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**INFORMATION COMPETENCIES IN A SCIENTIST'S  
PUBLISHING CAREER**

Olga Vanyushkina (a)\*  
\*Corresponding author

(a) Yaroslav-the-Wise Novgorod State University, Veliky Novgorod, Russia, oev\_novsu@mail.ru

**Abstract**

The development of a scientific career implies intensive publication activity. A modern scientist needs to possess certain information competencies that allow him/her to work effectively with the resources of international scientific citation databases. Information competence, universal for all scientists, in working with scientific databases contributes to the development of publication activity and the inclusion of the author's works in leading international journals. Copyright information competencies, universal for any direction of science, imply the ability to work with the author's profile in the system, search and analyze the information received according to specified criteria, find information useful for their work, select the most suitable publications for their publications, and present the results of their scientific activities to a wide range of scientists all over the world. The use of a certain set of information competencies allows us to solve a number of very important tasks, therefore, in some cases, it is advisable to use the help of specialists in working with scientific citation databases. However, a scientist will not be able to completely delegate work to specialists; therefore, the development of information competencies and skills in working with scientometric systems becomes important for the development of a publishing career in any scientific direction already at the first stages of scientific activity.

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## 1. Introduction

Publication activity (PA) of university employees is one of the main factors of the university's competitiveness and prospects for its development; also, it increases the academic attractiveness of the organization. "The number of publications in peer-reviewed academic journals, their citations and derived indicators are accepted by most countries as the main criteria for the performance of science, including in determining the amount of funding for research and development" (Fursov et al., 2016, p. 45). The growth of the PA indicators of a higher educational institution directly depends on the development of the individual publishing career of its employees engaged in scientific activities: "Academic publishing, journal rankings, and scientific productivity represent an alpha and omega of every researcher's career" (Vershina et al., 2017, p. 129). Modern information technologies provide great opportunities for the development of a scientist's PA. The evaluation of the results of scientific research, as a rule, is carried out on the basis of scientometric indicators of information and analytical systems. Thus, the scientist needs to solve the problem of indexing his works in these systems. If the author of scientific publications has sufficient knowledge of the necessary information competencies (Vinogradova, 2012), he/she can use the Internet resources available to him for successful integration into the world scientific community.

At present, the problem of the development of publication activity and the discussion about scientometric indicators are widely covered in scientific publications. However, the issue of the possibility of a scientist to use the system-analytical abstract bases of scientific citation for his research activity, if considered, is usually from an economic point of view. In our opinion, it is relevant to consider this issue from a different point of view: the impact of information competencies on the development of a scientific publication career.

Our experimental observations, as well as individual work with authors to improve the level of their PA (that is, the quantity and quality of scientific publications) were carried out in this direction. We found that the lack of the necessary information competencies when working with scientometric databases significantly reduces the chances of publishing the results of your research in world-class publications. This is equally true for both novice researchers and those who have been engaged in scientific work for a long time but have been published over the years in the same publications. Scientists who successfully publish in publications recognized by the world scientific community as leading in a particular field of knowledge only confirm our observations: they, as a rule, have information competencies that we consider necessary for any scientific researcher.

The results of our research can serve as a guideline for the development of short-term training courses on the development of PA for university staff.

## 2. Problem Statement

As we have already noted, the question of the influence of the information competences of the author of a scientific article on their scientific productivity is usually not considered separately. Many researchers note how versatile a modern scientist must be. "For the effective dissemination publications and building a personal publishing career, it is necessary to imagine a modern system of scientific

communication, to accurately determine one's location in this system: where, what and how to place it profitably ..." (Arefiev, 2013, p. 84). The author of scientific articles needs to navigate in indexed publications, the ratings of which are constantly changing and in different systems are based on different criteria and calculation methods. A striking example is the journal's citation index - the impact factor. Even in the leading scientometric systems, it is calculated using different formulas. And if we take into account that the practice of citing publications in various scientific fields differs significantly, then the definition of the quality of journals by the impact factor is a rather controversial basis (as experts who work with such data have long been talking about). In addition, for many indexed publications, this indicator is not calculated at all, but they are of interest to scientists at a certain stage in the development of their publication detail. "Sometimes it is easier to submit your paper to a journal with a lower JIF, but with great potential to improve it in upcoming years" (Zatorski & Fichna, 2017, p. 1151). In the absence of information competencies or assistance from specialists, many scientists risk falling into the trap of the so-called "predatory" journals when looking for a place for their publication. This is undoubtedly a negative experience in the development of PA (Guskov et al., 2018). In the future, publications in such journals can harm the reputation of a scientist, and it will be much more difficult to become an author of an authoritative, highly rated international journal.

