

Didactic Student-Friendly Approaches to More Effective Teaching of the Fundamentals of Scientific Research in a Digital Era of Scientometrics

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Received 9 July 2018 • Revised 18 September 2018 • Accepted 20 September 2018

ABSTRACT

This didactic instructional article presents an original educational approach, directed toward the improvement of existing university curriculum using effective and student-friendly teaching of fundamentals of modern scientific research for graduate and undergraduate students, emphasizing scientometrics and integrity. This approach applies to students majoring in a wide range of basic and applied academic specializations in the various branches of science, engineering, computation and technology. The present methodological paper provides a novel, humanized and student-centered way of presenting a comprehensive and unified didactic explanation of originally narrated instructional material, which is based on the adaptation, generalization and creative re-thinking of the previous ten years of the author's publishing experience. This experience has been in Scopus®- and SCIE WoS® Core Collection-indexed referred academic periodicals. The proposed learning material has found a full-scale educational approbation for a widely-targeted audience of full-time young bachelor-, M. Sc.- and Ph. D.-students as well as distant adult students, university faculties, scientific researchers, college instructors and engineering staff.

Keywords: academic publishing, publishing education, scientometrics education, engineering education, scientific management education, academic librarian education

BACKGROUND

Scientific Bureaucrats in Academic Publishing

The modern informational society (Whitworth & Friedman, 2009(A); Whitworth & Friedman, 2009(B); Dawson, 2010; Herb, 2010; Donabedian & Carey, 2011; McCluskey & Winter, 2014; Peters & Jandrić, 2015; Whitley, 2016; Allahar, 2017; Hermanowicz & Clayton, 2018) imposes numerous scientometrics-related challenges and demands on vendors (Schuermans et al., 2010; Szadkowski, 2016), academic publishers (Pirie, 2009; Tashiro, 2009; Galin & Latchaw, 2010; Berg, 2012; Pearce, 2012; Forgues & Liarte, 2013; Moskovkin, 2013; Abeles, 2014; Gu & Blackmore, 2014; Pihlström, 2014; Saper, 2014(A); Gu & Blackmore, 2015; Gu et al., 2015; Stone & Sevgi, 2015; Badenhorst & Xu, 2016; Peters et al., 2016; Fyfe et al., 2017), university librarians (Quinn, 2002; Lafferty & Edwards, 2004; Stover, 2004; Passehl-Stoddart & Monge, 2014; Cruz & Fleming, 2015; McCaffrey, 2016; Osswald et al., 2016; Beall, 2017; Swauger, 2017; Beall, 2018; Salubi et al., 2018), editors (Stanley, 2007; Lillis et al., 2010; Kubiato, 2017), researchers (Barrass, 1990; King, 2006; Natarajan, 2007; Wallwork, 2011; Jalongo, 2012; Petrova & Coughlin, 2012; Callaghan, 2014; Devlin & Radloff, 2014; Saper, 2014(B); Turunen et al., 2014; Casanave & Li, 2015; Gastel & Day, 2016; Haralambides, 2016; Jeyaraj, 2016; Bastug et al., 2017; Foster, 2017; Grech, 2017; Faria et al., 2018; Haralambides, 2018), reviewers (Smith, 2012; Saper, 2014(C); Paltridge, 2015; Samraj, 2016; Schultz et al., 2016; Kent et al., 2017; Kretzenbacher, 2017; Jackson et al., 2018), educators (Gillman et al., 1975; Ransdell et al., 2001; Lee & Boud, 2003; Moore, 2003; Lea, 2004; Aitchison & Lee, 2006; Dickson-Swift et al., 2009; Elton, 2010; El Ouardighi et

Contribution of this paper to the literature

- The educational actuality and didactic novelty of the author-proposed instructional material in the present article is characterized by the replacement of unified comprehensive educational guides and textbooks with a detailed student-friendly explanation of numerous issues and challenges associated with the first individual student's steps into a modern world of scientometric-indexed academic publishing.

al., 2013; Bastalich et al., 2014; Knochel & Patton, 2014; Rathert & Okan, 2015; Edmondson & Luhtakallio, 2016; Kempenaar & Murray, 2016; Kossi et al., 2016; Rogach et al., 2017; Sheehan et al., 2017; Langenkamp et al., 2018; Weissbach & Pflueger, 2018), undergraduate students (Lea & Street, 1998; Krause, 2001; Lillis & Turner, 2001; Read et al., 2001; Fernsten & Reda, 2011; Pope et al., 2012; White-Farnham & Caffrey Gardner, 2014; Ford & Wei, 2015; Borgstrom, 2016; Howard et al., 2016; Stone et al., 2016; Fox et al., 2017; Perig, 2017; Perig et al., 2017; Healey & Healey, 2018; Seiradakis & Spantidakis, 2018; Wilson et al., 2018), graduate students (Morris, 1998; Bacha, 2002; Lax, 2002; Lillis, 2003; Pajares, 2003; Seehusen & Miser, 2006; Leyden & Olds, 2007; Belcher, 2009; Wingate & Tribble, 2012; Bretag et al., 2013; Garbati & Samuels, 2013; Lax, 2014; Thompson, 2014; Harper & Vered, 2017; Huerta et al., 2017; Kostikov et al., 2017; Liu, 2017; Badenhorst, 2018; Shortlidge & Eddy, 2018), Ph. D.-students (Caffarella & Barnett, 2000; Styles & Radloff, 2001; Kamler, 2008; Lee, 2008; Lee & Kamler, 2008; Maher et al., 2008; Badley, 2009; Stoilescu & McDougall, 2010; Taylor, 2012; Wisker, 2013; Badley, 2014; Garside et al., 2015; Lee & Murray, 2015; Mahmud & Bretag, 2015; Carter & Kumar, 2017; Ho, 2017; Johnson, 2017; Odena & Burgess, 2017; Robinson et al., 2018), highly qualified professionals (Oyibo, 2017; Sabouni et al., 2017), employers (Grant & Knowles, 2000; Hyland, 2016; Bianchini et al., 2016), and scientific managers (McGrail et al., 2006; Øvretveit, 2008; Murray & Newton, 2009; Smeyers & Burbules, 2011; Habib & Pathik, 2012; Fendt, 2013; Roberts & Weston, 2014; Kopelman et al., 2015; Richard et al., 2015; Kornhaber et al., 2016; Seidl et al., 2016; Gupta et al., 2017; Mertkan et al., 2017; Spence, 2018; Woodcock, 2018). These entities are integral parts of the advanced international research-and-development (R&D) community. These people are key stakeholders in publishing their research in well-indexed and well-known prestigious scientific journals. Today modern universities should make their best efforts to ensure the formation and development of a student's practical multidisciplinary knowledge and skills in order to prepare creatively-thinking specialists with recognizable specialized higher education diplomas who can manage to operate with constantly growing information flows and who are sufficiently qualified to run their own experimental or theoretical research, report the results of their studies in their own manuscripts and publish their own research articles in the properly-indexed scientific journals and conference proceedings.

The long-term of opportunistic efforts of international scientific bureaucrats has resulted in world-wide promotion, recognition, and persistent imposition of such global scientometrics vendors as Thomson Reuters'® Clarivate Analytics® and Reed Elsevier's® Scopus® as well as their scientometric databases Web of Science® (WoS®) and Scopus®. These vendors competitively provide comprehensive analysis and monitoring of individual and institutional research in all spheres of academic activity. As a result, educators, researchers and students are constantly faced with the widespread situation that only Scopus®- and Web of Science® Core Collection (WoS® Core)-generated journal metrics are opportunistically considered as the quality indices for existing scientific journals and publications. Hence, numerous additional challenges and restrictions on academic community are regularly imposed by the high demands of educational ministries world-wide, which require scientists, educators and students to publish results of their research only in Scopus®- and WoS® Core-indexed referred periodicals as though scientific novelty does not exist beyond the indexing coverage of these two vendors. This situation exceedingly annoys and frustrates many elder faculties who are used to working and creating in Scopus®-free and WoS® Core-free educational space and consider the current scientometrics-induced endless fighting for indexation as a kind of nightmare, a serious mental illness of the modern R&D-community or as a pure form of unrestrained global commercialization of professional scientific publishing beneath the mask of scientometrics. As result, the major older faculties not only consciously and honestly ignore these requirements of educational ministries but also persistently explain to their students all nonsense, absurdness, time-consuming and non-creative character of R&D-activity of their colleagues who try to fulfill these modern requirements (Figure 1).

