

Barriers Restricting the Free Dissemination of Scientific Achievements: Own Experiences in Crossing Walls and Bridges

by

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The most important issues in the administration of modern science is "editorial correctness" of scientific articles. Editors of the most prestigious scientific journals know how to build an impact factor. Is an overly rigorous procedure for submitted manuscripts appropriate in every case?

The constant progress of science and the development of researchers is undeniable and remarkable. We dissociate ourselves from the principle of "publish a lot and quickly" recommended during the postdoctoral phase or other periods of a scientist's career. Quality requires time and humility towards that which was discovered and that which is still unknown.

Key words: scientific achievements, journals, evaluation

Introduction

The main inspiration for writing this article was an editorial by Rick D. Hackett, Editor-in-Chief of the *Canadian Journal of Administrative Sciences* (Hackett, 2008). By analyzing interesting parts of a text by Hollenbeck (Hollenbeck, in press) ("consensus creation" or "consensus shifting", and "consensus shifting" and "consensus building"), the author in fact contests the (more or less implicitly) the contemporary "editorial correctness" (!) of scientific articles. This is one of the most important issues in the administration of modern science. Editors of the most prestigious scientific journals know how to build an impact factor. Is an overly rigorous procedure for submitted manuscripts (Alberts et al., 2008) appropriate in every case? In our opinion, this is one of the most serious barriers to fostering creative courage in

young scientists and ensuring the highest standards of freedom of research (the age of the researcher does not matter) and the creation of new knowledge. We do not deny the need to respect the correctness of research methodology, reliability, clear language, a transparent presentation of research results (figures, tables, etc.), and, above all, respect for ethical criteria. Qualified reviewers must carefully evaluate these elements.

Believing, despite everything, in the constant progress of science and the development of researchers, we are against restricting courage and creativity in research (as long as the above substantive and ethical standards are met) simply because reviewers consistently share the paradigms adopted in the given field of knowledge or are even guided by criteria of the fashion current ruling in the field. In addition, we dissociate ourselves from the princi-

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ple of "publish a lot and quickly" recommended during the postdoctoral phase (Bonetta, 2008) or other periods of a scientist's career. Quality requires time and humility towards that which was discovered and that which is still unknown. For some reason, the necessity of competitiveness in science (which is not desirable for all the exact sciences) cannot be based on patterns adopted from competition in business, politics, or sports. In every kind of competition, factors of counteracting the influence of the other side and, in extremely negative cases, deprecating their position, effects, possibilities, and the like, are means of achieving one's main goal. If in the system of scientific competitiveness for the Party shall assume the virtual LOGOS, excellent existence, it cannot be classified by no means of the extremely incomprehensible. Let us try, on behalf of this excellence of existence, to answer the simplest and most basic questions.

As a community of scientists, are we able to ensure transparency in competing in the field of research and the dissemination of research results, new knowledge, and its implementation by a review process? This is doubtful as long as reviewers are human beings. Are we able to ensure sustainable development of science as a whole? This is doubtful as long as the "most important" and "trendy" studies are preferred. What factors have significantly limited the sustainable scientists' access to research funds and the dissemination of the results of his or her own research?

Among those factors generated by scientists themselves, the most important are a lack of determination to apply for grants from international, governmental, and non-governmental organizations, submitting to pressure from negative reviews, lack the courage to ask new and difficult research questions, fear of non-acceptance of ideas in the academic community and by major experts, and a weak knowledge of conference languages, especially English. Among those factors generated by the near and more remote surroundings of the scientist, very important are scientists and specific teams of researchers (various qualification committees, e.g. government, university) holding powerful positions with strong impact for a very long time, administrative barriers, and unsustainable access to impact factor-rated journals.

These dilemmas (questions and generally formulated replies) appear with different intensity in all countries and academic societies, but, fortunately,

not in all laboratories; in fact, not in the mind of every scientist or every candidate for a university degree.

