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SCIENCE EDUCATION: SEARCHING OF THE EFFECTIVE PUBLICATION PRACTICES

Abstract. *The article attempts to propose the agenda of problems related to the requirements of the Ukrainian legislation in the research field regarding publications in journals indexed by the Scopus and Web of Science scientific databases to foreign readers of the journal. The provisions of the article have been pre-tested within the framework of the 12th international scientific conference on "Gifted children — intellectual potential of the state" (2019) and have been expanded to take into account the trends of 2020. As a result of the analysis, a number of approaches that could update the publishing strategies of Ukrainian researchers in the field of scientific education were identified. In particular, without claiming the completeness of the recommendations, a number of key recommendations have been formed that can guide potential authors. These include the following principles: authors need to develop a level of English in order to qualitatively develop a source base, to learn to work with English texts from the perspective of the future reader and from the position of the author; writing articles in international journals that are part of scientometric databases requires a distance from the tradition of writing articles in academic journals of Ukraine; for domestic researchers of science education, there is ample opportunity for publications both in specialized journals as well as in journals with related topics (development of giftedness; information technologies in education, etc.); researchers should develop international contacts with experienced authors in the field of science education and initiate joint research and publications as a result; mastering search tools of scientometric databases is a necessary requirement for preparatory steps that precede the preparation of the text; researchers should get used to long and painstaking work with reviewers, which precedes the acceptance of the article to print; authors should avoid predatory models when presenting research results through developed awareness of international standards of publication ethics and academic integrity.*

Keywords: *science education, scientometrics, Scopus, Web of Science, research methodology, publication ethics.*

There have been undergoing modernization steps during the last few years in Ukrainian education and science aimed at introducing world experience in publishing the results of their scientific research. In particular, for the European Higher Education Area (EHEA — European Higher Education Area) and the European Research Area (ERA — European Research Area), it is a well-established practice to publish research results in journals indexed by the world's leading scientometric bases such as Scopus and Web of Science are. The regulatory framework in various aspects of the state regulation of science has been changed, including:

- in the field of assignment of academic ranks to scientific and scientific-pedagogical staff (availability of such kind of publications for obtaining the title of associate professor, professor, etc.) [8];
- the legislation in the field of awarding of academic degrees is updated (the requirement for the availability of publications from applicants for the degree of Doctor of Philosophy and Doctor of Sciences) and the principles of activity of specialized scientific councils (availability of

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publications from members of one-time and permanent specialized scientific councils) [9];
- new employee contracts have high publication requirements;
- updated certification procedure for research institutions places high demands on employees to have publications in journals, indexed by Scopus and Web of Science databases [7].

These steps have created many complications for the vast majority of scholars and educators who have no experience of publishing in high-ranked international journals. This fact has initiated a large-scale discussion in the academic environment. The discussion main ideas contain the criticism of these approaches in national education and research legacy. Against the background of this criticism, several myths about publications in high-ranked journals are actively spreading, such as the following mythologemes: "we cannot be published for free", "educational journals are weakly presented in scientometric databases", etc. In each research area, this trend has received corresponding specific projections, including in the field of science education research. There has been an extensive academic debate for several years about the impact of this trend on science education research.

Provisions of the current article are part of the mentioned discussion. Some of them have been preliminary presented within the framework of the 12th International Scientific-Practical Conference "Gifted Children — Intellectual Potential of the State" (2019) and published in the Ukrainian-language version in the conference materials [10]. This article is an attempt to broaden the previously presented ideas in the light of 2020 trends. These trends take into account both the dynamic changes in the Ukrainian regulatory framework in the field of science as well as the statements of several interesting analytical articles on the impact of scientometric instruments on the quality of research [1; 3; 4].

It is clear, that the innovations proposed for Ukraine on the current legal basis have already received the status of inevitable reality and are unlikely to be substantially weakened. So, we have to come to terms with the new rules of the publication "race" and join it from the position of an active and successful "player". It is a positive fact in the current situation, that in the current global competitive environment in the field of research, success in publishing activities following international standards will provide greater opportunities for Ukrainian authors to receive a wide range of grants, participate in international programs and so on.

However, Ukraine has only recently joined the world of public competition, and some countries have already reached another level of academic debate. For example, the academic environment of China in the early 2020s began the transition from evaluating the activities of individual scientists and institutions only based on the information of international scientometric databases: now experts are subjectively evaluating the results of several years' activity and determining the level of influence of a scientist's contribution to the world research environment [5; 6].