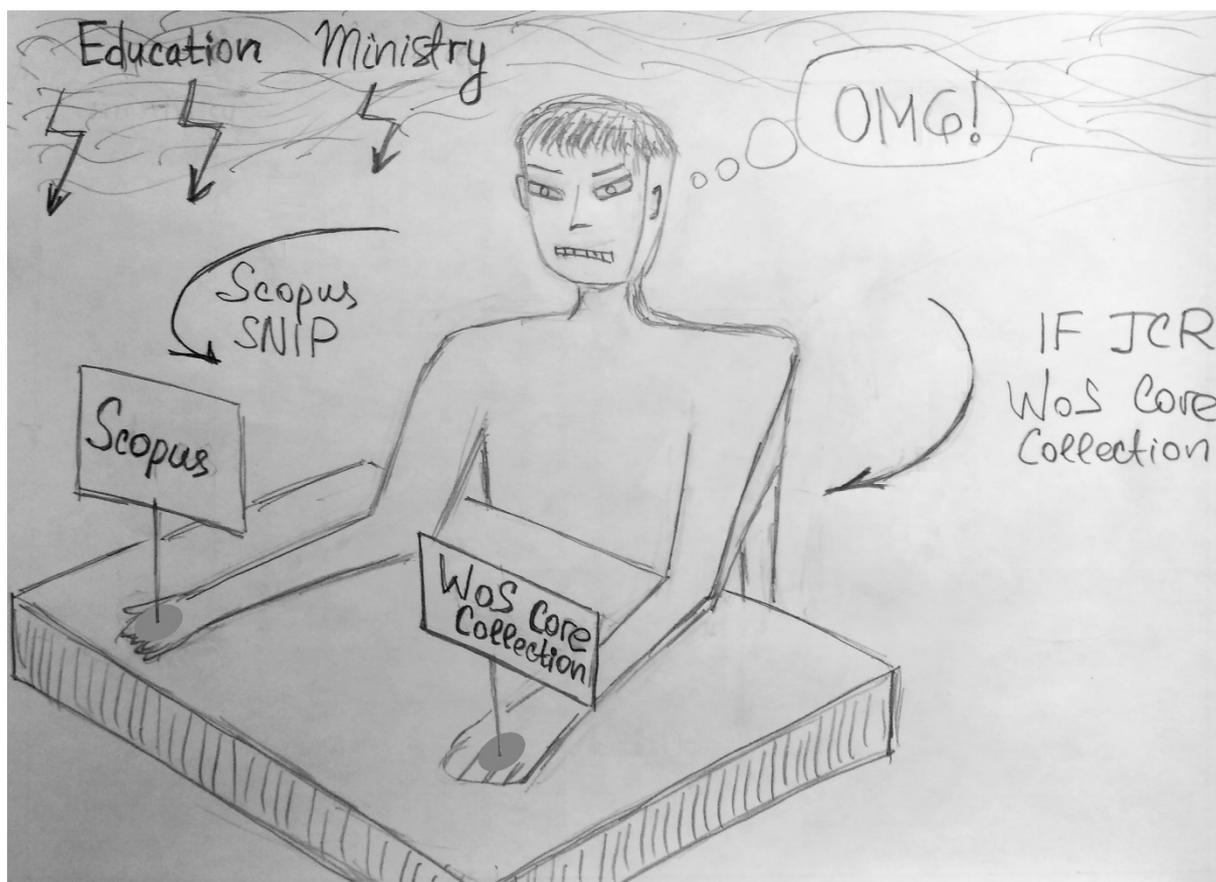


Figure 1. Allegoric student-prepared schematic sketch, symbolically illustrates the author's publishing problem of deciding on a possible publishing venue. His required choices are only Scopus®- and only WoS® Core Collection-indexed academic periodicals, where the author holds in his right and left hands the shafts of the conditional flags, symbolizing only Scopus® and WoS® Core indexing of the author-chosen academic periodical, and thunder and lightning above are symbols of educational ministry pressure on author of mandatory and timely publishing of manuscripts in Scopus®- and WoS® Core-indexed academic periodicals

Predators in Academic Publishing

However, today the scientometrics-related global activity has awakened and intensified all kinds of dishonest academic persons, publishers, opportunists, predators, and speculators across the world, who do their best to interfere in the personal information space of all scientists, educators, students, and their university departments, and quickly make easy money from naive and trusting scientists by selling and-or reselling principally free information and services or by deliberate sophisticated deception, misleading not only "green" students but also wise faculties and researchers.

Another part of the predator community is focused on the "stingy" researchers who have no intention of spending their own money to line the pockets of charlatans. This second part of predatory system "generously" proposes to every researcher that they can "anonymously make money" by wasting their personal time on unauthorized external "activities" like ghost-writing & ghost-computation for other's articles & theses. Today, almost every scientist is "anonymously" encouraged to "earn money" by making multiple Scopus®- and WoS® Core SCI- & SCIE-citations of irrelevant junk publications in certain little-known journals, where some authors and "dark horse"-journal managers seek to "purchase" the higher values of h-index to improve their current IF in SCI- & SCIE of WoS® Core. Quite often, the "good intentions" of these charlatans results in the complete loss of impact factors and the elimination of Scopus®- & WoS®- indexation for some "quickly-growing" academic periodicals and in the retraction of many "innocent" articles containing "junk" citations.

Why should Students Learn about Academic Publishing and Scientometric Indexing?

The scientometrics-related challenges and issues are often explicitly imposed on researchers by many famous academic journals at the anonymous peer review stage. Dishonest R&D-related publishing politics is also openly

and regularly directed toward numerous researchers when anonymous reviewers in many “outstanding” academic journals insist that scientists make regular citations of specific famous publications of some research schools for their h-index improvement. Another extremely negative impression is generated by the fact that numerous researchers must include uninvolved, but “famous” junk co-authors in their research articles in order to effectively and successfully proceed with Scopus®- and WoS® SCIE-indexed publications in more prestigious academic journals with higher levels of Scopus® SNIP and WoS® Core SCI- & SCIE- IF metrics.

It should be noted that modern slavery still remains, and probably will remain, a powerful engine for enhanced generation of Scopus®- and WoS® SCIE-indexed academic publications when famous respected researchers sometimes convincingly encourage the humble colleagues of their teams to do hard everyday unpaid analytical and computational work for several years in order “to help” these “great” scientists write their “outstanding”, “rigorously-prepared”, “individual” & “single-author-authorized” research and review publications in famous academic journals with high Scopus SNIP values within the ranges from 1 to 3.

A lecturer should note that an ongoing conflict between subscription-based and open access journals has many strange forms. Publishing and indexing success as well as the growing global attractiveness of open access academic journals for the R&D community still raises particular concerns among the large commercial publishers, whose primary focus has been on the promotion of subscription-based periodicals. Recently the local educational ministries of many third-world countries have demanded that all researchers and educators in all science fields publish their Ph. D. - and Dr. Sci. -level research results only in academic journals with the highest values of impact factors JCR in WoS® Core SCIE/SSCI, which correspond to top quality quartiles Q1 and Q2 in specific subject areas of WoS® Core. It is obvious that this recent bureaucratic decision is strongly directed against the open access academic periodicals because the large majority of open access journals have rather quartile-free ESCI WoS® Core-indexing or Q3-, Q4-levels of SCIE/SSCI WoS® Core-indexation. An additional matter of concern is the unfairness of these bureaucratic requirements when local non-supported researchers must compete with well-paid international colleagues for space in Q1- and Q2-ranked international periodicals.

All above mentioned facts clearly show the obvious didactic actuality of the present original educational study, which is focused on improvement and enhancement of existing curriculum of engineering students towards their practical adaptation to resolution of numerous professional issues, associated with their everyday R&D-related activity. It is necessary to underline that the present article substantially generalizes 10 years of authors’ publication experience in Scopus®- and WoS® Core-indexed journals.

The lecturer notes that a major problem in successful publication-related R&D-management of any academic organization is the focus on “substantial improvement” of scientometric indicators and the organization’s h-index in Scopus® and WoS® Core. The worst manager’s strategy results in two unacceptable extremes, when (a) subordinate employees ignore or reject the manager’s requests to publish in indexed periodicals and the organization’s Scopus®- & WoS® Core- metrics drop or (b) the manager has to write his/her own research papers in the indexed periodicals instead of his unproductive colleagues in order to preserve the publication dynamics of the organization in Scopus® & WoS® Core.

The present paper partially generalizes the author’s faculty activity as a voluntary member of the advisory “scientometric” commission of Donbass State Engineering Academy.

