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Methodological problems of the study of the national integration into the global scientific landscape: The case of Russian media studies. (Part 2)

Natalia D. Trishchenko¹, Mikhail I. Makeenko² and Igor V. Anisimov³

^{1, 2, 3}*Lomonosov Moscow State University,
Moscow, Russian Federation*

¹*trishchenko.natalia@yandex.ru, <https://orcid.org/0000-0002-6834-6206>*

²*makeenko.mikhail@smi.msu.ru, <https://orcid.org/0009-0002-6457-7063>*

³*igor.anisimov@gmail.com, <https://orcid.org/0000-0002-9199-8069>*

Abstract. The paper addresses the methodological problems of evaluating the processes and outcomes of international integration of national science, using the case of Russian research in the field of media and communication. Within the study, several questions emerge that, while looking seemingly simple and straightforward under formal approaches, actually call for detailed and critical examination. In particular, the working definitions for the concepts “international integration,” “article on media,” “international journal,” “Russian author,” and “Russian article” had to be developed to ensure accurate data interpretation.

To select integration parameters, quantitative data from the Web of Science (WoS) were used. However, the analysis went beyond standard indicators of publication activity and citation. Combinations of different indicators were applied, e. g. differences in citation between all journals and foreign journals indexed in the core WoS databases, the ratio of publications in formally versus genuinely international journals, the pool of sources cited by Russian authors, and others.

The authors propose solutions to the key methodological challenges: refining publication selection criteria through combined search strategies and manual filtering; developing journal classification system to distinguish between formally and genuinely international publications; and creating typology of formally Russian authors based on their actual geographical affiliation. Several additional methodological issues were also addressed to obtain tangible results in the analysis of international ties, including authors chronological clusterization and countries grouping.

This part of the article focuses on the challenges of separating formally and genuinely Russia authors and articles, chronological clusterization of authors and cited sources, clusterization of countries by general research culture, national and international mainstream research organizations and institutions. The authors offer their conclusions.

The findings demonstrate that without in-depth analysis of these methodological issues, relying on the indicators of international databases may lead to significantly distorted representation of reality. The proposed approaches can be adapted to refine scientometric assessments in other academic fields, particularly in the social sciences and humanities.

Keywords: research output evaluation, national science, methodology, Russia, media studies

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What is 'Russian article'

The next step in refining the results was to consider more detailed citation statistics for articles written in and without international collaboration, because, on the one hand, the results of previous studies suggest the advantage of collaborative articles, and on the other hand, Russian researchers usually play a minor role in such projects, so here we return to the question of how much the articles in collaboration are indicative of real international integration – and can be considered as “Russian” publications at all. Tables 1 and 2 show how the citation patterns of purely Russian and collaborative articles differ.

Table 1

**Distribution of articles with international collaboration,
cited at least once (according to Web of Science),
by years and groups of citing authors (main database)**

| Year | Total | | | Foreign citations | | | Russian citations | | |
|--------------|-------------|---------------------|------------|-------------------|---------------------|------------|-------------------|---------------------|------------|
| | Publ. cited | Number of citations | Cit./publ. | Publ. cited | Number of citations | Cit./publ. | Publ. cited | Number of citations | Cit./publ. |
| 2017 | 11 | 97 | 8,82 | 9 | 77 | 8,56 | 7 | 20 | 2,86 |
| 2018 | 18 | 141 | 7,83 | 14 | 94 | 6,71 | 11 | 47 | 4,27 |
| 2019 | 12 | 88 | 7,33 | 8 | 80 | 10,00 | 5 | 8 | 1,60 |
| 2020 | 23 | 162 | 7,04 | 20 | 130 | 6,50 | 9 | 32 | 3,56 |
| 2021 | 24 | 66 | 2,75 | 20 | 57 | 2,85 | 6 | 9 | 1,50 |
| <i>Total</i> | 88 | 554 | 6,30 | 71 | 438 | 6,17 | 38 | 116 | 3,05 |