How to discover the simplest and most effective ways of holding a high-impact position in science

The contractual term "high-impact position in science" has two connotations, positive and negative. The positive we conceal. We associate the negative with the effective action of people whose main purpose (sometimes the only one) is to satisfy the needs of power and prestige.

The most visible, but also the most effective, ways are all endeavors to block systems of evaluating scientific achievement (in the case of university teachers these are administrative and teaching achievements related to the sphere of research and education). A good example is the most general analysis of implementing the Index Copernicus¹ on a global scale and in separate countries as part of the evaluation of scientists. The USA was the leader among the best 10 countries in which scientists accepted the Index Copernicus methodology (Fig. 1). The list contains countries with significant scientific potential and established traditions of competition (in the best sense of the word) in research, implementation, and education at the university level.

Against this background, a relatively large number of Polish scientists evaluated by the system do not come from such a tradition. From the end of the Second World War to 1989, Polish science and education was subjected to communist indoctrination. It is worth emphasizing that scientists' evaluation is not the result of initiatives by the government, universities, or research institutes, but by individual scientists (it may be significant that the *Index Copernicus* was generated in Poland and here is the core of the system).

In Poland, the Instytut "Pomnik – Centrum Zdrowia Dziecka" in Warsaw made an official com-

¹ *The Index Copernicus is multi-parametric system of evaluation developed in Poland (1998) and originally concerned only with the evaluation of scientific journals. With time it developed a separate methodology for the multi-parametric evaluation system of scientific achievement whose world premiere took a place in 2005 during an international conference in Beijing (dedicated research parameterization). The Index Copernicus consequently developed a separate evaluation system for research institutions (2006), creating a scientific system supporting science management which fulfills the vision of inventors.*

Table 1

Top 10 articles downloaded from www.archbudo.com (30 August 2009)

No	Title	Downloads
1	Morphological diversification of female judo athletes W. Jagiełło [POL], R. M. Kalina [POL], G. Korobielnikow [UKR] Arch Budo 2007; 3 OA27-34	2154
2	The importance of hand-to-hand fights for determining psychomotor competence of antiterrorists S. Ashkinazi [RUS], W. Jagiełło [POL], R.M. Kalina [POL], S. Novikov [RUS], R. Stupnicki [POL] Arch Budo 2005; 1 OA8-12	2097
3	Counter techniques against Judo: the process of forming Aikido in 1930s F. Shishida [JAP] Arch Budo 2008; 4 OA4-8	1594
4	Motor competence in self-defence of students of a detectives' school during their course of studies R.M. Kalina [POL], W. Jagiełło [POL], P. Wiktorek [POL] Arch Budo 2007; 3 OA1-6	1350
5	Perception, understanding and adaptation of Asian martial arts in the West: a sociological analysis W.J. Cynarski [POL], L. Sieber [GER], A. Litwiniuk [POL] Arch Budo 2005; 1 OA13-18	1230
6	The violence in boxing W.J. Cynarski [POL], A. Litwiniuk [POL] Arch Budo 2006; 2 OF2-10	1019
7	Morphological, physiological and technical variables in high-level college judoists E. Franchini [BRA], M. Takito [BRA], Rômulo de Moraes Bertuzzi [BRA] Arch Budo 2005; 1 OA1-7	701
8	Training of psychomotor adaptation – a key factor in teaching self-defence J. Harasymowicz [POL], R.M. Kalina [POL] Arch Budo 2005; 1 RM19-26	685
9	Kalaripayatt – the ancient Indian art of self defence S. Tokarski [POL] Arch Budo 2007; 3 OF15-20	548
10	Dynamics of judo contests performed by finalists of European Championships (Rotterdam 2005) Dariusz Boguszewski, Katarzyna Boguszewska <u>Arch Budo</u> 2006; 2 OA40-44	537

plete evaluation, and this is the merit of the management of this institution. Scientists are able to counteract necessity of evaluation very strongly, both individually as well as collectively. During the conference "The Past, Present, and Future of the Impact Factor and other Tools of Scientometrics – Their use in comparing the scientific quality of researchers, journals, institutions, and countries" with the participation of the inventor of the impact factor (IF), Eugene Garfield (Warsaw, September 26, 2008),