THE STATE OF THE ART

Beall (2017, 2018) has generalized his professional mentoring experience, associated with the identification and wide blog-enhanced discussion of numerous integrity-related issues in a modern academic publishing (Beall, 2017; Beall, 2018). Students are strongly encouraged to read about Beall’s tremendous practical efforts toward improvement of academic publishing in a digital Internet-enhanced era (Beall, 2017; Beall, 2018). It is possible to argue with some of Beall’s specific opinions but it is undoubtedly true that Beall’s mentoring efforts resulted in substantial long-term improvement of modern open access enhanced academic publishing.

Swauger (2017) has generalized his professional open access related experience from the viewpoints of philosophy and library science (Swauger, 2017). It is impossible to argue with Swauger’s professional opinion concerning irreplaceable importance as well as the academic and educational usefulness of the open access publishing model on the global scale of modern scientific publishing (Swauger, 2017).

Today there are few educational approaches concerning the introduction and implementation of academic publishing fundamentals into undergraduate, graduate and postgraduate university curricula. These instructional efforts have been addressed in the following recent publications of such scientists as Lea & Street, 1998; Morris, 1998; Caffarella & Barnett, 2000; Krause, 2001; Lillis & Turner, 2001; Read et al., 2001; Styles & Radloff, 2001; Bacha, 2002; Lax, 2002; Lillis, 2003; Pajares, 2003; Seehusen & Miser, 2006; Leyden & Olds, 2007; Kamler, 2008; Lee, 2008; Lee & Kamler, 2008; Maher et al., 2008; Badley, 2009; Belcher, 2009; Stoilescu & McDougall, 2010; Fernsten & Reda, 2011; Pope et al., 2012; Taylor, 2012; Wingate & Tribble, 2012; Bretag et al., 2013; Garbati & Samuels, 2013;

Wisker, 2013; Badley, 2014; Lax, 2014; Thompson, 2014; White-Farnham & Caffrey Gardner, 2014; Ford & Wei, 2015; Garside et al., 2015; Lee & Murray, 2015; Mahmud & Bretag, 2015; Borgstrom, 2016; Howard et al., 2016; Stone et al., 2016; Carter & Kumar, 2017; Fox et al., 2017; Harper & Vered, 2017; Ho, 2017; Huerta et al., 2017; Johnson, 2017; Kostikov et al., 2017; Liu, 2017; Odena & Burgess, 2017; Perig, 2017; Perig et al., 2017; Badenhorst, 2018; Healey & Healey, 2018; Robinson et al., 2018; Seiradakis & Spantidakis, 2018; Shortlidge & Eddy, 2018; Wilson et al., 2018, and others.

However, relevant case studies of educational implementation of academic publishing approaches into mechanical and materials science related curricula of technical universities have not been properly addressed in the known studies (Lea & Street, 1998; Morris, 1998; Caffarella & Barnett, 2000; Krause, 2001; Lillis & Turner, 2001; Read et al., 2001; Styles & Radloff, 2001; Bacha, 2002; Lax, 2002; Lillis, 2003; Pajares, 2003; Seehusen & Miser, 2006; Leyden & Olds, 2007; Kamler, 2008; Lee, 2008; Lee & Kamler, 2008; Maher et al., 2008; Badley, 2009; Belcher, 2009; Stoilescu & McDougall, 2010; Fernsten & Reda, 2011; Pope et al., 2012; Taylor, 2012; Wingate & Tribble, 2012; Bretag et al., 2013; Garbati & Samuels, 2013; Wisker, 2013; Badley, 2014; Lax, 2014; Thompson, 2014; White-Farnham & Caffrey Gardner, 2014; Ford & Wei, 2015; Garside et al., 2015; Lee & Murray, 2015; Mahmud & Bretag, 2015; Borgstrom, 2016; Howard et al., 2016; Stone et al., 2016; Carter & Kumar, 2017; Fox et al., 2017; Harper & Vered, 2017; Ho, 2017; Huerta et al., 2017; Johnson, 2017; Kostikov et al., 2017; Liu, 2017; Odena & Burgess, 2017; Perig, 2017; Perig et al., 2017; Badenhorst, 2018; Healey & Healey, 2018; Robinson et al., 2018; Seiradakis & Spantidakis, 2018; Shortlidge & Eddy, 2018; Wilson et al., 2018).

This fact clearly shows the relevance and importance of the present educational study, which is focused on the improvement of modern undergraduate, graduate and postgraduate engineering and scientific management related academic curricula for the fundamental disciplines of scientific research for students, engineers, researchers and faculties.

AIMS AND SCOPES OF THE PRESENT EDUCATIONAL ARTICLE

The purpose of the present article is the formulation of author-proposed didactic approaches to wider involvement of engineering students to scientific writing activity to Scopus®- & WoS® Core-indexed international journals during teaching the general and more specialized undergraduate and graduate courses on the "Fundamentals of scientific research", "Fundamentals of technical creativity in engineering and technology", "Principles of organization of scientific research work", "Scientific management", "Intellectual property" and "Principles of academic and research integrity" for engineering students.

The object of the present educational research is the didactic process of effective student-friendly description of the fundamentals of modern scientometrics-enhanced R&D-management in the undergraduate curriculum of a technical university.

The subject of this research is the educational analysis of learning tools, key learning factors and didactic features of an author-proposed learning approach, which determines the effectiveness and quality of student perception of author-narrated studied material.

The research method of this educational article is based on the generalization of the last ten years of the author's publication experience (Perig's ORCID® ID: 0000-0002-6923-6797) in Scopus®-indexed (Perig's Scopus® Author ID: 35772967800) & WoS® Core-indexed (Perig's WoS® ResearcherID: A-4987-2014) international academic journals and the author's occasional activity as a voluntarily "anonymous" peer reviewer in numerous academic periodicals (Perig's Publons® ID: publons.com/a/1274246).

Evidence of an advance in engineering education through didactic implementation of the author's proposed learning technique is based on the publication success of such Perig's students as Bondarenko E. A. (2010, Bondarenko's Scopus® Author ID: 55017257700); Matveyev I. A. (2013, Matveyev's Scopus® Author ID: 55816712900); Deriglazov A. I. (2014, Deriglazov's Scopus® Author ID: 56018775400); Romanko S. N. (2015, Romanko's Scopus® Author ID: 56460232100); Lozun R. R. (2017, Lozun's Scopus® Author ID: 57192890862), and Galan I. S. (2017, Galan's Scopus® Author ID: 57195631868).

The present study is limited to the educational spheres of materials & mechanical engineering and related scientific disciplines.

The social implications of the present educational study are based on the author's strong intention to involve a wide range of engineering students in an active R&D-related intellectual activity aimed at creating a generation of internationally-recognized research results and the publication of referred papers in peer-reviewed Scopus®- & WoS® Core-indexed research periodicals.

BASIC CONCEPTS

Why should Students Publish in Academic Journals?

At the beginning of this scientometrics-related course a lecturer has done his or her best to “awaken” inattentive students and find understandable ways of speaking to the majority of students who are always busy with outside non-learning activity.

Many students with “initiative” occasionally try to ‘burn’ some lecture time and interfere with a lecture by switching educational dialog to a sophism-related discussion of the eternal problems of intellectual slavery and social inequity. A typical example of a popular student question is “Why should I work an unpaid job by a writing research paper and submitting it to a commercial publisher who will benefit by selling my intellectual work?” At this point it is quite easy to stop these long discussions with the simple explanation that the quantity of well-indexed open access (OA) journals grows quickly and that sooner or later your “fair” listeners will find their favorite OA scientific periodical, which publishes their article free of charge for authors. Additionally, the lecturer notes that in R&D-related practice there is a permanent competition where hard-working authors are in a great rush to establish their scientific status in comparison with their competitors and protect their research novelty from competitors’ arrogations by timely publication of their new original scientific results in Scopus®- & WoS® Core-indexed academic journals without regard to the availability or non-availability of OA options. Moreover, the lecturer may add that effective and productive R&D-activity requires regular authors of indexed academic journals to consider their job as a kind of a lifestyle when the paper access options have no fundamental importance anymore.

Sometimes the lecturer tries to improve student attention by sharing his or her own academic publication and citation experience with the targeted students. Quite often this didactic technique also irritates many students, who immediately ask why they should listen to the lecturer’s success stories. Many students sincerely believe that the lecturer’s individual research advances have nothing to do with the ranking or prestige of the university of their study. In this case the lecturer may note that, according to scientometrics principles, the individual author’s h-index always makes a relevant contribution to the total value of h-index of the author’s university. Students should remember that this is a global practice to associate specific academic researchers with the universities and research centers of their current employment. At this point the lecturer may note that ambitious and creative students should try to implement their own R&D-directed curiosity into an ambitious individual or collective research project which includes the preparation of a relevant scientific publication.

