



A Scopus-Based Analysis of Publication Activity in Kazakhstan from 2010 to 2015: Positive Trends, Concerns, and Possible Solutions

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Received: 10 September 2015
Accepted: 21 October 2015

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The article analyzes the publication activity of scientific authors from Kazakhstan based on Scopus and SCImago Journal & Country Rank data from 2010 to 2015. The number of indexed multidisciplinary and medical articles from the country has been steadily growing from 2011 onward and this can be due to the adoption of the new *Law on Science* in that year. Several regulatory legal acts have been issued in recent years aimed at improving the quality of local journals and the international recognition of academic degrees and titles. Publication activity of scientific authors from Kazakhstan was found to be higher than that from other countries in the Central Asian region. However, there are still many unresolved issues related to the English language barrier, lack of indexing status of local journals, and poor topical education on science writing and editing. As such, the number of articles published in 'predatory' journals remains sizable, and there are concerns over authors' negligence and plagiarism. The global solution to the discussed problems may be achieved by educating researchers, authors, reviewers, and editors.

Keywords: Publication Activity; Publication Ethics; Periodicals as Topic; Multidisciplinary Science Communication; Medicine; Non-anglophone Countries; Kazakhstan

Publishing articles in widely visible and peer-reviewed scholarly journals reflects individuals', institutions', and countries' research productivity. Most non-Anglophone countries are currently struggling to educate their scientific authors to write, review, and edit scholarly articles, and increase the number of publications in periodicals indexed by Scopus, Web of Science, and PubMed/MEDLINE. Editorial organizations of non-Anglophone countries are investing heavily in upgrading publication practices in local and regional journals (1), most of which are considered as domestic hubs of knowledge accumulation.

Kazakhstan is one of the largest post-communist, multinational, non-Anglophone countries with an emerging economy and a great potential for research and scientific innovations. Its geographic location in the heart of Eurasia and strong ties with most developed nations, including those of the Asia Pacific region, make it possible to benefit from international cooperation in education and science, and produce high-quality scholarly articles.

Over the past decades, if not centuries, education and science in Central Asia and Kazakhstan have been oriented toward Russia, and the thinking of researchers was dominated by instructions issued by centralized governmental authorities in Soviet Russia. Many generations of regional scientists have been trained to write articles in Russian. They have been nurtured

under the influence of Russian handbooks, monographs, dissertations, and seminal articles published in central press. It is therefore not surprising that a scientometric analysis of articles indexed by Scopus from 1991 to 2008 revealed intensively developing scientific cooperation between Russia and Kazakhstan (2). Although all Kazakh researchers have been obliged to pass English language tests and process foreign literature to accomplish their theses and fulfil criteria for obtaining academic degrees, their exposure to scholarly English resources has been limited for decades.

Kazakhstan gained its independence from the Soviet Union in 1991. Since then, its vast research infrastructure and standards of scientific work have been strictly regulated by the state independent authorities, issuing new governmental decrees and ministerial orders aimed at streamlining publication practices. In 2011, the *Law on Science* of the Republic of Kazakhstan was adopted to prioritize new scientific directions, quality publications, and set standards for awarding academic degrees and titles. In line with this, the list of local scientific periodicals endorsed by the *Committee for Control of Education and Science* was revised in 2012 (<http://control.edu.gov.kz/en>). The *Committee* tightened its selection criteria and limited the number of recommended periodicals for some disciplines. For example, the list of journals endorsed for medicine and pharmaceutical

Table 1. Publication activity of the five leading academic and research institutions from Kazakhstan (as of 2015) and related five leading periodicals (2010-2015)

Rank	Leading institutions	Total articles	Five leading journals where Kazakh authors publish and number of published articles
1	Al Farabi Kazakh National University (Almaty) http://www.kaznu.kz/en/	1,801	<i>World Applied Sciences Journal</i> * – 72 <i>Life Science Journal</i> * – 60 <i>Chemistry of Natural Compounds</i> – 60 <i>Eurasian Chemico-Technological Journal</i> – 51 <i>Middle East Journal of Scientific Research</i> * – 41
2	National Academy of Science of Kazakhstan (Almaty) http://nauka-nanrk.kz/	1,438	<i>Russian Journal of General Chemistry</i> – 16 <i>Journal of Physics Conference Series</i> – 6 <i>Advances in Space Research</i> – 5 <i>Geomagnetism and Aeronomy</i> – 4 <i>Russian Journal of Electrochemistry</i> – 4
3	L.N. Gumilyov Eurasian National University (Astana) https://www.enu.kz/en/	691	<i>Life Science Journal</i> * – 45 <i>World Applied Sciences Journal</i> * – 33 <i>Actual Problems of Economics</i> – 33 <i>Physical Review D - Particles, Fields, Gravitation and Cosmology</i> – 20 <i>Chemistry of Natural Compounds</i> – 15
4	Ministry of Education and Science of the Republic of Kazakhstan (Almaty) http://www.edu.gov.kz/en/	585	<i>Journal of High Energy Physics</i> – 53 <i>Differential Equations</i> – 42 <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> – 41 <i>Russian Journal of Applied Chemistry</i> – 37 <i>Journal of High Energy Physics</i> – 24
5	Nazarbayev University (Astana) http://www.nu.edu.kz	438	<i>Infectious Agents and Cancer</i> – 8 <i>Applied Mechanics and Materials</i> – 7 <i>Physical Review D - Particles, Fields, Gravitation and Cosmology</i> – 5 <i>PLoS One</i> – 5 <i>International Journal of Chemical Sciences</i> – 4