In a somewhat complicated, but internationally recognized way, Ukraine will take evolutionary steps in improving the quality and modernization of its research as well as developing of the level international cooperation. With regard to science education, which is one of the key trends in the development of educational systems today, these steps enable authors to focus on an extremely dynamic research field, to come up with innovative ideas that we believe are able to compete with the ideas of foreign authors.

In our article, we are aware of the inability to fully address the problems facing Ukrainian authors, however, we will try to outline the key ones, and offer practically-focused solutions to overcome them. Based on this logic, we have identified a number of key problematic narratives, that constrain the active publication activity of Ukrainian authors in journals included in the scientometric databases Scopus and Web of Science. These include the following: *language issue; the lack of journals for education (science education) researchers in Scopus and Web of Science; problems with co-authorship; source base of the study; research methodology; features of peer-review procedure*. Let's look at each of them separately, trying to outline ways to overcome them.

When analyzing the linguistic aspects of publishing in reputable international journals, it should be borne in mind that the articles should be submitted in good academic English, given that the foreign editorial board will refuse to review articles with a low level of English. For example, translating an article or its professional post-author reading should be confided to professionals in your research area. The terminology translation is a very

responsible step that cannot be performed by a non-specialist linguist. Particular attention should be paid to the translation of the abstract (correct affiliation writing, the tradition of writing degrees and academic titles, keywords, etc.) — it is from the acquaintance with them that the editorial board will make a first impression about your article. In case of a positive editorial decision, this data will be uploaded into the scientometric base and will be the subject for a search of potential article readers. The highest language requirements are set by English-speaking countries, so when you are unsure of the perfection of English-language text, avoid the high requirements of native speakers and look for alternative journals in other countries when possible.

The *problem of the lack of journals for education (science education) researchers in Scopus and Web of Science* is rather a mythologeme, widespread by critics of scientometric approaches in Ukrainian realities, than a real problem. It should be borne in mind, that scientometric databases contain a sufficient number of journals in any field of knowledge, but it is of great importance to be able to search the systems, navigate the structure of knowledge in the bases — to possess the tools of scientometrics and ICT in general. For example, query 'pedagogics', 'pedagogy' would be less effective than 'education'. In addition, educational journals may not contain the words 'education' and be called "Journal of Psychotherapy for College Students", "American Biology Teacher", which actualizes the need to use search tools not so much mechanically as creatively. As of today, the Scopus database indexes 649 journals, that contain the word 'education' in the journal title. Web of Science has 1,233 journals, that contain the word 'education' in the title, however, both lists partially overlap. Outside these numbers, there are many educational journals that do not contain the word 'education'. However, the vast majority of journals are highly specialized having ones' own niche ("Studies in Science Education", "Journal of Environmental Education", etc.).

It should also be understood, that it will be difficult to 'surprise' the editorial board with a general description of the problems, since articles aimed at solving the narrow practical problem of modern education are appreciated. For Ukrainian researchers in the field of science education, the following reputable publications may be of interest: "International Journal of Science Education", "Journal of Science Teacher Education", "Science Education", "Studies in Science Education", etc. The following journals may be useful for Ukrainian researchers of giftedness issues: "Gifted Child Quarterly", "Journal For Gifted Education", "Talent Development and Excellence", etc. As an example, researchers of information and computer support for science education have the opportunity to present their work in such journals as "Information Technologies and Learning Tools", "International Journal of Education and Information Technologies" and more others.

A number of issues related to *co-authorship in publications* are noteworthy. Given the value of the article for Ukrainian authors, it is logical to desire to publish paper with the maximum number of contributors when submitting a manuscript. At the same time, for social and humanitarian articles, the number of co-authors usually does not exceed three persons and should appear justified: as an example, part of the authors was engaged in an experimental part or a social survey, the other ones made a theoretical generalization. At the same time, journals unofficially appreciate the presence of authors with high citation rates in scientometric databases, so the same research, but with different co-authors, may (unofficially) be of different interest for editing: it is advisable to search for co-authorship of colleagues with experience and scientometric indicators, which give some chance of successful completion of the review process. Also, editorial boards highly value the international teams of authors, which formally testifies to the international relevance of the problem under study and its analysis from the point of view of different scientific schools.