The Problem of the Author’s Trust in Academic Publishing

The lecturer should then address the very important problem of trust. Of particular significance for all students and faculties are the questions “Should I trust journal-indexing information which is available on the publisher’s site?” and “How I can check to see if a journal is really indexed in WoS® Core and/or Scopus®?” Unfortunately, the lecturer’s experience as an author attempting to publish in scientific journals has shown him that we should not implicitly trust publisher-provided indexing information at the official website of the specific journal. At this point of explanation, some students start exchange glances and sympathetically ask the lecturer “Why you are so asocial and suspicious?” and “Why do you suspect internationally known commercial publishers, serious academic institutions and respectable universities of publishing dishonesty?” To answer these emotional questions, the lecturer kindly notes that the Clarivate Analytics® vendor has permanently lost all the confidence of scientific authors and academic publishers. Moreover, this permanent lack of apriori confidence is an integral part of a scientometrics-related vendor’s activity. The lecturer reminds his or her students that internationally-recognizable and well-indexed academic publishing is a part of a knowledge-based scientific business. It is not considered a charity anymore. Hence, today Clarivate Analytics® runs not only a scientometric indexing platform WoS®, but also develops the supervisory-tracking system Publons®. The main Publons® function is the comprehensive monitoring of the publishing quality of scientific manuscripts and the tracking of possible issues associated with all aspects of article-related activity of the authors, peer-reviewers, and journal editors.

Recently, an additional scientific-focused analytical platform “Pluto Network®” was launched, which questions the scientific quality of numerous research papers and is primarily focused on a collection of publicly-visible post-publication discussions, reviews and any available comments from interested readers concerning previously published academic papers through a wide employment of their search engine <https://scinapse.io/>.

Students should take into account that the problem of an author’s mistrust of publisher-provided journal indexing information has additional unpleasant and sophisticated forms in local level publishing practice. This is a very simple and highly effective cheating scheme in local academic publishing, which regularly consumes original local language written papers as well as author-paid fees which remains the author’s without scientometric indexing. In a “classic” case, the local publisher simultaneously produces two different academic periodicals, which are registered with different print-ISSN or e-ISSN numbers, and which are published in the same subject area. The

first academic journal with the first ISSN1 number has a local language title (Local-Language-written-Title1). It is published completely in the local language and this first locally-focused academic journal has neither Scopus®- nor WoS® Core indexation. The second academic journal is published in the English language. It has second ISSN2 number, which does not coincide with ISSN1 number. The second academic journal has an English title (English-Title2), which is an English translation of Local-Language-written-Title1. It is published completely in English, where "all" papers are translated into English from the local language by the journal's team specialists. This second English language academic journal has some scientometric indexation in Scopus®- and/or WoS® Core Collection. The rest of the cheating technique is extremely simple. The "academically-active" local author is encouraged to submit his/her local language scientific paper for publication in the peer-reviewed academic journal with Local-Language-written-Title1 with "Scopus®- and/or WoS® Core-indexation" and with a possible moderate publication fee. Attentive students are encouraged to answer this simple question: What is wrong with this publishing invitation? Yes, this academic deception is very simple and effective and is based on the fact that the academic periodical with Local-Language-written-Title1 was never indexed in scientometric databases. These potential local authors must sign a standard copyright-transfer agreement and give the right to the publisher to translate this local language-paper into English. This additional copyright transfer form assures local authors of the "seriousness" of commitments of the local publisher. Sooner or later these authors will get their local-language publication in Local-Language-written-Title1 number and will be confident that they have successfully published in a Scopus®- and/or WoS®-indexed academic periodical. Instead of empty waiting, the well-known and influential local authors contact the officials of this local publisher in order to fulfill some hidden and implicit publisher's requirements, including additional extra charges for journal authors, in order to get the English translation of their paper and to proceed with the second publication in an indexed periodical with an English-Title2. All other local authors never get the desired scientometrics indexation with this publisher because their copyright transfer statement was signed with the non-indexed ISSN1 local journal. Sometimes wise local publishers register the first ISSN1 journal with the same English title as the ISSN2 journal to ensure more article inflow.

The lecturer also notes that blind confidence in any academic publisher does not represent a scientific engineering approach. The lecturer can agree with the disputing students that it is rather groundless to doubt the integrity of all academic publishers. However, students have to remember that there are many academic journals whose editorial boards are very "absent-minded" and "forgetful" of bad news from world-leading indexing vendors. As result, sometimes even respectable academic publishers may simply "forget" to properly update the journal page with relevant current indexing information for many years! For example, it is easy to check through <http://mjl.clarivate.com/> and find that WoS® Core interrupted the indexing of the academic journal "Dyna-Colombia" in late 2013. However, this information, which is important to authors and unpleasant to publishers is permanently not available at the Web page <https://revistas.unal.edu.co/index.php/dyna> of the "Dyna-Colombia" journal. Even 5 years after the "Dyna-Colombia" WoS® indexing interruption, the journal's Web page still contains outdated indexing information concerning "current" Thomson Reuters® WoS® indexation. The same "forgetfulness" also shows the national Web-page <http://mfint.imp.kiev.ua/ua/about.html> of well-known academic journal "Metallofizika i Noveishie Tekhnologii", which contains outdated indexing information about WoS indexation of this periodical, which was interrupted in late 2013. Both of these examples perfectly illustrate the need to follow the lecturer's recommendation concerning a mandatory additional check of publisher-provided journal indexing information.

The Importance of Scientific Novelty Formulation

It is very important for a lecturer to address student attention to the problem of proper and accurate identification of the prime scientific novelty of a research article. In other words, identify what is new, original, and important about the paper. Students should realize the importance of originality and that they need to justify the need for its publication in the eyes of their peers and the experienced scientists and engineers in the field for which the paper is proposed. If a paper is considered by reviewers as "just more grist from an academic mill" the paper is destined for rejection. Both students and faculties should realize that their light-mindedness toward the clear identification of a unique scientific novelty may result in unnecessary and possibly fatal loss of time in the development of scientific papers by numerous authors. There are numerous names and titles for the mandatory novelty section within an article body like "Novelty", "Prime Novelty", "Scientific Novelty", "Core Findings", "Essential Findings", "Key Findings", "Research Findings", "Key Points", "Highlights", "Contribution of this paper to the literature" etc. In this section, regardless of the specific name used for novelty, potential authors are strongly encouraged to comprehensively answer the important question "What has been done in this research paper by the authors for the first time?" The lecturer should explain to his class that the best approach to novelty identification is to provide both brief and extended novelty descriptions. A brief, succinct novelty description in the form of "highlights" is very important for the quick reading by very busy editors and reviewers. Unfortunately, many papers meet their doom at the reading of the novelty "highlights", where a reviewer is convinced that what he reads does not identify any novelty, making it unnecessary for him to read several pages of "more of the same"

in an extended novelty statement. If the “highlights” catches the attention of the reviewer, he then will likely read the more detailed novelty statement in the form of one to several “half-pages.” The available time of editors and reviewers will often cause them to make snap judgments based on their assessment of the “highlights.” At this point the lecturer may speak to numerous Ph.D. – & Dr.Sci. – candidates as well as Ph.D. – & Dr.Sci. – students, who have never published in Scopus® – and/or WoS® SCIE – indexed journals, on the numerous issues and delays with prime novelty statements. The lecturer should also note that the academic time of the researcher flows very quickly and that aging of scientific novelty happens very rapidly and is a completely irreversible process.

The Author’s Waiting Time in the Academic Publishing Process

Today researcher’s wonder how long it takes to get publication and vendor indexing of a paper. Many faculties and students rightly complain that they would write their own papers to Scopus®- and/or WoS® Core-indexed journals if the time duration of publishing process in referred periodicals were much faster than it is today. The overwhelming answer to the “how fast?” question is that the only way is by Scopus®- and/or WoS® Core-indexation of scientific bulletin or herald of their local university. However, every scientist should be patient because academic publishing still remains an extremely time-consuming process. Quite often the author’s waiting time for publication of a scientific paper in a subscription-based academic journal published by an international company may take 1-3 years from the moment of paper submission to final publication. So it is very important to a lecturer to address the very important problem of “waiting” time in the process of academic publishing from the worldview-related viewpoints of academic researchers, reviewers, editors and scientific publishers. Duration a researcher’s waiting time in every specific publishing process depends on the superposition of multiple obvious and implicit factors, which are comprehensively studied from philosophical, legal and ethical viewpoints by numerous efforts of the Committee on Publication Ethics (COPE). However, the publishing system is unacceptably slow when the author’s normal waiting time may take several years for the final publication.