expressed the opinion that the use of the IF for the evaluation of scientific achievement and research units is not compatible with the idea of IF and often leads to incorrect inference, resulting in wrong decisions on the promotion of scientific research and financing of academic units. Even though the IF's inventor repeated this opinion in the summary of the conference and showed a great interest in the last lecture by Mark Graczynski about the Index Copernicus scientific system, this native solution encour-

tered strong resistance from the “intellectuals” and opinion such as “How can you measure something that is not measurable?” We wonder whether the promoters of such an opinion changed their mind a few days later after the decision of the Nobel Committee granting the Nobel Prize in physics to a scientist who measured a phenomenon generally considered unmeasurable? An example of collective resistance is when, in 2005, the largest physical education academy in Poland received the possibility of a pilot evaluation of the staff by the *Index Copernicus*; the result was that only the rector, vice-rector, and chairman of the senate committee of science logged into the system, and so it remains today.

The multifaceted consequences of omission

In a time of progressive globalization, neglecting to apply an evaluation of scientists, institutions, and scientific journals using a generally available system leads to secondary isolation of the population, a Scientific Iron Curtain. Science becomes impoverished (at least by a lack of knowledge of the potentially best reviewers for a unique scientific specialty and a lack of communication with them), progress is slowed, and the flow of funds for international research projects is, in many cases, irrational. Paraphrasing the title of the great book by Erich Maria Remarque, we can say “All Quiet on the Eastern Front’”’. The number of scientists from Russia and other countries of the former Soviet Union who passed the evaluation of scientific achievements in *Index Copernicus* (Fig. 2) is less than in the other countries of the former Iron Curtain (Fig. 3).

A good indicator of the low effectiveness in bringing down the Scientific Iron Curtain is the number of indexed journals generated in the former Eastern Bloc countries since the Soviet Union collapsed. A significant element hampering development is having the same persons acting as rectors (or other key positions) in some of the most important universities and research institutions of these countries who were nominated for such positions twenty years ago, or even earlier. Instigators of progress in the promotion of scientific knowledge created by scientists in these countries often face the dilemma of having to overcome two difficult barriers: the resistance of the management of the scientific institution (so-called “concrete” resistance), and the mentally creative and inventive scientists in their own country who used to publish in journals with a local circulation edited in their local languages and

who are loyal to a management which is afraid of any changes. When such instigators are ready to make the effort to promote a native scientific journal, they have to deal with substantive and administrative criteria to qualify for indexing in the Science Citation Index.

Own experience

One of us (M.G.), tread this difficult path. It took him 10 years, from the idea of giving different clinical cases the form of scientific articles, to the indexing of the *Medical Science Monitor* in the Science Citation Index (IF 2008: 1.514). In fulfilling this mission he verified the principle that to overcome barriers (mainly administrative) effectively, cooperation with (an)other scientist(s) is necessary, as a kind of mentor, with recognized authority from the USA.

Together (i.e. all the authors of this article) we have been editing the electronic scientific journal *Archives of Budo* since 2005. It is a good example of concentration in a relatively short time and the promotion, on a global scale, of authors of a unique scientific specialty in an area where popularity in the field of practice is still growing and the possibilities of application are still being discovered and extended. This discipline is combat sports and martial arts. In Poland, a country of almost forty million people, there are only two sports science researchers in this specialty with the title of professor (nomination for this title involves long-term work and achievements). What is more, it has turned out that many similar issues have been solved by various methods in different countries, but authors did not know of the research results as they were published in other Slavic languages, Japanese, Chinese, Korean, or other “non-European” languages.

