MASTERING THE TOOLS OF CITATION DATABASES IN HIGHER MEDICAL EDUCATION

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In the contemporary academic setting, the quality of publications and the publication activity of a scientist, educational or research institution are evaluated using a set of scientific metric indicators. There are the following parameters: total citations, total number of links, the Hirsch index, impact factor, g-index, and 10-index. The aim of the paper is to cover the methods of working with the world scientific and metric databases of literature, as well as to explain the essence and algorithms for calculating the major scientific and metric indicators. We used the bibliosemantic research method in order to analyze the relevant scientific literature. The article describes the principles of mastering the tools of international databases Scopus, Web of Science, Google Scholar, Mendeley bibliographic manager, ORCID system. The paper focuses on the essence of scientific and metric indicators, calculated by these resources, as well as their scope and possibilities. The authors analyze the positive aspects of using the scientific metrics to determine the influence of a particular author or institution, as well as a number of subjective disadvantages of their widespread adoption in higher education. The modern tools for working with scientific information play a key role in the research activities of scientists, institutions of higher education, research institutions. The quality of publications is determined by a number of scientific metrics, calculated by authoritative scientific literature databases, such as Scopus and Web of Science. The h-indices are calculated in terms of publications in these bases, and serve as qualitative indicators for scientific activity evaluation. Scopus and Web of Science, in addition to their own built-in tools for searching, visualizing, analyzing and tracking data, integrated with the registers of scientists, bibliographic managers, plugins that allow to automate the processes of citation, lists of literature, preparation of publications according to the requirements of a specific edition, work with full-text versions of articles in different formats.

Key words: international scientific metric databases, search methodology, Web of Science, Google Scholar.

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evaluation of a journal, the impact factor indicates that a journal that publishes a significant number of articles that other scholars actively refer to is sufficiently influential.

The impact factor of scientific journals is calculated by the Institute for Scientific Information (https://isindexing/isli/) and published by Journal Citation Report (https://clarivate.com/products/journal-citation-reports/). The Institute for Scientific Information does not embrace reports, editorials and other types of publications for their calculation, and for new journals IF is calculated for a two-year period.

Bibliometric assessment of science is also carried out to provide society with a holistic view of the research environment at the state level. In Ukraine, there is a single register of bibliometric profiles of scientists and organizations — "Bibliometrics of Ukrainian Science" (http://www.nbuvip.gov.ua/bpnu/). The system provides comprehensive statistical information on the sectoral, departmental and regional structure of science in Ukraine, and it is a national segment of the international Ranking of Google Scholar Profiles. The system processes bibliographic profiles of scientists in Google Scholar and Scopus.

The Scopus database contains abstracts and information about peer-reviewed scientific literature. In addition, the database has built-in tools for finding, analyzing, visualizing and tracking data. Scopus presents a wide array of scientific information in compliance with quality control standards. Scopus data quality is supported by the leading research and educational institutions around the world and is therefore used by renowned rating agencies to compile world university rankings. The database includes publications such as open access, books, conference materials, patents, specialized publications and the like. The database displays the full volume of publication metadata, digital indicators and article IDs, author and organization profiles. With Scopus tools, one can compare journals by bibliometric indicators (CiteScore, SNIP, SJR). The organization profile presented in Scopus has detailed information to evaluate its scientific activities.

The Scopus peer-reviewed database is updated twice a year and presented as a spreadsheet with a set of filters that allow to select journals for publication by various indicators, including impact factor, country of publication, area of science, specialty, etc.

Scopus author profile is a rather informative parameter that shows the total number of publications and citations, the h-index, the citation schedule of papers, co-authors, links to the affiliated organization profile and so on.

Scopus built-in features allow to find the most cited works of the author of the organization, to check the impact factors of journals in real time, to find partner organizations, authors working on similar scientific topics. The advanced Scopus features and products, integrated with it, are aimed at automating routine processes when creating publications and submitting them to editorial boards. These include the Mendeley bibliographic manager and the ORCID international registry of scientists. Further, let us focus on these tools in more detail.

The recommended list of references is approved by the Order of the Ministry of Education and Science of Ukraine No. 40 "On Approval of Requirements for Dissertation" as of 12.01.2017. The list contains a recommended set of styles for designing the references to publications, including MLA (Modern Language Association).
style, APA (American Psychological Association) style, Chicago / Turabian style, Harvard style, ACS (American Chemical Society) style, AIP (American Institute of Physics) style, IEEE (Institute of Electrical and Electronics Engineers) style, Vancouver style, OSCOLA, APS (American Physics Society) style, Springer MathPhys Style. The choice of reference style depends on many conditions, including the area of expertise within which the research is performed. Preparing an article for the requirements of a particular journal, including citation styles, is a very laborious process. For this purpose, special software (bibliographic manager) is used to simplify the work with scientific information and to automate the processes of citation and the list of references. Bibliographic manager Mendeley is an on- and off-line application, designed for individual and shared use. Mendeley is compatible with PDF versions of articles.

Scopus is integrated with the ORCID international registry of scientists. Open Researcher and Contributor ID (ORCID) is a registry of author IDs, designed to present transparently the research activities and freely access its results. The main advantage of ORCID, in our opinion, is that it can be linked to the Scopus Author ID and the Web of Science Researcher ID. Thus, the identifier binds all the unique author IDs and all possible spellings, allowing to export citations from other databases, to present the results of research. In addition, ORCID brings together academics from around the world, including research organizations, publishing houses, grant organizations.

Google Scholar is a freely accessible search engine that indexes the full texts of scientific publications in all fields of knowledge and formats. The database includes most online publications from European and US publishing houses. To start working with the database, one must follow the link https://scholar.google.com.

The database allows you to search for publications by keywords, authors’ names (Fig. 1). By clicking the icon 🔎, the selected publication is added to your own library. Other additional possibilities of Google Scholar are presented at Figures 2-4.

Figure 1. Search by authors’ names

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Figure 2. Generating the references

Figure 3. Adding the selected publication to one's own library
Web of Science is a scientific metric multidisciplinary database, which includes 15 databases, over 34 thousand journals and over 150 million documents (Fig. 5).

The database allows us to search by 254 subject categories. To start working with the database, one must follow the link https://apps.webofknowledge.com (Fig. 6).
As a search query, one can choose the name of publication, keywords, etc. The search query is detailed by the title, author, and author's identifier (Fig. 9). The search result is shown in Fig. 9. As can be seen from Fig. 9, the search results contain the terms of search query in any order. To filter the results and reduce their number, the search query must be entered in the quotation marks (Fig. 7).

The results refinement panel allows us to limit the years of publication (1970-2019), by categories, types of documents (articles, reviews, and conference materials), organization profiles, type of access (Fig. 8).
Thus, modern higher medical education requires a targeted and methodically thought-out algorithm of mastering the tools of citation databases, such as Google Scholar and Web of Science [8; 9; 10]. Training of Ph.D. students is accompanied by learning a large array of scientific information: articles, monographs, patents, etc. In connection with this, it is necessary to develop the mechanisms for search, sorting and analysis of scientific information, writing and registration of one’s own research works. Google Scholar and Web of Science provide such mechanisms in the modern scientific environment including bibliographic descriptions of periodicals, expanded possibilities of searching for necessary information, medical information from directories, popular scientific literature, information about methods of treatment, information about certain medical institutions and individual doctors, results from recent clinical trials and new treatments. Adequately selected algorithms of mastering the tools of citation databases can significantly enhance and update the training course according to the modern requirements. The prospects for study consist in further in-depth research of the potential of Google Scholar, Web of Science and other databases in training medical and dental Ph.D. students.

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