The reviewer’s activity essentially determines the author’s waiting time at the peer-review stage for every academic periodical. The handling editor normally encourages the reviewing peer to submit the reviewer’s report in 10 to 45 days, depending on the editorial politics of the specific journal. However, quite often, the review process may take from 1 to 12 months. As a result, the publication waiting time of the average scientific author who submits his or her paper to one academic periodical at a time causes, in the case of a rejected paper, an equal delay in the submission of the paper to another journal. If two or three consecutive journals happen to reject the paper, the total delay to a publication can be as long as several years. Publishers are aware of this problem and they have a keen interest in authors’ efforts to reduce waiting time. Quite often large publishers propose authors “anonymously” answer the following key question:

To how many journals do you simultaneously submit your manuscript for review?

(Circle nearest answer): 1-5 5-10 10-20

The publisher knows that authors are directed to submit a manuscript to only one academic journal at a time. But the publisher also knows that authors work under local pressure to publish research in a timely way. The publisher also understands that authors are honest researchers and that the author will ultimately allow the manuscript to be published only one time in one journal. But he also knows that it is practically impossible for an author to determine the ultimate accepting journal in a timely way. So, the publisher’s “key question” and the range of possible answers indicate the scope of this major publishing delay problem.

It is very important to address the problem of peer erudition, when the average reviewer lives in a “third world” country and works in a local university, which is located far from the USA and EU countries, where current scientific information is plentiful and easily accessible. This average reviewer, who has no institutional subscription to commercial publishers’ journals, essentially has no access to new relevant articles, published in subscription-based academic journals.

Absence of a Common Scientific Syntax and Language between different Societies and Research Schools in STEM-related Education and Publishing

The majority of local scientific and educational bureaucrats are very impatient and intolerant to the unsatisfactorily slow publication rate of local scientists and educators in the well-known international academic periodicals. However, quite often researchers and students are unpleasantly surprised when editors and reviewers of famous international journals don’t understand vector notations of specific mathematical syntax used by the author. Many times these author teams are encouraged by editors and reviewers to re-write all mathematical formulae in their submitted paper immediately according to “known” style of famous international textbooks and guides in order to proceed with a peer review of the submitted manuscript, including a full-scale rewriting from the mathematical re-formulation of all initial abbreviations. The majority of authors have neither the time nor the

inclination to spend additional months and years of their life studying additional new mathematical syntax in order to rewrite and resubmit their paper to this famous journal. They prefer to consider this journal's requirement as unacceptable and abusive editorial and reviewer's practices.

Some educational and professional issues are caused by a low level of mutual understanding between learners, educators, and researchers from different educational and scientific schools. A language difference is only one issue among a number of complex communicational problems which adversely affect the educational and R&D-related mobility and collaboration in STEM-related fields.

A different mathematical formalism and a correspondent difference in scientific syntax create another major reason for inconsistencies. This problem is much wider than simultaneous use of different Latin and Greek letters for notation of the same physical variable like using "A" and "L" to denote of work [J] or "W" and "E" to denote energy [J] or "a" and "w" to denote an acceleration [m/s²]. Every branch of physics and engineering experiences a lack of alphabetic symbols to denote all the necessary physical variables and constants. A lot of educational problems, associated with the application of different syntax and terminology are associated with the use of concepts of vector and tensor calculus in STEM education because didactics of mechanics, physics, chemistry, and engineering widely use these mathematical techniques. For example, the two popular notations for a vector of relative velocity of a material particle A as " \mathbf{V}_r " [m/s] or " $\mathbf{V}_{A/B}$ " [m/s] (i.e. velocity of particle A with respect to the movable reference system B) in the kinematics of relative motion result in confusion of students when they read mechanics and physics textbooks of different educational schools. Student confusion grows worse when they see that notation for a vector of transport velocity " \mathbf{V}_e " [m/s] in the eastern textbooks corresponds to a vector sum of a three vector components in the western textbooks etc. This causes an incredible situation when differences in mathematical formalism result in a complete absence of understanding of mechanical engineering students, educators and specialists among different schools in all mechanical engineering disciplines starting from kinematics, dynamics, mechanics of materials, continuum mechanics, elasticity, plasticity etc. This major communication problem remains unresolved, even for students and educators who successfully managed to overcome language-related terminology and communication problems. A possible solution of this problem lies in the introduction of mandatory vector language related internationally-acceptable mathematical standards like the use of SI units in STEM disciplines. Therefore, recent radical ideas of virtual globalization of local specialized universities worldwide with wide use of online educational resources <https://www.edx.org/> and <https://www.youtube.com/> are very good and sound mainly for vector and tensor formulae-free sciences like programming, applied technologies, humanities, and social sciences.

This communicational problem should be effectively resolved by switching the local national-languages-grounded curriculum to English-language-based University education with a wide implementation of well-known mathematical syntax of international textbooks.

Originality, Self-Plagiarism and the Witch-Hunt in Scientific Publishing

Success in STEM-related R&D and education requires students and teachers to show regular and stable progress with publications in peer-reviewed periodicals. Journals use a computer-assisted check of submission originality using internet-based plagiarism search engines like <http://www.iThenticate.com/> before human reading of an author's novelty statement. If a manuscript doesn't show a certain required level of originality, it is rejected immediately without human reading. Quite often the author is informed about a high level of self-plagiarism in the submitted manuscript. Undoubtedly the recent development of Internet-based plagiarism search Engines improves the quality of scientific publications.

However, there are researchers who study the same class of problems for his/her entire career. These scientists use a restricted vocabulary and a limited quantity of stable word combinations. This modern publishers' politics results in a real problem when many scientists can't pass a computerized self-plagiarism check to publish their new results. Therefore, a question presents itself as to how this researcher can publish his/her new results if the publisher mechanically uses iThenticate® without reading the article and/or the novelty statement?

If a researcher has changed boundary conditions or modified a minimized functional in his/her previously published paper, solved a new mathematical problem, obtained new solutions, numerical plots and results but used his previous document as a template for the new manuscript then specialists will never accuse this scientist of self-plagiarism because the specialists see new results. Mechanical publisher's use of iThenticate® software puts additional pressure on the research community when researchers have to broaden their vocabularies and linguistic abilities to reformulate his/her previous article template instead simply reporting the new STEM-related research results. This problem results in growing difficulties for the researcher in the preparation of his/her first 5-10 English articles. Preparation of further manuscripts in the same narrowly specialized field is almost impossible for an average author and requires change of person, who writes an alternative article text. As a result, graduate and

Ph. D. students of these researchers are mainly busy with preparation of new alternative texts for articles instead of preparation and conduct of new research experiments.

Ethics Issues in Scientific Publishing

Quite often formal scientific supervision and consultation of Ph. D.-candidates or Ph. D.-students results in distancing the advisor from the student's experimental and theoretical routine in favor of ready scientific results in an acceptable form without time consuming consultations. In this case these Ph. D.-researchers have good reasons to consider their individually-derived new scientific results as their own intellectual property. Therefore, these Ph. D. researchers have the right to decide in which peer-reviewed journals and at which publishers they prefer to submit their articles with new research results. It is also a matter of their own choice whether or not to include the name of their scientific advisor as co-author, and in which order to arrange co-authors. Sometimes it is a quite unpleasant for research advisor not to be co-author number one (N#1) in a list of co-authors of a submitted article and he/she writes directly to the Editor in Chief of a targeted journal and explain that he/she has no true relation to the submitted article, has never seen these other co-authors and asks the editor of this journal to protect him/her from these other unethical co-authors, who have included his/her distinguished name in this manuscript of unknown and probably low quality. Most assuredly, the Editors in Chief of the targeted journal will protect this scientific consultant and immediately withdraw the submission from consideration in targeted journals. But, in cases like these, Ph. D.-candidates or students have the right to publish their own research articles individually in peer-reviewed journals of their own choice, never discuss their further R&D plans nor include the name of this "consultant" in any new original manuscripts. However, if these Ph. D.-investigators make their own decisions but still need further advice of their research consultant, they may have to give him/her all their new research results and get in 5-10 years a couple scientific publications in journals where they may be the 3rd co-author among 7 co-authors or the 4th co-author among 8 co-authors. Surely in this case these Ph. D.-investigators shouldn't be surprised with sequential numbers of their name's position in the authors list. The appearance of junk co-authors who have no relation to the studies is also traditional in this case.