Archives of Budo is an empirical example of overcoming many stereotypes in thinking about this practical field, the competence of experts, and the countries where scientific knowledge about the capabilities of applying combat sports and martial arts are the most complete. Persons interested in this issue oppose researchers who identify combat sports and martial arts with practitioners, who are, in general, the most competent for giving opinions on issues of hand-to-hand fighting in the widest sense. Especially during interdisciplinary scientific conferences, many participants do not hide their surprise that there are remarkable practitioners among the researchers of combat sports and martial arts. No conferences are need, as *Archives of Budo* provides

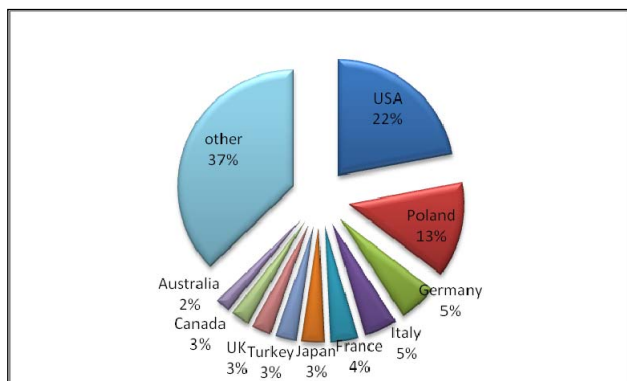


Figure 1

The ten best countries in which scientists accepted the *Index Copernicus* scientific achievement evaluation

examples, with papers published, for example, by Sergey Novikov (Ashkinazi et al., 2005), the 1976 Olympic judo champion, and Beyleroglu Malik (Beyleroglu et al., 2009), Olympic vice-champion in the box since 1996. Of the Japanese authors, all are not only competent scientists, but also masters of a particular martial art (e.g. aikido, judo, kendo). The same is true for most of the other authors.

These experiences show that in science, if it is conducted according to the correct methodological standards, there are no linguistic, political or other barriers. The difficulty appears at the level of disseminating research results and scientific knowledge about a certain category of phenomena. On a global scale, a basic tool is the English language. The papers published in *Archives of Budo* interest readers from 111 countries on all continents. The figures below show the top 10 countries with the highest full-text download rates (Fig. 4).

A nice surprise for us is that papers by Polish experts in combat sports and martial arts are so interesting: they are among the most often studied taking into account all published articles (Tab. 1).

What is more, there is no clear reader preference for the topics. The value of the papers published in *Archives of Budo* goes beyond the purely scientific sphere, and its goal is to disseminate knowledge about competently applied elements of the martial arts (every combat sport is also a martial art, but not vice versa); it is not only an area of self-defense and training for anti-terrorism specialists (Ashkinazi et al., 2005). Martial arts are used in physiotherapy and rehabilitation [Mroczkowski et al., 2007], psychotherapy and the prevention of interpersonal violence (Chunlei, 2008), dialogue between cultures and the comprehensive integration of a unit (Taketo, 2008)

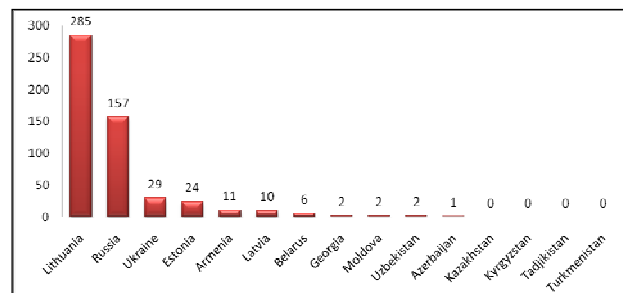


Figure 2

The number of scientists from countries of the former Soviet Union who passed the evaluation of scientific achievement in *Index Copernicus*

and in personal injury prevention. We limit the number of links to a larger study published in *Archives of Budo* to avoid the suspicion of forcing citations.

Moreover, *Archives of Budo* is an example showing that it is possible to overcome stereotypes associated with the dissemination of knowledge belonging to a relatively “young” discipline, i.e. sports science. Professor Erich Müller (2008), in a key-note lecture at the 5th International Scientific Conference on Kinesiology in Zagreb (September 12-14, 2008), showed that approximately 60% of published articles are written by people from those countries in which the journal is published. As an example he listed reputable sports science journals from the USA, UK, and Scandinavia. In *Archives of Budo*, almost 40% of all articles are written by authors and/or coauthors from abroad. This short comparison may, in our view, inspire a debate on the future of rational criteria for scientific journal evaluation, especially the factor of “new journal importance” (increasing, decreasing, or stabilized).