Table 2

**Distribution of the articles without international collaboration,
cited at least once (according to Web of Science),
by years and groups of citing authors (main base)**

| Year | Total | | | Foreign citations | | | Russian citations | | |
|--------------|-------------|---------------------|------------|-------------------|---------------------|------------|-------------------|---------------------|------------|
| | Publ. cited | Number of citations | Cit./publ. | Publ. cited | Number of citations | Cit./publ. | Publ. cited | Number of citations | Cit./publ. |
| 2017 | 87 | 192 | 2,21 | 24 | 50 | 2,08 | 74 | 142 | 1,92 |
| 2018 | 88 | 175 | 1,99 | 28 | 44 | 1,57 | 74 | 131 | 1,77 |
| 2019 | 112 | 241 | 2,15 | 43 | 81 | 1,88 | 88 | 160 | 1,82 |
| 2020 | 95 | 179 | 1,88 | 37 | 66 | 1,78 | 74 | 113 | 1,53 |
| 2021 | 39 | 57 | 1,46 | 20 | 23 | 1,15 | 24 | 34 | 1,42 |
| <i>Total</i> | 421 | 844 | 2,00 | 152 | 264 | 1,74 | 334 | 580 | 1,74 |

Articles with international collaborations received almost four times more citations from foreign authors than from Russian authors, thus being of little interest to Russian authors. The share of articles cited by foreign authors and the number of citations by foreign authors for articles in collaboration is many times higher.

Our data are consistent with the results of previous studies, which demonstrated a convincing superiority of collective articles in citation. However, in our case we can still assume that the gap is so significant not only because of the wider dissemination of the article, its self-citation by several authors or something similar, but also because of how little attention is actually paid to the works of Russian researchers in all other cases.

If we look at the situation again through the prism of collaborations (Tables 3 and 4), but using the “classic” database, we see that with approximately equal number of articles, the two groups differ in citation rates by multiples.

Table 3

Number of citations of the articles with international collaboration (according to Web of Science), by years, groups of citing authors and quartiles (“classic” database)

| Year | Number of cited publ. | Numb. of cit. | Numb. of cit. by foreign authors | Numb. of cit. by Russian authors |
|--------------|-----------------------|---------------|----------------------------------|----------------------------------|
| 2017 | 6 | 75 | 72 | 3 |
| 2018 | 12 | 128 | 91 | 37 |
| 2019 | 7 | 78 | 77 | 1 |
| 2020 | 16 | 126 | 118 | 8 |
| 2021 | 19 | 57 | 55 | 2 |
| <i>Total</i> | 60 | 464 | 413 | 51 |

**Number of citations of the articles without international collaboration
(according to Web of Science), by years,
groups of citing authors and quartiles (“classic” database)**

| Year | Number of cited publ. | Numb. of cit. | Numb. of cit. by foreign authors | Numb. of cit. by Russian authors |
|--------------|-----------------------|---------------|----------------------------------|----------------------------------|
| 2017 | 9 | 28 | 20 | 8 |
| 2018 | 8 | 29 | 19 | 10 |
| 2019 | 16 | 49 | 29 | 20 |
| 2020 | 16 | 46 | 32 | 14 |
| 2021 | 7 | 13 | 9 | 4 |
| <i>Total</i> | 56 | 165 | 109 | 56 |

In the case of foreign citations, the articles with international collaboration are cited 3.5–4 times more often than the articles without one.

Note that fractional counting, which helps to make impact estimation more accurate, would not work in our case. And here we come to the next methodological difficulty we encountered when processing data from WoS.

What is ‘Russian author’?

We could not check the context of each citation, so we needed another way to make the number of citations a more accurate indicator. Since one of the common ways to manipulate statistics implies involving foreign authors in publications with a national (in our case, Russian) affiliation (Guskov, Kosyakov, & Selivanova, 2018), we decided to take a closer look at the actual country affiliation of the authors.