Sometimes a famous professor asks a researcher if it is acceptable that the professor's team continue, develop, improve and advance the research, which was partially addressed by the researcher in his previously published work(s). Usually the researcher politely answers that he/she does (not) need such external independent continuation, which demonstrates the scientific value of his/her research approaches because a researcher is always looking for new external Scopus®- and WoS®-citations from a targeted research community. However, quite often the researcher gets only a few external citations of his/her publications by the professor's team in the "first generation" of their research publications and as usually in the non-referred "quick" journals and conference proceedings. Unfortunately, quite often these quick publications of the "first generation" contain also some design and computational schemes from the researcher's formulae as well as plots, which were initially proposed by this researcher and are not new scientific results of the professor's team without additional references, permissions and clarifications. Usually these several citations are the last citations for this researcher from that professor's team because that research team switches to preparation of the "second generation" of such publications, where colleagues "clear" themselves and cite only their own publications of the "first generation". Sometimes the professor's team quickly gets new professor's scientific results in the "first generation" of their new articles by simple substitution of the researcher's published formulae (2) into researcher's published formulae (1) and therefore deriving the scientifically novel and previously unpublished professor's model (I) without clarification of origination of "their own" formulae (1) - (2).

Concerning Publishers' Final Decisions of Termination of Growing and Well-Indexed Open Access Scientific Journals

Today numerous scientific publishers regularly launch different open access journals, which reflect trends, demands and requirements of a growing informational society. Some large and famous publishers wisely launched at least two or several scientific journals with quite similar titles and overlapping research aims and scopes. This strategy is quite helpful for the publishing survival of newly launched academic journals. Launching of every specialized or multiple-disciplinary journal requires large efforts by publishers, editors, guest editors, reviewers, and authors as well as regularly charging authors Article Processing Charges (APC) to maintain the open access publication process.

A consistent publisher with large specialized experience successfully includes all new journals through the years into many respectable indices and databases like Inspec®, Scopus® and/or Clarivate Analytics® Web of Science® (WoS®). Many authors believe in the consistency and sustainability of the publisher and submit their good papers to relatively new periodicals because they used to think that Inspec®-indexed technical journal will be sooner or later included in Scopus®.

However Editorial Boards of many mature journals with similar research scopes after successful inclusion and sustainable indexation into Scopus® and/or WoS® try to improve and to increase inflow of submitted articles by moving to the new publisher where their journals will be the unique publishing venues without competing journals. Therefore, they make an abrupt decision to change the publisher and to transfer the bulk of previously published articles to a new hosting at alternative another publisher.

These situations teach the careful publisher to change the publication politics and to prevent the possible lost of the new journals by prudent termination of previously launched multiple new journals and place all their published articles in an Archive folder.

Absolute majority of the recently published authors become shocked and angry when the authors learned that one day the several Inspec®-indexed growing journals in which they successfully published several months ago were completely terminated by the publisher and their research articles were finally placed in publisher's archive with often complete removal of any journals' information from publisher's site. For authors this situation means complete lost of all further possibilities of additional indexation of their published work and permanent worsening of academic visibility of archived articles for targeted R&D-community. It is the strong opinion of the all published authors that these publisher's actions raise a serious ethical question.

The Effect of Globalization on Academic Publishing

Today publishing systems for scientific and academic papers operate using a "voluntary" format of "network marketing" where authors and reviewers are required to work free of charge to ensure maximum profit to the publishing company. The publishers, however, want to appear as author-friendly patrons of education and sciences who direct all their efforts to improving the quality of science indexing and promotion. The vast majority of scientific publishers always earn something on academic publishing. There is the growing number of publishers who do their best to reduce the cost of article publication by utilizing a "cheap" labor force their publishing divisions, located in Southeast Asian countries. At this point lecturer may laughing with his students at this pure-cheating publisher-imposed situation when author's article was completely copy-edited and passed all pre-press- and press-related stages of type-setting and digital workflow in India, China, Turkey, Philippines or Egypt but publisher's written "location" was printed as USA, EU or UK. Major of students have rightly noted that it'd be much more consistent for academic publishers clearly indicate the specific country of article production if publishers pretend to be exceedingly scrupulous. Surely lecturer cannot criticize the growing globalization in academic publishing but above-mentioned facts cannot be considered as completely negotiable factors.

Motivations of an Academic Author

This is the hard beginning of the challenging information-rich digital era when all managers regularly encourage academic researchers to show initiative and be highly creative, hardworking and consistent. In this way scientists are expected to ensure the success of prompt and timely publishing of their new scientific papers in Scopus®- and/or WoS® Core-indexed research periodicals. Unfortunately, "article-placed" author creativity often faces the real-life situations of journal editorial and reviewer misunderstanding, which results in long delays in the publishing process. Moreover, today's management still has little knowledge of the origin, mechanisms, driving forces, the best application spheres and restrictions of human creativity. So technical specialists prefer to say to the numerous creativity-curious managers that all forms of R&D-related scientific and engineering creativity are the internal secrets in the mind of each researcher. In fact, research managers are regularly told by their staff scientists that their everyday activity is a rather unrewarding occupation and that all institutional annual plans concerning "immediate improvement" of institutional "performance indices" resulting from a growing increase in the quality and quantity of Scopus®- and/or WoS® Core-indexed published papers are only abstract plans with little or no meaning.

Some managers in academic publishing honestly believe that low publishing efficiency of their university or research institution is caused by low academic mobility of their faculties and researchers. However, improvement of academic mobility indices of local scientists cannot be unambiguously considered as the best way to enhance local university scientometric indices in Scopus® and/or WoS® Core Collection. Moreover, quite often academic mobility may result in the loss of qualified academic authors by the local university. Ongoing ambiguity "brain drain" and "headhunting" tendencies of full-scale globalization strongly encourage and require ideas of short- and long-term based academic mobility and associated migration of creatively-thinking and publishing academic authors from "developing" donor-countries to research and educational institutions of rich countries. The main brain-recruiting motto in these cases is based on the convincing statement that it is essentially impossible to do advanced and effective science "alone" and far from well-funded research centers. Therefore, numerous extroverted local scientists strongly consider academic author publishing activity in Scopus®- and/or WoS®-

indexed research periodicals as a real aid to migrating to more financially-comfortable and “R&D-friendly” countries.

A guest-scientist is temporarily employed with a minimum local salary and is regularly directed to run a high-intensity research study under an uncomfortable level of administrative pressure. The guest researcher is also expected to be successful with timely publishing of his/her innovative contributions in outstanding Q1- & Q2-ranked academic journals with Scopus®- and/or WoS® Core SCIE-indexing. The temporary academic employer also becomes impatient and dissatisfied with every delay in the article preparation and publishing process regardless of the reason for the delay. Some scientists really enjoy this high-pressure working atmosphere and others are frequently upset and irritated with constant manager’s statements like “We thought you came to us as a researcher, not a tourist!” After some time, the guest researcher’s ideas are exhausted and delays in the article generation process become longer and longer. As result, every guest scientist is faced with the situation that he/she cannot meet the high R&D-requirements and expectations within the very limited working time. At this point, it is time for a guest researcher to return to his home institution if his/her former position is still available.

At the same time, other rather introverted local researchers prefer to run their academic publishing activity without the possibility of this popular academic mobility.

Concerning the Improper Use of the Value of a Journal’s Impact Factor

Rich people like to boast of their real estate property and their individual purchasing power. Publishing academic authors have neither journal royalties nor complementary author copies of their published papers. So the only thing the authors have to boast about is their own subjective comparison of the academic importance of the journals where they managed to get their manuscripts published.

Students should know that this is a normal boastful conversation style between publishing academic authors to make a narrow-minded and often non-ethical comparison of the degree of an author’s professional advancement and publishing supremacy over their colleagues by simply comparing the values of WoS® JCR® impact factors of scholarly periodicals where they and other faculties have published.

The main statement in these abusing comparisons is based on the assumption that more advanced, rigorous, and wiser researchers publish in Q1- & Q2- WoS® JCR®-ranked periodicals with higher values of WoS® impact factors. Scientists who publish in Q3- & Q4- WoS® JCR®-ranked academic journals with lower values of WoS® impact factors are considered as inferior scholars with little potential for success in the future. Scientists who publish in journals without WoS® SCIE/SSCI impact factors are narrow-mindedly considered as simply ignorant people who suffer from their tastelessness.

It is very easy to stop all these speculative assumptions and boredom-induced “academic discussions” by simply reminding these self-assured scientists of the main principles of scientific rigorousness of applied mathematical modeling in STEM-related disciplines. In general, every accurate scientific paper must contain not only numerical modeling results but also include mathematically-rigorous proofs of the (I) existence, (II) uniqueness (unicity), (III) stability, (IV) convergence and (V) evenness of the computer-derived numerical or analytical solution of the specific applied mathematics-based engineering problem. As a result, these proofless academic papers, successfully published in Q1- & Q2-ranked academic journals, cannot be considered as the reason for any boast and all such boast attempts should always be swiftly torpedoed by their colleagues.