The *source base of the study* should preferably consist of modern sources included in a specific scientometric database with high citation rates: search tools in databases have the ability to organize the sources search by number of citations, dates, etc. There is a convenient option "hot publications" on a given topic. The list of sources should include articles from the journal where the article is submitted — this is a demonstration of interest in publishing it. It is necessary to abandon as much as possible or completely from Ukrainian-language sources with further transliteration of names such as "Formuvannya kompetentnostey…", which do not allow the English-speaking reviewer to evaluate its content. International terms should be used and ones should be well-known in the international workplace. It is

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appropriate to analyze a number of similar articles already included in the database to determine the list of the relevant sources for your research.

When choosing a *research methodology*, it should be borne in mind that there are large differences in traditions of academic writing between Ukrainian and foreign journals. There may be a "gap" between the research methodologies — Ukrainian and Western ones. When submitting an article, you should be sure that your methodology is clear for understanding and internationally recognized. The simplicity of presentation and reasoning, avoiding the author's emotional evaluations and more are appreciated. Theoretical provisions and novelty of social and humanitarian articles usually require empirical evidence (social surveys, in-depth interviews, pedagogical experiments, etc.), so the vast majority of journals await a 'research-based article', that summarizes the results of extensive research.

It is also a disadvantage of manuscripts to exaggerate the role of Ukrainian educational problems in a global context, and to overestimate the Ukrainian authorities of science who are unknown to Australian reviewers, for example. It is also worthwhile to familiarize yourself with the current fronts of research (the tool of scientometric databases) in your research field, and to consider them in order not to submit a manuscript, that surged in popularity several years ago.

The *peer-review process* in journals indexed by scientometric databases is a lengthy process (2–12–18 or more months) being a time-consuming, hard work. Sometimes the reviewing process takes 50% of the effort and time to write an article. High-ranked journals are practiced as the most objective model double-blind peer-review. The official payment for the publication (if any) is made only after a long period of agreement with the reviewers of the text: the responsible journals have high competition and queue, they cannot, for example, "publish at the nearest issue in a month". Predatory, risky journals ask the money forward. It is also important to keep in mind, that articles are reviewed for plagiarism when reviewing, so the author should be responsible for submitting the material and making sure, that the text or part of it has never been previously published. Committee on Publication Ethics is an organization, that promotes high standards of publication activity. It is an authority for editorial boards discovering the issues, related to the day-to-day work of editorial boards when reviewing submissions: the recommendations of this Committee may serve as a guide to ethical issues related to publishing activities [2].

So, we have reason to move to formulate a series of conclusions that can serve as a guide for authors who plan to submit manuscripts to the journals indexed by Scopus and Web of Science. We underline again, that the full range of recommendations cannot be formulated in the scope of one article. We offer the key ones only. So, the authors should:

- develop the level of English, in order to qualitatively develop the source base, preparing the article. They have to learn to work with English texts, firstly, from the position of the reader, and secondly, from the position of the future author;
- understand, that writing articles in international journals that are part of scientometric databases, requires a change of tradition of articles they use for Ukrainian journals. Trying to write an article for a specific journal (that is a niche for specific research), authors should read several of one's issues, continue existing in journal discussion using internationally recognized methodology and well-recognized list of sources, etc.;
- understand the structure of the knowledge fields and rules of systematization of journals: for researchers in the field of science education, there are many opportunities to publish the results in niche journals in science education, as well as in journals with a relevant issue (giftedness; information and computer technologies, etc.);
- develop international contacts, including contacts with experienced authors in your area for research and publication cooperation;
- Scopus and Web of Science are complex, however, effective tools that are useful for manuscript preparation: it is not possible, as an example, to "write for Scopus" without mastering its tools, without reading of the most cited articles in your field of research, etc.;
- get used to the long and painstaking work with reviewers, which precedes the final acceptance of the article for publishing. The mechanism of payment on the early stages of publication review is risky and does not meet the fundamental principles of international publication ethics, in particular the ethics of editorial responsibility for the text printed in the journal as well as the Committee on Publication Ethics instructions.