In the process of checking, it turned out that the above practices are relevant also for the field of media and communication. As a result of the analysis, three groups of authors were formed:

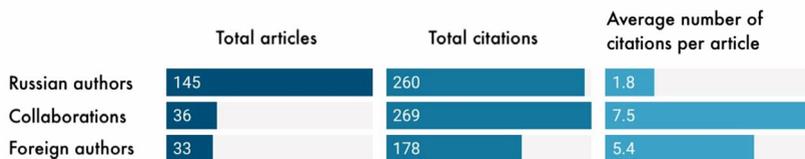
Russian authors – affiliated only with Russian scientific organizations / universities;

foreign authors – foreign authors with Russian affiliation / foreign or Russian authors with dual (Russian and foreign) affiliation;

collaborations – Russian authors и Foreign authors (according to the classification in group 2).

This grouping is due to the fact that very often foreign authors write articles on topics not related to Russia in any way, but at the same time they indicate a Russian affiliation. An example would be a Greek author who published articles on Greek media, but stated an affiliation only with a Russian university. Obviously, in this case it is more logical for our analysis to classify such an author as a foreign author who temporarily serves the publication interests of a Russian organization. A similar situation arises with some Russian authors whose main place of work has long been a foreign university, but whose domestic affiliation is formally present as well. To identify foreign authors with Russian affiliation, we had to manually check the data in the database. It should be noted that we classified as articles written by “foreign authors” only those publications authored exclusively by individuals who are no longer connected to Russia in any meaningful way or were never affiliated with Russia. If a “Russian author” was involved in the work, the publication was considered collaborative.

As a result, we were able to significantly refine the results of the study (Image 1).



Created with Datawrapper

Image 1. Summary data on articles with different types of authors: number of articles, citation rates – with correction of authors' group (“classic” database)

In the original data, purely foreign authors could be present only within the context of collaborations, otherwise the article would not have been included in the sample. However, in fact, not only were there 15% of articles by actually foreign authors, but they also account for a quarter of all citations, and the average number of citations per article is 3 times higher than that of articles by purely Russian authors.

Additional questions

During the course of the work, we encountered several less significant methodological issues; however, in our view, they also deserve to be described and discussed.

Chronological clustering of the authors of cited sources

When we were trying to determine how actively Russian authors access current foreign scientific literature, we faced the task of categorizing authors into different chronological clusters. If we had focused only on the author's Russian affiliation, it would not have allowed us to understand how much contemporary research is used and what potential share in the literature used could be occupied by translated works (the classics of the last century were mostly translated into Russian and used in this version, which is not particularly conducive to integration).

To assign an author to a particular group, we focused on the year of publication of the median of his or her cited works. For most of the authors we automatically generated values for the field "group of authors": "classic" (up to the 1990s) / "new" (late 1990s – late 2000s) / "latest" (2010 and onwards), but for 812 records we could not do it, which in some cases is due to insufficient data. Then, also in some cases, a manual refinement of the group was carried out, since reprints and quoted translated versions gave distortions. It should be taken into account that the manual check of all records was not carried out, so due to the automatic distribution into groups there may be some errors in the results of the study, but we have not found a better solution.

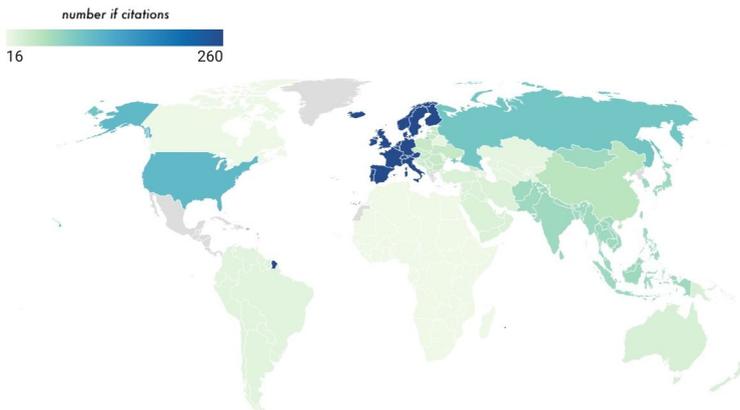
Classification of collaborator affiliation countries

When considering the statistics on citations of Russian articles, we also considered the breakdown of citations by country. If we do not count self-citations, the majority of citations for both basic and "classic" articles are from Western European countries, followed by the USA (Table 5, Image 2).