The Emotional and Mental Health of Academic Author

Today’s modern information space in all spheres of academic publishing is practically saturated with the growing inflow of scientific information consisting of ideas, approaches, concepts, techniques and models of natural, technical and social systems. This increase in technical, instructional and news-related scientific information results in a corresponding growth in the difficulty which academic authors face in publishing their research. Such aspects as accuracy and comprehensiveness become increasingly important in the preparation for state-of-the-art level literature reviews and the proper formulation of the prime scientific novelty of their research articles for the leading academic periodicals.

The majority of academic authors, including “green” beginners, start their individual research writing activity with preliminary investigations, consultations and occasional discussions of literature review related aspects with local academic librarians of their university or research institution. Successful achievement of the R&D-focused author’s goals associated with timely and careful author-initiated processing of the bulk volume of relevant literature sources, instructional guides, and suitable academic periodicals requires regular collaboration between the author, his or her supervisor and academic librarians.

However, creative crisis, depression, exhaustion, workplace-induced burnout, and the loss of productive efficiency of academic authors frequently occur (Quinn, 2002; Stover, 2004; Pope et al., 2012; McCaffrey, 2016).

These are not just the psychological problems of the “green” unqualified beginners in academic publishing. These are the actual problems of many mature researchers and experienced faculties who face real life situations of change in their current research directions for further academic studies or researchers returning to author activity after long delays.

Students must wonder what personal psychological skills they need to deal with the stress caused by their efforts to publish their research in academic journals. A lecturer might suggest that a very important skill that an author needs to learn is the ability to do his best research and writing under conditions of uncertainty of the success of his publishing endeavors. The “publish or perish” pressure (McGrail et al., 2006) from his employing institution on the one hand, and the tedious difficulty of successfully navigating the trap-laden path through the publication process on the other leads to stress that might make the author consider that he has chosen the wrong career. Lecturer supposes that author’s ability to be creative, consistent and productive disregard to particular outcome with an every previous specific author-prepared manuscript is a necessary prerequisite for author’s mental and emotional health and integrity in the process of academic publishing.

In these numerous author crisis-related situations, academic librarians are encouraged to show empathy and an author-friendly attitude to better assist this overloaded academic author “at a crossroad” who tries to catch a new sense of continuous R&D-related activity through laborious hard work with large volumes of academic research information.

The scientific research of Quinn, 2002; Stover, 2004; Pope et al., 2012; McCaffrey, 2016 suppose that the bibliotherapy-based librarian’s approach may be practically useful for improvement of the emotional and mental health of a wide range of library readers. However, there is a complex methodology question concerning the effectiveness of bibliotherapy techniques (Quinn, 2002; Stover, 2004; Pope et al., 2012; McCaffrey, 2016) when applied to a librarian’s dialogue with a publishing author because of the additional appearance of reflection, deeply linked associations and uncontrolled generation of inertial memory flow within the author’s mind. In other words, it is a very difficult and complex assignment for a librarian to recommend proper R&D-related “therapeutic” reading for an author who used to be a generator of scientific ideas and an academic writer.

Academic librarians can be a major help to a confused technical author by reminding the researcher that all R&D-related spheres of modern science are constantly experiencing dynamic growth. Every new research contribution in a specific sphere is only one additional small piece of knowledge being introduced into a river of the unknown. Therefore, no research study cannot be considered as the final solution to a problem, nor the completion of any existing research area.

A second important message which academic librarians can convey is the consolation of the scientist concerning the extreme level of editorial requirements aimed at producing rigor and quality in scientific manuscripts. Academic publishing beginners, whose manuscripts have passed through the multiple rejections by academic periodicals often angrily wonder “What do these journals publish?” or “These editors do not know themselves what they want to see in manuscripts”. Mature researchers, who have had some previous success in peer-reviewed academic publishing, are also disappointed with the ever-increasing severity level of publishing requirements. Therefore, quite often, these “qualified” authors honestly feel that they have chosen a wrong R&D-related job and cannot retire and “find peace” at their 40- or 50-year age. The philosophical consolation, which can be offered by academic librarians to authors, should focus on the eternal human and internal researcher’s desire to create a high-level of scientific achievement from everything he starts. Librarians may always note that it is very interesting and creative for every potential journal author to generate and produce an internally-harmonic and simply beautiful piece of a perfect academic research and writing. It may be so that after this librarian’s explanation a sad author will better understand the motives, driving forces and origination of publishing requirements of journal editors.

Thirdly, academic librarians can also note to an author that, generally, every occasion of editorial acceptance and journal publication of a manuscript is a matter of a human and professional favor to a researcher. If it so happened that a specific journal’s team was simply unwilling to do a favor to an academic author, then perhaps it’s just time for the researcher to consider another publishing venue whose editors and reviewers may be more favorable to the manuscript proposed. All these empathy-grounded librarian’s sincere notes, polite remarks and author-friendly suggestions are easy, simple, and helpful for a proper tune-up of the researcher’s mind and attitude to the challenging process of academic publishing.

Another very important discussion topic is the question of whether it is possible for an academic librarian to show human emotions during communications with a publishing author, and to what extent academic librarians can be emotional in their advice and recommendations, and even if it is acceptable to have emotion-enhanced interpersonal communication. The recently published librarian’s communications by Quinn, 2002; Stover, 2004; Pope et al., 2012; McCaffrey, 2016; Beall, 2017; Swauger, 2017; Beall, 2018, clearly show that successful academic librarians are supposed to be professional, hard working, initiative, author-centered, psychologically-friendly (Quinn, 2002; Stover, 2004; Pope et al., 2012; McCaffrey, 2016) and creatively emotional (Beall, 2017; Swauger, 2017; Beall, 2018).

The importance of the proposed psychotherapist-grounded approach is based on ten years of the author's consultation experience as a member of the academic publication commission of Donbass State Engineering Academy (Kramatorsk, Ukraine). The present communication is also the author's attempt to find a possible creative answer to the recently intensified dehumanization and aggressive "shifting" tendencies of interpersonal communication, which have appeared and spread widely in academic and educational institutions worldwide in recent years.

Reasons for Faculties to Avoid Participation in an Academic Publishing Process

Students should be aware that it is a very complex problem for university scientific management to encourage experienced faculties to make a commitment to the time-consuming and unpaid laborious preparation of their own research manuscripts for peer-reviewed international academic periodicals. Unfortunately, highly qualified faculties are very smart and sophisticated in formulating "justifiable" reasons for ignoring the requirements of scientific management and avoiding publication-related academic activity.

The first reason for a faculty's refusal to commit to academic writing activity is based on a provincialism complex of a potential local academic author unwilling to submit his writing for review and criticism by the international expert opinion of a global professionally-focused scientific community. Quite often typical negative faculty arguments are in the form of the following claims and statements. The first allegation is as follows: "Who are we to trouble international editorial boards and peer-reviewers with our local uninteresting technical and narrow-minded social manuscripts?" The second typical faculty's statement explains the previous one as follows: "It is practically impossible for local unsupported authors from third-world countries to submit internationally-competitive original research manuscripts with a high level of prime scientific novelty to global Scopus®- & WoS® SCIE-indexed academic journals. These authors work without grants & financial support and who have no access to powerful modern laboratory equipment." The third typical statement is also very useful and very clear: "Local authors from the technologically weak developing countries can only report principally non-interesting technical advances in repair, recovery and remanufacturing of the obsolete, outdated and worn-out industrial equipment and these applied technical topics certainly fall short of the scope of innovation-directed international research journals."