References

1. Andersen, J., & Stine Lomborg (2020). Self-tracking and metric codification in digital infrastructures for scholarly communication. *The Information Society*, 36:1, 43–52. DOI: 10.1080/01972243.2019.1685039
2. Committee on Publication Ethics. Retrieved from : https://publicationethics.org/
3. Gralka, S., Wohlrabe, K., & Bornmann, L. (2019). How to measure research efficiency in higher education? Research grants vs. publication output. *Journal of Higher Education Policy and Management*, 41:3, 322–341. DOI: 10.1080/1360080X.2019.1588492
4. Schweitzer, S., & Brendel, J. (2020). A burden of knowledge creation in academic research: evidence from publication data. *Industry and Innovation.* DOI: 10.1080/13662716.2020.1716693
5. Some Measures to Eliminate the Bad Orientation of "Papers Only" in Science and Technology Evaluation (Trial). Retrieved from : http://www.most.gov.cn/mostinfo/xinxifenlei/fgzc/gfxwj/gfxwj2020/202002/t20200223_151781.htm
6. Some Suggestions on Standardizing the Use of SCI Paper Indexes in Higher Educational Institutes and Establishing Correct Evaluation Orientation. Retrieved from : http://www.moe.gov.cn/srcsite/A16/moe_784/202002/t20200223_423334. html
7. Some questions on the state attestation of research institutions (order of MES of Ukraine No.1008 from September, 17 2018). Retrieved from : https://zakon.rada.gov.ua/laws/show/z1504–18 [in Ukrainian].
8. The procedure of assignment of scientific titles to scientific and scientific-pedagogical workers (order of MES of Ukraine No.13 from January, 14 2016). Retrieved from : https://zakon.rada.gov.ua/laws/show/z0183–16 [in Ukrainian].
9. Draft Order of awarding the scientific degrees of Doctor of Sciences and Doctor of Philosophy by specialized academic councils of higher education institutions (scientific institutions). Retrieved from : https://naqa. gov.ua/wp-content/uploads/2020/02/проєкт_ Порядок-присудження-наукових-ступенів.pdf [in Ukrainian].
10. Svyrydenko, D. B. (2019). Research in Science Education : The Challenges of Scientometrics. Proceedings from 12th International Scientific and Practical Conference "Gifted children – the intellectual potential of the state". (pp. 304–307). Kyiv : Institute of Gifted Child of NAES of Ukraine [in Ukrainian].

Список використаних джерел

1. Andersen J., Lomborg S. Self-tracking and metric codification in digital infrastructures for scholarly communication. The Information Society. 2020. Vol. 36. Issue 1. P. 43–52. DOI: https://doi.org/10.10 80/01972243.2019.1685039
2. Committee on Publication Ethics. URL: https://publicationethics.org/ (дата звернення: 29.03.2020)
3. Gralka S., Wohlrabe K., Bornmann L. How to measure research efficiency in higher education? Research grants vs. publication output. *Journal of Higher Education Policy and Management*. 2019. Vol. 41. Issue 3. P. 322–341. DOI: https://doi.org/10.1080/1360080X.2019.1588492
4. Schweitzer S., Brendel J. A burden of knowledge creation in academic research: evidence from publication data. *Industry and Innovation*. 2020. DOI: https://doi.org/10.1080/13662716.2020.1716693
5. Some Measures to Eliminate the Bad Orientation of "Papers Only" in Science and Technology Evaluation (Trial). URL: http://www.most.gov.cn/mostinfo/xinxifenlei/fgzc/gfxwj/gfxwj2020/20200/t20200223_151781.htm (дата звернення: 29.03.2020)
6. Some Suggestions on Standardizing the Use of SCI Paper Indexes in Higher Educational Institutes and Establishing Correct Evaluation Orientation URL: http://www.moe.gov.cn/srcsite/A16/moe_784/202002/t20200223_423334.html (дата звернення: 29.03.2020)
7. Деякі питання державної атестації наукових установ : наказ Міністерства освіти і науки України від 17.09.2018 р. № 1008. URL: https://zakon.rada.gov.ua/ laws/show/z1504–18 (дата звернення: 29.03.2020)
8. Порядок присвоєння вчених звань науковим і науково-педагогічним працівникам : наказ Міністерства освіти і науки України від 14.01.2016 р. № 13. URL: https://zakon.rada.gov.ua/laws/show/z0183–16 (дата звернення: 29.03.2020)
9. Проєкт Порядку присудження наукових ступенів доктора наук і доктора філософії спеціалізованими вченими радами закладів вищої освіти (наукових установ). URL: https://naqa.gov. ua/wp-content/uploads/2020/02/проєкт_Порядок-присудження-наукових-ступенів.pdf (дата звернення: 29.03.2020)
10. Свириденко Д. Б. Дослідження у науковій освіті: виклики наукометрії. *Обдаровані діти — інтелектуальний потенціал держави* : матеріали XII Міжнар. наук.-практ. конф. (м. Чорноморськ, Одеська область, 1–8 липня 2019 р.). Київ : Інститут обдарованої дитини НАПН України, 2019. С. 304–307.