Despite this, it is imperative to expand the usual list of well-known publications: "The scientific community is introducing a transnational model of knowledge exchange, in which international academic publications are replacing traditional journals" (Fursov et al., 2016, p. 46). It is indexed journals that turn out to be preferred for presenting the results of their scientific activities to the world scientific community: "Indexed journals are considered to be quality journals and indexing agencies enroll them on the basis of adherence to certain qualifying criteria such as publishing quality, digitization, indexing in databases, international availability, regularity of publication, frequency of citations, presence of a peer-review process, and quality of journal content and editorial work (Bavdekar & Tullu, 2016). Let's make a reservation that the ability to find a suitable edition for publication is, of course, not enough. Of course, the scientific work submitted for review by the reviewers must correspond to a certain level: "In high-rating publications, serious review systems have been created, and low-quality materials, and even more so plagiarism, is not published in them" (Kim, 2015, p. 65). The preparation of a publication is a long and painstaking process, but its repeated successful repetition and improvement allows the researcher to gain recognition among colleagues: "Finally,... with time and with the accumulation of experience it was possible for authors to develop a voice and a sense of legitimacy in their research community" (Soler, 2019, p. 397). Information competencies play an important role in this process of becoming an author.

### 3. Research Questions

In our research, we plan to address the following issues:

- Is it possible to single out information competencies that are universal for any scientific direction, useful for the development of a scientist's publishing career?

- Is it possible to delegate the solution of certain tasks related to information competencies in the development of scientific publications to specialists working with these systems? And if so, which ones?

#### **4. Purpose of the Study**

The purpose of our study is to determine the set of skills and abilities that make up the information competencies of the author of scientific articles that directly affect the development of publication activity, which are necessary for effective work with system-analytical databases of scientific citation (WoS, Scopus and similar databases).

#### **5. Research Methods**

The results of this study were obtained using theoretical and experimental methods. Thus, we used comparison, survey, generalization and, of course, analysis of the data obtained (data on the scientometric indicators of the authors of scientific articles; the results of work on the development of publication activity in other organizations, presented in open sources; the results of individual work with the authors of their organization). Note that a different approach was used in working with authors, which is due to the difference in the level of competence of the author, the ability to manage his publishing career, the needs for mastering or developing information competencies in this area).

#### **6. Findings**

Until recently, for university staff, writing scientific articles was not a mandatory activity and could be compensated for by high performance in other areas (educational work, for example). Most of the publications were published by those who were actively involved in scientific activities. In other cases, publications either appeared out of necessity, or did not appear at all. The results of long-term monitoring of the activities of the departments made it possible to make sure that the publication activity of the organization was supported by a certain group of authors. Our observations confirm the results of similar monitoring carried out by colleagues from other organizations (Zyateva & Pitukhin, 2019). When the need arose to revise the priorities of their activities, many university employees faced a number of problems, one of which was the lack of information competencies that would allow them to raise the level of their PA. Even those authors who published a lot and often, but in the same editions, were not ready to submit their publications to international editions - the problem was even registration of the publication in a journal already selected by specialists. Common reasons for rejection of articles on formal grounds have already become a common place in discussions about the development of a publishing career: "Some of the more common problems that can be found in submissions are associated with images (wrong format, insufficient resolution, lack of descriptions and titles), references (DOI is not included or references are not submitted using a separate form in the submission system), equations (which must be prepared using Microsoft Equation or MathType), designation of physical quantities and units (must be consistent with

the IUPAC recommendations), and affiliations (incomplete information)” (Mrowinski et al., 2020, pp. 120, 122). Working with various indices (author, publication), the ability to find information about the publication by ISSN, ISBN for correct citation, form a list of references according to certain international standards - all this can be a fairly simple job when preparing a scientific article if you learn how to work effectively resources and tools of scientific platforms and to some extent automate the process of creating a scientific article (only in terms of working with the text, of course).

Based on the work done and our observations, we have identified the main information competencies that are universal for researchers of any specialty. They allow you to solve specific tasks for the development of publication activity.

### **6.1. Working with an author profile**

In some systems, an author profile is created automatically for each new surname. Due to the variability of spelling of surnames, changes or errors in affiliation, the system sometimes incorrectly identifies the author's articles, and several profiles of one scientist arise (one of the most pressing problems in many databases). Working with the author's profile implies its creation and further adjustment in the information and analytical system of scientific citation in order to provide relevant and reliable information about one's scientific publications (a complete list of scientific publications on this resource, scientific interests, affiliation, contacts, information about oneself in other scientific systems, if provided by the capabilities of this resource). In a sense, we are talking about creating a personal brand for a scientist. An author's profile allows the world community to present information about oneself as a researcher in a generally accepted and convenient format.

Unfortunately, the authors do not always see the need to work with the profile, considering it “another list”. Moreover, it is incomplete (it will differ in different systems). Almost all authors maintain a complete list of their works independently (how accurately is another question). But such lists, as a rule, do not reflect all information about the publication (for example, scientific direction of the journal, quartile, impact factor of the publication). And, most importantly, only in a system “working” in real time can one get up-to-date information about the demand for scientific work by colleagues - citations.