An excellent initiative was the launching of the special offer “Young Researchers 39½”, in which one of the important elements is publishing a paper within one month of receiving the manuscript (fulfilling the editorial policy and the reviewing process). The fastest reacting researchers were from Japan (Sogabe et al., 2008), which is another proof of the recognition of the journal by experts from a country with probably the most advanced scientific studies on phenomena related to the martial arts. It is not necessary to give examples of how high the level of martial arts practice is in Japan. However, it is worth emphasizing that the reviewers of “Young Researchers 39 ½” excellently sensed our initiative. Their reviews, apart from independent criticisms, contain valuable remarks of educational nature.

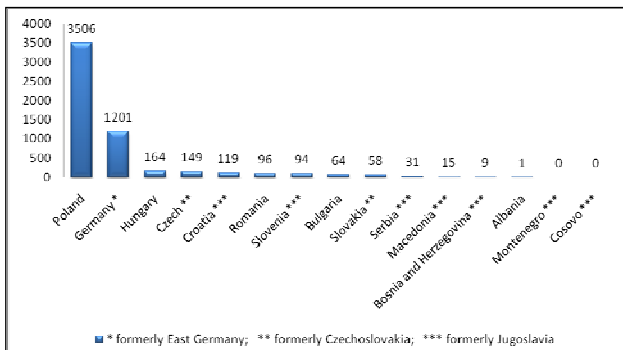


Figure 3

Number of scientists from countries of the former Iron Curtain who made the evaluation of scientific achievements in *Index Copernicus*

Conclusions

We realize that our replies to the questions posed in this article are not complete. This is rather an introduction to a wider discussion. The problem of the necessity of achievement evaluation of scientists, research institutions, and scientific journals has many aspects. These aspects and much more difficult questions will arise with progressing globalization. However, you can see ever more clearly that the Impact Factor, which is only a single parameter, may not, in the long run, be the primary criterion for assessing the value of a scientist, institution, or journal.

Meanwhile, scientists and heads of scientific institutions face the daily dilemma of whether their

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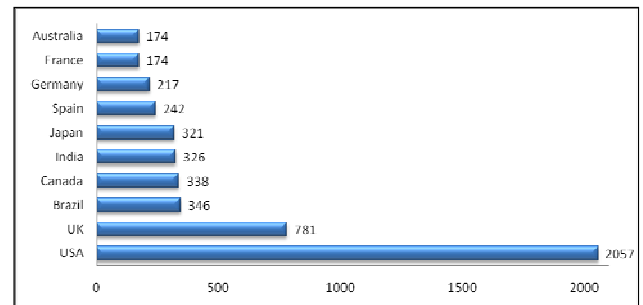


Figure 4

Top 10 countries with the highest full-text download rates of *Archives of Budo*

and their teams' original goal is primarily to offer journals with the highest IF or journals specializing in a very unique subject. In general, this uniqueness means a small group of specialists spread around the world. In the IF-focused case the dissemination of scientific information cannot serve development and progress. Creating specialized journals always includes the risk of transformation with time into some sort of “Scientists’ Cooperative”, which may lose sight of its original mission. However, we believe in the triumph of the mind and the success of the other possibility, i.e. a joining of scientists specializing in unique new fields of knowledge who, regardless of the benefits of the IF, will publish major accomplishments of their own research in journals created for this purpose.

Sogabe A., Sasaki T., Sakamoto M., Ishikawa Y., Hirokawa M., Kubota H., Yamasaki S. Analysis of Patterns of Response to Kuzushi in Eight Directions Based on Plantar Pressure and Reaction Movement. Arch Budo, 2008. 4: 70-77

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