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НАУКОВА ОСВІТА: ПОШУК ЕФЕКТИВНИХ ПУБЛІКАЦІЙНИХ ПРАКТИК

Анотація. *У статті здійснено авторську спробу запропонувати закордонним читачам журналу порядок денний проблем, пов'язаних із вимогами українського законодавства в галузі науки щодо публікацій у журналах, які індексуються наукометричними базами Scopus і Web of Science. Положення статті пройшли попередню апробацію в межах XII Міжнародної науково-практичної конференції «Обдаровані діти — інтелектуальний потенціал держави» (2019) і були розширені з урахуванням тенденцій 2020 р. У результаті аналізу вдалося виокремити низку підходів, які можуть оновити публікаційні стратегії українських дослідників у галузі наукової освіти. Зокрема, без претензій на повноту було сформовано низку ключових рекомендацій, які можуть виступити дороговказом потенційним авторам. До них віднесено такі принципи: автори мають розвивати рівень англійської, аби якісно опрацьовувати джерельну базу, навчитися працювати з англомовними текстами з позицій майбутнього читача і з позицій автора; написання статей до міжнародних журналів, що входять до наукометричних баз, потребує відходу від традиції написання статей до фахових журналів України; для вітчизняних дослідників наукової освіти існують широкі можливості для публікацій як у спеціалізованих виданнях, так і в журналах із суміжною тематикою (розвиток обдарованості; інформаційні технології в освіті тощо); дослідникам варто розвивати міжнародні контакти з досвідченими авторами в галузі наукової освіти й ініціювати спільні дослідження та публікації у їх результаті; опанування пошуковими інструментами наукометричних баз є необхідною вимогою для проведення підготовчих кроків, що передують підготовці тексту; дослідники мають звикати до довгої та кропіткої роботи з рецензентами, яка передує прийняттю статті до друку; автори мають уникати хижацьких моделей при поданні результатів досліджень через підвищення обізнаності в міжнародних стандартах публікаційної етики й академічної доброчесності.*

Ключові слова: *наукова освіта, наукометрія, Scopus, Web of Science, методологія наукових досліджень, публікаційна етика.*

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НАУЧНОЕ ОБРАЗОВАНИЕ: ПОИСК ЭФФЕКТИВНЫХ ПУБЛИКАЦИОННЫХ ПРАКТИК

Анотация*. В статье осуществлена авторская попытка предложить зарубежным читателям журнала повестку дня проблем, связанных с требованиями украинского законодательства в научной сфере касательно публикаций в журналах, индексируемых наукометрическими базами Scopus и Web of Science. Положения статьи прошли предварительную апробацию на XII Международной научно-практической конференции «Одаренные дети — интеллектуальный потенциал государства» (2019) и были расширены с учетом тенденций 2020 г. В результате анализа удалось выделить ряд подходов, которые могут обновить публикационные стратегии украинских исследователей в области научного образования. В частности, без претензий на полноту, был сформирован ряд ключевых рекомендаций, которые могут выступить путеводителем для потенциальных авторов. К ним отнесены следующие принципы: авторы должны развивать уровень английского, чтобы качественно обрабатывать базу источников, научиться работать с англоязычными текстами с позиций будущего читателя и с позиций автора; написание статей в международные журналы, входящие в наукометрические базы, требует отхода от традиции написания статей в научные журналы Украины; для отечественных исследователей научного образования существуют широкие возможности для публикаций как в специализированных изданиях, так и в журналах смежной тематики (развитие одаренности, информационные технологии в образовании и т. д.); исследователям следует развивать международные контакты с опытными авторами в области научного образования и инициировать совместные исследования и публикации в их результате; овладение поисковыми инструментами наукометрических баз является необходимым требованием для проведения подготовительных шагов, предшествующих подготовке текста; исследователи должны привыкать к долгой и кропотливой работе с рецензентами, которая предшествует принятию статьи в печать; авторы должны избегать хищнических моделей при обнародовании результатов исследований путем повышения осведомленности с международными стандартами публикационной этики и академической добропорядочности.*

Ключевые слова: *научное образование, наукометрия, Scopus, Web of Science, методология научных исследований, публикационная этика.*

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