*Questionable or 'predatory' journals which have been delisted from Scopus and have lost their impact indices recently (4,5).

sciences was shortened from 43 to 9. As of January 2015, the list includes 146 local Russian-Kazakh journals, most of which are not indexed by the global bibliographic databases. Strikingly, there is only one periodical from Kazakhstan and Central Asia that is currently indexed by Scopus – *the Eurasian Chemico-Technological Journal*. None of the Central Asian medical journals are currently indexed by MEDLINE, the most prestigious specialized biomedical database.

The regulatory legal acts of the *Committee for Control of Education and Science* issued in 2012 (<http://control.edu.gov.kz/en/regulatory-legal-acts/>), among other criteria, require at least one article published in a journal with the 2-yr journal impact factor (JIF) above zero or indexed in Scopus to obtain a PhD degree. At least two and three articles published in journals with the JIF above zero are mandatory to fulfil the updated requirements for awarding associate professor and professor titles, respectively. Moreover, the system of grant funding from the Ministry of Education and Science now takes into account the quantity and 'impact' of the investigators' research output.

The absence of local or regional indexed periodicals and the poor English writing skills force Kazakh authors to submit most of their research articles to Russian journals, which are much better represented in Scopus, Web of Science, and MEDLINE. As a result, there are presently 46 leading academic and research institutions from Kazakhstan which are tracked by Scopus. The Scopus-based publication activity of the five leading Kazakh academic and research institutions is shown in Table 1. It is apparent that most indexed items come from Almaty and Astana,

the two largest capital cities with advanced research infrastructure and technologies. Unfortunately, the list of periodicals that publish the largest number of items from Kazakhstan includes some questionable, or 'predatory', journals such as the *Life Science Journal*, *World Applied Sciences Journal*, and *Middle East Journal of Scientific Research*, which have been delisted from Scopus and have lost their impact indices recently (3-5).

Publishing in low-quality English journals is a real threat to the growing scientific activity of Kazakh authors, who are often targeted by numerous local and foreign unethical editing agencies. The agencies offer Russian-English translation services and 'fast' publication in journals with questionable editorial policies, poor quality control, and commercialized processing of submissions. By referring to these agencies, authors damage their reputation and end up wasting their research and writing potential (3).

Over the past few years, the Kazakh government has provided subsidized access to subscription databases and digital libraries such as Scopus, Web of Science, ScienceDirect, and Springer-Link for faculty and students of state universities, creating ample opportunities for keeping abreast with scientific developments worldwide and learning by reading quality journals. Researchers and authors with state university affiliations can now perform searches through these databases, retrieve evidence-based references for their research papers, and improve chances of getting published in indexed international journals.

Although the number of articles from Kazakhstan, which are listed by Scopus, is low, it is in fact the highest in the Central

Table 2. Dynamics of multidisciplinary publication activity of Central Asian countries (2010-2014)

Country	H-index	Total documents published (1996-2014)	Annual number of published documents				
			2010	2011	2012	2013	2014
Kazakhstan	64	9,652	466	565	818	1,690	2,032
Uzbekistan	64	8,719	542	584	536	532	465
Kyrgyzstan	40	1,318	71	101	114	159	126
Tajikistan	28	1,118	78	82	115	123	83
Turkmenistan	19	284	12	33	46	17	41

The country-based H-index reflects the H number of publications cited at least H times in Scopus. Data were obtained from the SCImago Journal & Country Rank platform on August 26, 2015 (<http://www.scimagojr.com/countryrank.php>).

Asian region. The leading position of the country in the region is evident from an analysis of multidisciplinary publication activity (Table 2). Compared with other countries, Kazakhstan has also the highest publication activity in the field of medicine (Table 3), but absolute numbers are much less impressive. In terms of citability, Kazakhstan retains high H-index values in multidisciplinary (64) and medical (20) subject categories. The most striking feature is the constantly growing number of publications from Kazakhstan after the adoption of the new *Law on Science* in 2011.