Table 5

Distribution of citations by country (geographic approach, “classic” database)

| Country group | Number of citations | Share |
|----------------------------|---------------------|-----------|
| Western Europe | 260 | 33 |
| USA | 118 | 15 |
| Russia | 100 | 13 |
| Asia (excl. CIS and China) | 72 | 9 |
| China | 53 | 7 |
| Eastern Europe (excl. CIS) | 45 | 6 |
| Australia | 33 | 4 |
| Middle East | 30 | 4 |
| South America | 26 | 3 |
| CIS | 23 | 3 |
| Canada | 18 | 2 |
| Africa | 16 | 2 |
| <i>Total</i> | 795 | 100 |

**Image 2. Distribution of citations by country (geographic approach, “classic” database)**

However, we did not find this division satisfactory, as, in fact, many of the countries in the table belong to what can be called one research culture and it would be much more illustrative and revealing to group them together on this basis (Table 6, Image 3). We classified Western Europe, the United States, Israel, Japan, Canada, Singapore, and South Korea as part of the “Western” group. In addition, we included China in the broader group of Asian countries.

Table 6

Distribution of citations by country
 (“cultural” approach, “classic” database)

| Group | Number of citations | Share | Share of main base citations, % |
|---|---------------------|-------|---------------------------------|
| Western | 462 | 58 | 44 |
| Asian (excl. CIS), African and Middle Eastern | 140 | 18 | 35 |
| Russia | 100 | 13 | 8 |
| Eastern European (excl. CIS) | 45 | 6 | 21 |
| South American | 26 | 3 | 31 |
| CIS | 22 | 3 | 16 |
| <i>Total</i> | 795 | 100 | 25 |

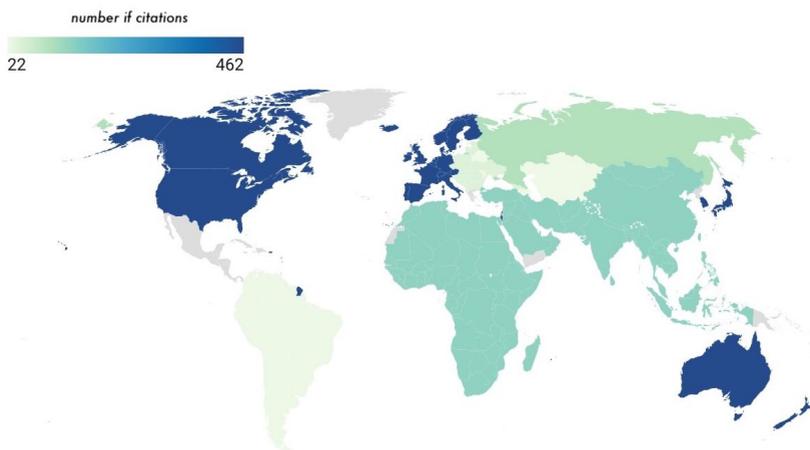


Image 3. Distribution of citations by country
 (“cultural” approach, “classic” database)

At the same time, we are sure that not all colleagues would agree with this distribution and, in general, this approach cannot be called strictly scientific, so the described problem, from our point of view, also requires discussion.

'Leading' national scientific organizations defined domestically and internationally

One of the curious findings of the study was the difference in the importance of domestic organizations at the national and international level (Table 7).