The second reason for a faculty's withdrawal from participation in academic publishing activity has a more aggressive form and is based on the acquisition of Scopus®- & WoS®-indexed academic periodicals in intellectual espionage with elements of conspiracy theory. This is a very simple and effective argument system, which clearly shows the usefulness of doing nothing and permanently attracts all generations of faculties with leftist leanings. The first allegation here is as follows: "Why are editors, reviewers and publishers of the vast majority of modern Scopus®- & WoS® Core-indexed e-journals so interested in all details of my research including new compulsory requirements for manuscript data sharing and research data free availability? Why do they allow authors to write a paper with an unconstrained length? This is pure intellectual espionage! This is not modern academic publishing but a global pipeline for pumping knowledge and ideas from weak countries to the west without a penny of author's royalty. And all our colleagues who publish there are voluntary spies who share all intellectual property in exchange for worthless indexing. The scientometric analytical databases of Scopus®- & WoS® Core are simply databases of western intelligence agencies and special services!" The second allegation is not as obvious as the first one and is as follows: "Rothschild heirs have developed Scopus®- & WoS® Core systems to steal all our innovative ideas! Write nothing to Scopus®- & WoS® Core-indexed periodicals and protect yourself from Rothschild's attention!" The third allegation in this logic is much more complex than the previous two statements: "Almost every published journal paper has a Digital Object Identifier® (DOI®). Every WoS® Core-indexed paper has an additional WoS®-assigned WoS® Accession Number. Probably both DOI® and WoS® Accession Number are the numbers of the Beast!" At this point of the "reasoned" and highly-sophisticated refusal the local scientific manager understands that this faculty has a strong intention to further ignore educational ministry requirements concerning compulsory faculties' publications in Scopus®- & WoS® Core-indexed academic journals.

Reasons for an Academic Journal Editor to Reject a Submitted Manuscript

Students should always have a sympathetic and slightly playful attitude regarding both the first and final editorial decisions concerning their submitted manuscripts.

A lecturer notes to students that all indexed academic journals are always looking for manuscripts with "sufficient quality", prepared by "leading" academic authors with "a good h-index", located in "technologically advanced countries". Theoretically, these laconic formulations of journal aims and scopes with the accent on journal preferences to work with "outstanding" potential papers are probably important and wise but slightly generalized. Practically, the process of editorial "assessment" of submitted standard papers quite often takes only several minutes or several hours from article submission and results in a kind of sport-related quest game with a regular

“pulling out” of submitted manuscripts through withdrawal, rejection, or assigning an equivalent “polite” rejection status, such as “Not under active consideration”. “To be honest and to save us both time” many academic journals encourage potential authors to request a preliminary check of the suitability of their manuscript through an E-mail submission of an article proposal, abstract or manuscript draft directly to the journal editor. However, this approach of inquiring in advance if a journal might publish an author’s paper before submitting the full paper through the system cannot always be considered a good idea because many editors neglect to answer. It seems like what is called in the U.S. a “fishing expedition”.

The most frequent reason for paper rejection is “bad English” described like “the entire manuscript is constructed with such very strange and obscure English that it is hard to know what the author is trying to say”. This is a never-ending problem when an academic author who is unable to pay for English correction “might seek help from a colleague who is familiar with English expression.” The author’s academic institution should cover the cost of a “careful copy-editing by a native speaker” who is a specialist in the article research area, providing a copy-editing certificate to the author. But this rarely, if ever, happens.

The second typical article rejection reason is the case when the manuscript is beyond the aims and scopes of author-chosen specific academic journal because the author fails to carefully read the information about a journal’s objectives and scope (if new to him) and makes a hasty decision to submit a manuscript.

Other reasons for rejection are as follows:

- Nothing new
- Insufficient accuracy
- No assessment
- Unnecessarily complex
- No empirical evidence
- Incomprehensible
- Limited scope
- Low relevance
- Superficial
- Speculative
- Unsubstantiated
- Verbose
- Weak
- Does not meet the journal’s high standards
- Too many disjointed ideas

Another rejection reason is the case when the manuscript “meanders across a very broad range of topics” with insufficient emphasis and unclear formulation of “the exact message” of the author’s paper.

A further reason is based on the editor’s belief that “any article should be self-contained, readable, and understandable without the need to go to other literature”, and “every concept mentioned has to be explained at its point of entry - unless it is known to all”. Theoretically, this editor’s logic is very nice. But when an author tries to make the required “dramatic revision” of the rejected manuscript and add editor-requested explanations, his revised paper may be subject to a second rejection requiring the author to “eliminate statements of obvious fact known to everybody and to avoid repetition.”

Students should clearly understand that all above-mentioned rejection reasons may be easily applied to the author’s manuscript at any stage of pre-review, review and post-review editorial assessment. Article rejection may often happen with a previously accepted but still not published journal paper. Unfortunately, it is practically impossible for an author to contest an editorial decision concerning author’s paper rejection. In all these cases every academic author is strongly encouraged to continue his long quest to find the right alternative publishing venue with another academic periodical because editorial apologies “for such an unfortunate accident” cannot compensate an author’s major loss of time.

DISCUSSION

The lecturer brings to the students’ attention that this author-proposed original “survival” course has a strongly multidisciplinary nature and is made up of complex interdisciplinary topics in academic & publishing integrity & ethics as well as in R&D spheres of scientific management & organization of scientific research.

Firstly, all students are encouraged to reread their lecture notes, look through numerous examples of original and review open-access articles and carefully draw a schematic representation of their research or review paper using the mandatory structure of a scientific article.

Secondly, the students should activate their creative imagination and draw in advance their individually-designed block diagrams or comprehensively-detailed proposed original figures, sketches, undirected graphs, directed (oriented) graphs or other student-chosen graphical illustrations for all stages of the publishing process of a scientific article in a peer-reviewed academic journal. These student-developed original graphical illustrations should clearly illustrate the iterative dynamics of the publishing process routine, associated with the following stages: (article preparation) → (review) → (reviewers-requested article revision) → (re-review) → (acceptance or rejection) of the submitted manuscript. At this point, the author should consider the possibility of the need to select an alternative publishing venue for a rejected paper, as well as the need to check the veracity of the journal's indexing information. Students are also encouraged to draw in their figures the facts of protracted review time and identify any predatory publisher activity.

Thirdly, students must show some basic skills in practical work with Scopus® and Web of Science® Core Collection. Students must know how to check to see if a journal is indexed in Scopus® through the use of on-line look-up <https://www.scopus.com/sources> or through the use of Elsevier's® page with downloadable data files <https://www.elsevier.com/solutions/scopus/how-scopus-works/content>. Students must also know how to check to see if a journal is indexed in Web of Science® through the use of a free preview service at <http://mjl.clarivate.com/> or through the use of subscription-based service <https://clarivate.com/products/journal-citation-reports/>. Students should be able to check Scopus®-based author's $h_{(\text{Scopus})}$ -index via <https://www.scopus.com/search/form.uri?display=basic> or through the use of free preview <https://www.scopus.com/search/form/authorFreeLookup.url>. Students should know how to check the Web of Science® author's $h_{(\text{WoS})}$ -index through the use of <https://webofknowledge.com>. Students should be able to check Google Scholar®-based author's $h_{(\text{GS})}$ -index through the use of <https://scholar.google.com>. All students must clearly understand that numerical values of all these three indices $h_{(\text{Scopus})}$, $h_{(\text{WoS})}$ and $h_{(\text{GS})}$ are unique and different and they cannot be considered as redundant values because these indices are computed using different databases with different source coverage.

CONCLUSIONS

The changed global situation with academic publishing requires further rethinking and reshaping of existing university curriculum on the fundamentals of scientific research. Modern educators and students must have some preliminary knowledge about approaches and principles of scientometric-indexing of academic periodicals due to the constant toughening of article quality requirements from all levels of scientific bureaucracies.

It is undoubtedly very creative and productive when initiative faculties and highly qualified scientists working hard as authors, reviewers or academic editors in the preparation, evaluation and rigorous peer-review of relevant original papers through an intensive intellectual dialog with editorial boards of a wide range of academic journals. Academic recognition and publishing success of these professional efforts require regular the establishment and maintenance of wide research collaboration between different research schools with broad involvement of their colleagues, M.Sc.- and Ph.D.-level students. Quite often the research activity of motivated scientists results in the initiation and establishment of promising new academic periodicals associated with editorial efforts of their research groups and scientific schools. However, it is strongly non-creative, shortsighted, inappropriate and unproductive when these research teams and faculties and highly qualified scientists regularly apply their efforts to long-term collaboration with disingenuous, indecisive, hiding with unknown geographic location, questionable or simply predatory publishers which principally have neither the ability nor intention to provide a proper scientometric indexing of their academic periodicals in Scopus® & WoS® Core Collection. It is an area of increased manager's concern when many ambitious scientists with a know-all behavior and viewpoints regularly ignore useful community recommendations and insistently launch their self-edited academic periodicals using distinguish-friendly but extra-puzzling and proper indexing-free academic publishers like <http://www.sciencepublishinggroup.com> and then wonder why they don't see prompt indexation of their journals in Scopus® and-or WoS® Core Collection. These numerous issues clearly show the necessity of a substantive enhancement and upgrade of existing courses on the fundamentals of scientific research with mandatory addition of comprehensive explanations of additional new learning modules, focused on numerous problems of academic and publishing integrity.

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