Alongside with the initial positive trends in publication activity, there are still numerous problems encountered by researchers, authors, and editors (Box 1). Clear understanding of the scale of the encountered problems by research management organizations in Kazakhstan may lead to targeted actions and possible solutions. Regrettably, local authors rarely use evidence-based English sources for their research and practice (6). Writing and editing skills of most authors are still unsatisfactory, creating a ground for referring to unethical writing and publishing services of commercial editing companies. In this context, local researchers and editors should be offered editing courses to upgrade their skills, familiarize with the principles of evidence-based science, and learn lessons from unethical publishing practices, retractions of articles, and delisting of predatory journals. The first case of retraction of an original research paper from Kazakhstan that was found to be entirely plagiarized (Viroil Sin 2011;26:376-85; doi: 10.1007/s12250-011-3208-7) delivers a strong message to all honest local researchers – choose an original topic for research, improve English writing skills, and credit used sources by properly citing and referencing them. The delisting of the predatory journals, where some local researchers have published their articles, brings other important messages for all research contributors: 1) they have to learn how to distinguish the best target journals from vanity press (7) and trusted citation-based indicators from fake ‘impact factors’ (3); 2) they should also decline all commercial proposals of editing agencies, offering ‘fast’ publication in indexed journals with ‘the impact’. Even some influential journals with high JIFs from Thomson Reuters (e.g., *Oncotarget* with the latest JIF of 6.359), where Kazakh re-

Table 3. Dynamics of publication activity of Central Asian countries in the field of medicine (2010-2014)

Country	H-index	Total documents published (1996-2014)	Annual number of published documents				
			2010	2011	2012	2013	2014
Kazakhstan	20	225	14	6	24	38	42
Uzbekistan	15	133	11	6	7	9	11
Kyrgyzstan	13	68	7	5	9	12	13
Tajikistan	4	14	3	1	0	1	4
Turkmenistan	2	7	0	0	0	1	3

Data were obtained from the SCImago Journal & Country Rank platform on August 26, 2015 (<http://www.scimagojr.com/countryrank.php>).

searchers publish their research, are now listed as predatory.

On the part of Kazakh journal editors, they may improve the situation by learning lessons from global and regional editorial organizations, organizing their own editorial societies, passing trainings in evidence-based research and science editing, upgrading their journals’ instructions for authors, prioritizing indexing in specialized bibliographic databases, archiving their scientific output in open-access repositories, and attracting more international authors, reviewers, and editorial board members. There are currently only four institutional repositories from Kazakhstan, with that of the Nazarbayev University (Astana) being the largest (<http://repositories.webometrics.info/en/Asia/Kazakhstan>). Local journal editors should also make an extra effort to solicit English articles and provide more space for students’ works, offering them editorial assistance when appropriate.

In conclusion, current regulatory legal acts and whitelists of recommended periodicals form the basis for boosting publication activity in Kazakhstan. However, additional efforts are required to improve researchers’, authors’, and editors’ ethical editing and publishing skills, and to regulate relations between authors, editors, and editing agencies. Academic institutions may play a critical role by introducing elective undergraduate and postgraduate courses of scientific thinking, research methodology, and publication activity.

ACKNOWLEDGMENTS

The authors are grateful to Dr. Armen Yuri Gasparyan for his critical reading, suggesting additional data analyses, and final editing.

DISCLOSURE

The authors have no potential conflicts of interest to disclose.

AUTHOR CONTRIBUTION

Idea of the study: Yessirkepov M. Drafting first version of the article: Yessirkepov M, Nurmashev B. Revising the manuscript

and interpreting results of Scopus-based data: Yessirkepov M, Anartayeva M, Nurmashev B. Editing: Yessirkepov M. Approval of the final version of the manuscript for publication and declared responsibility for the accuracy of its content: all authors.

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Box 1. Some problems with local scholarly journals in Kazakhstan limiting their development and international outreach

- Russian is the predominant language of scientific communications.
- Updated publication ethics standards are not reflected in the instructions for authors and not enforced by journal editors.
- Articles mostly relate to local problems ('me too studies').
- Opportunities for publishing students' and young researchers' works are limited.
- Articles translating research data into education and practice are scarce.
- Authors frequently publish articles in 'predatory' English journals.
- Almost all periodicals are not indexed by global multidisciplinary bibliographic databases.
- The importance of indexing in specialized bibliographic databases and archiving in digital libraries and institutional repositories is overlooked.
- Online journal registration and open-access publishing are problematic.
- Opportunities for learning research study designs, science writing and editing at the undergraduate and postgraduate levels are limited.
- There are no local editorial associations supporting interests of science editors and publishers.
- Scientific communications and networking with foreign experts in editing are limited because of the language barrier.