Table 7

Share of publications in classic database from main database by organization

| Organization | Number of publ. in the main database | Number of publ. in "classic" database | Share of publ. belonging to the "classic" database, % |
|---------------------|---|--|--|
| MSU | 441 | 22 | 5 |
| SPbU | 270 | 44 | 16 |
| KFU | 222 | 3 | 1 |
| HSE | 178 | 69 | 39 |
| RAS | 150 | 5 | 3 |
| RUDN | 148 | 4 | 3 |
| UrFU | 51 | 6 | 12 |
| TSU | 51 | 4 | 8 |
| RSSU | 38 | 3 | 8 |
| Plekhanov Univ | 29 | 10 | 34 |
| RANEPA | 26 | 5 | 19 |
| <i>Total</i> | 1604 | 175 | 11 |

Similarly, a significant difference is also observed at the author level: of the top 5 authors by number of publications across the entire database, none is even in the top 20 for the "classic" database. This point should also be taken into account when conducting research, as the focus on international or national databases can significantly change the scope of the research and its empirical object.

Conclusions and Discussion

In our experience, the use of indicators of international scientific citation databases without a critical review of the data provided by them and multidimensional clarification of their content gives an extremely incomplete and inaccurate picture of the level and directions of development of national science. Of course, in addition to the above-mentioned issues, there are other, more obvious and trivial difficulties, including those related to differences in the spelling of Cyrillic names and titles, data dropouts, the speed of indexing of different sources, etc., which are simply unavoidable and are more technical than conceptual – unlike the issues we discuss in this article.

If we look at the indicators of the number of articles and their citations, we see a rather bright picture and steady progressive growth, but a more careful and thoughtful work with the data reveals a completely different perspective: truly Russian articles in most cases remain invisible to the international scientific community, only publications in Q1 and – to a greater extent – various forms of international cooperation (collaborations, foreign funding or hiring foreign colleagues as collaborators) help to partially rectify this. At the same time, it can be seen that just as Russian articles are of little interest to foreign researchers, foreign articles do not particularly attract the attention of Russian ones. When referring to unfiltered general statistics, all these phenomena are not so noticeable.

Undoubtedly, these results cannot be extrapolated to those areas of science in which Russian researchers traditionally hold leading positions. However, based on our observations, in many social and humanities disciplines, the situation largely corresponds to what is described in this article. It should also be noted that since 2022, the working conditions and publication activity of Russian researchers have changed to some extent. Nevertheless, the methodological approaches we have outlined have not lost their relevance or practical applicability.

The conducted study also demonstrated that achieving meaningful results in assessing the international integration of national science is impossible without thorough methodological development at all stages of the analysis. Accurate definition of basic concepts, construction and cleaning of the publication dataset, consideration of the specifics of international collaborations, as well as distinguishing between genuinely

and merely nominally international journals are essential prerequisites for increasing the accuracy of conclusions. The methodological approaches we have developed and tested can be used and adapted for similar studies in other disciplinary fields.

It is impossible to propose any universal solutions that can prevent mistakes when conducting similar studies, but we would like at least to draw the attention of our colleagues to those issues that turned out to be important in the course of our work. Without in any way diminishing the importance of quantitative indicators and scientometrics, we would like to recall the need to integrate qualitatively selected data and “live” expertise into the process of assessing the presence or importance of national science at the international level, since in the course of our research many methodological decisions were conditioned by our involvement in the thematic field and the associated ability to look critically at the figures and see behind the lists of articles, journals and authors their real content.

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Authors

Natalia D. Trishchenko – Cand. Sc. (Philology), Senior Researcher, New Media and Communication Theory Chair, Journalism Department, Lomonosov Moscow State University, Moscow, Russian Federation

trishchenko.nataliia@yandex.ru

Mikhail I. Makeenko – Cand. Sc. (Philology), Associate Professor, Mass Media Theory and Economics Chair, Journalism Department, Lomonosov Moscow State University, Moscow, Russian Federation

makeenko.mikhail@smi.msu.ru

Igor V. Anisimov – Cand. Sc. (Philology), Senior Lecturer, Photojournalism and Media Technologies Chair, Journalism Department, Lomonosov Moscow State University, Moscow, Russian Federation

igor.anisimov@gmail.com