Scientometric indicators are usually calculated automatically. Nevertheless, to the information competencies we are considering, we have added another important skill - to obtain information about one's own or someone else's publication activity based on the available scientometric indicators. The ability to assess your publication activity according to the given criteria is important both from the point of view of making a decision on the advisability of participating in a particular program (for example, grant support), and from the point of view of finding colleagues for joint participation in a scientific project.

When working with different authors, we were convinced that those who paid some attention to this issue noticeably improved their scientometric indicators in a short time only by bringing their profiles up to date (all work was carried out either by the center staff with active interaction with the author, or by the authors with active assistance and regular consultations of specialists). As an experiment, we tried to work with the profiles of authors who, for a number of reasons, could not actively cooperate with us or limited their participation by providing a list that sometimes could not even be verified. Such profiles

could be slightly improved only if the author's works were already presented in the systems, and all that remained was to find them and “attach” to the author's profile.

Based on our observations, we concluded that the work on creating and maintaining the author's profile should be carried out either by the author of scientific articles (if he sufficiently possesses the necessary information competencies), or a specialist in working with scientific databases in active interaction with the author. It is inappropriate to delegate this work, completely freeing the author from it.

## **6.2. Working with the resources of information and analytical systems for scientific citation**

Modern information technologies have changed the life of scientists, providing them with access to a huge array of the latest scientific information, leaving no time for its processing: “The exponentially increasing number of publications makes it more and more difficult for scientists to keep up with literature. The problem of “paper inflation” presents newcomers a challenging exercise of finding those works that have made significant contributions” (Zatorski et al., 2017, p. 1151). To develop his scientific career, a scientist must be well versed in modern scientific trends, in the most pressing and promising issues of his specialty at the world level, have some idea of related fields of science, be able to assess the quality of articles not only by the number of citations (Ghazavi et al., 2019). It is important to learn how to organize your work with the information received in such a way that, with the minimum expenditure of time and labor, you can get maximum results, find material useful for your scientific work.

You can effectively work with the resources of scientific systems by learning to use various platform tools (for example, search filters), analytical and informational add-ons and modules: “For classic bibliometrics and its indirect indicators, usage statistics (metrics) that gauge the direct use of scientific results in the form of such as via social media in the form of links, storage and recommendations, are now combined” (Ball & Zemskov, 2019, pp. 84-85). It is necessary to understand the basic principles of the classification of materials and the criteria for their assessment on this resource; know the rules for entering data in the search field; be able to effectively logically build a search strategy and use combined search, collect and save the results obtained in special collections, and work with these collections in the future.

The leading information and analytical systems for scientific citation are constantly evolving: “Indeed, with the greater interest in data mining, publishers with control over large amounts of data and the relevant technology to extract value from it may have opportunities to offer new types of service to researchers” (Dodds, 2018, p. 166). Today, they can often successfully fulfill the role of a scientist's virtual office, “equipped” with modern software tools designed to help a scientist systematize work with material, simplify it and make it more convenient and efficient.

Information competences for working with resources of scientific databases, as we have seen, consist of a certain number of skills and abilities. Of course, in various combinations, certain skills may be poorly or strongly developed or completely absent from the author of scientific publications. Accordingly, he can solve some problems, compensating for the missing skills with others or turning to specialists for help. Specialists can delegate analytical work on scientometric indicators or the selection of publications by authors according to certain criteria. We have repeatedly carried out this work, helping to collect the necessary information to apply for participation in various competitions. Modern practice

shows that authors who do not have the necessary level of knowledge of information competencies in working with scientific databases, even for their publications, can forever carry out this work at an acceptable level.

The work on the selection of the publication at the first stages can be delegated to specialists. But the work on the selection of scientific publications for his scientific work cannot be delegated - only the scientist himself can assess the value, usefulness, relevance of this or that information. It is impossible, of course, to delegate work in the “virtual office of a scientist” - this is already the process of creating scientific work and the implementation of scientific communication with colleagues.

## 7. Conclusion

We have made sure that there is a certain set of minimum information competencies, without mastering which no scientist will be able to effectively develop his publishing career and enter the leading scientific databases. When an organization is faced with the task of increasing the level of PA, the following must be among the priority areas of development: “... the formation of information and management skills of a modern author - a university teacher: personal knowledge and publication career management” (Fikhtner et al., 2019, p. 618). At the initial stage of such work, special attention should be paid to the development of universal information competencies for successful work with scientometric databases:

- Working with the author's profile (includes the ability to create and keep up to date your author's profile in scientometric databases; the ability to receive and analyze scientometric data for your own or someone else's author's profile).
- Working with the resources of information and analytical systems of scientific citation (the ability to find useful new information; choose editions for their publications).
- Skills of working with various software add-ons, modules and tools on a particular network resource, allowing you to effectively build the process of preparing a scientific publication.

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