Scopus database was produced in 2004. The system has a wide variety of articles dating back to 1823, although the scientometric tool calculates only the data published after 1996. This tool enables to calculate the corresponding index of scientists and scientific institutions. Like WoS, Scopus also represents hyperlinks only in the case of a relevant registration.

Scopus was generated by the immediate participation of IT and other professionals. According to its official website, psychologists, hundreds of researchers and librarians also had their lion's share in it. This allowed the authors of the system to consider the potential users' preferences and desires while creating Scopus. The authors proudly highlight, for instance, the "Refine Results" element, which was added due to the feedback of the users[5].

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The two databases discussed prove: despite all the shortcomings, the operating mechanism that evaluates journals and gets regulated and determined by the number of citations, remains the only tool providing a more or less objective criterion that guides international and local academic and related institutions. Though a number of scientometric databases also claim to be in a serious competition with WoS and Scopus, they don't enjoy the universal credence of the international academic community, yet. Nevertheless, sooner or later, the existing competitive atmosphere in the field is sure to promote an improvement of the database systems, an emergence of new resilience forms and other changes. Additionally, new, revolutionary and advanced mechanisms to calculate and monitor the reputation of scholarly journals are possible to appear in the nearest future which science and scientific activities will only benefit from.

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[5] https://www.elsevier.com/solutions/scopus