Is there a need for systematic education on peer-reviewing in Serbia?

Ivana Drvenica[1], Aleksandar Dekanski[2], Nevena Buđevac[3], Ivan Umeljić[4], Olgica Nedić[5]

[1]*Institute for Medical Research, University of Belgrade, Serbia*
[2]*Institute of Chemistry, Technology and Metallurgy, Department of Electrochemistry, University of Belgrade, Serbia*
[3]*Teacher Education Faculty, University of Belgrade, Serbia*
[4]*Center for the Promotion of Science, Belgrade, Serbia*
[5]*Institute for the Application of Nuclear Energy (INEP), University of Belgrade, Serbia*

LETTER TO THE EDITOR

UDK: 001.89: 378.147+005.52

Hem. Ind. **73 (5)** 275-279 (2019)

Keywords: scientific publishing; searching for reviewers; PhD course on peer-reviewing; survey

Available on-line at the Journal web address: http://www.ache.org.rs/HI/

The rate of scientific information generation has increased tremendously in the last few years as a result of the increase in both the number of researchers, studies and papers, and the number of scientific journals. In 2015, approximately 1.3 million articles were submitted to Elsevier journals by 1.8 million authors (it is estimated that there were 7.8 million active researchers worldwide in that year) [1]. The number of reviewers who evaluated these manuscripts were 0.7 million. According to the survey conducted by Wiley in 2015, 22 million research hours was spent annually for reviewing for the top 12 producing publishers [2]. The most recent data released by Clarivate Analytics in 2017 estimate that 2 million scientific reports are published annually, imposing a large demand for the increase in the peer-review capacity to manage all scientific contributions [3]. An additional complication is that the burden of peer-reviewing falls disproportionately on academics from the US and Europe, since researchers from Asia, Africa and South America are rarely called to act as peer-reviewers [2,4,5].

As the single-blind process is most often applied, peer-review presents an activity, which engages most qualified people to perform an extremely important social task while generally remaining unknown apart from editors. This „unfairness" has been recognized in recent years by publishers and others offering platforms for recognition of individual review contributions, such as Publons, Reviewer Credits, and Science Open [6-8]. Although it is essential for scholarly publishing, the longstanding practice of peer-review is these days undoubtedly facing challenges [3]. Finding reliable and motivated reviewers has become a problem for editors worldwide. According to the results of a survey carried out among journals published by Wiley in 2015, the conversion rate of reviewer invitation to acceptance has dropped by at least 5 % over the past 5 years [2]. Furthermore, the same study emphasized two important issues: (i) "a need to increase a pool of reviewers, especially in high-growing countries and emerging markets, and among early stage researchers (ESR) and (ii) a need to ensure that reviewers in that pool are well trained, trustworthy and capable of producing good quality reports" [2]. Additionally, several studies have demonstrated that classical short-term trainings for peer-reviewers have little impact [9-11] and even a decline in peer-reviewer performance with time [12]. Probably, "when researchers reach the stage in career when they start to peer-review, it is too late to teach peer-review" [13].

Thus, it is justified to educate PhD students and ESRs for performing such a demanding task as peer-reviewing. Becoming a good reviewer is certainly not just due to formal education in reviewing, it is much more based on experience in writing articles and reviewing. Still, formal education in this area contributes to getting acquainted with review principles, certain guidelines, "dos and don'ts", ways to resolve professional and ethical dilemmas, as well as to become aware of peer-review limitations, to collect information on how to volunteer to review, and finally to become aware of the personal contribution and responsibility in formatting the specific scientific discipline and overall human knowledge.

Corresponding author: Ivana T. Drvenica, Institute for Medical Research, University of Belgrade, Serbia; Tel: +381 64 129 46 64
E-mail: ivana.drvenica@imi.bg.ac.rs
Paper received: 20 October 2019
Paper accepted: 29 October 2019
https://doi.org/10.2298/HEMIND191020029D

CURRENT STATUS IN SERBIA

Editorial boards in Serbia responsible for scholarly publishing also struggle with identification and recruitment of reviewers willing and capable to evaluate a huge number of submitted research studies as well as to send review reports back within the requested time period. The time required for acceptance or rejection of a peer-reviewed article, in some cases, can now run from six months to a year [3]. This is not only our testimony as members of editorial boards of several international journals, but the result of a thorough pilot study conducted in Serbia in 2015 among editors of 22 journals (responses were collected from 50 editors). This survey pointed to low efficiency of the peer-review process in average, primarily due to the low acceptance rate and long times for reviewing, while to a lesser extent due to insufficient competences and skills of reviewers [14]. Some editors clearly stated that they see education of reviewers as a solution to motivate them and upgrade their knowledge and skills. Education could also increase their awareness of the importance of this task and the reciprocity *Quid pro quo*: „someone reviewed your paper – you should review someone else's ".

During their PhD studies, students in Serbia are occasionally educated in writing scientific papers and hardly ever in peer-reviewing. According to data from four state universities in Serbia (in Belgrade, Novi Sad, Niš and Kragujevac) and one private university (Singidunum University), there are a number of PhD courses, which educate students on how to conduct research, several how to write articles, but only one among them modestly trains students on how to review papers. Thus, the vast potential of PhD students and ESRs has not been properly recognized and directed towards creation of a skilled population of reviewers. As members of the COST action: New Frontiers of Peer Review (PEERE, TD1306), some of us had the opportunity to hear editors and publishers coming from around the world presenting how to improve the complex peer-review system and increase social recognition and credibility of peer-review in the overall science [15].

With the idea to contribute to the world trends on improving peer-review, we presented a pilot seminar at the Universities of Belgrade, Novi Sad, Niš and Kragujevac in Serbia over the period from October 2017 to April 2018. The seminar was organized by the Centre for the Promotion of Science in Serbia [16] and included four lectures dealing with: (i) basic aspects of the peer-review process, (ii) ethical issues, (iii) social importance, and (iv) recognition of reviewers' contributions. The seminar also included time for discussion and lasted for 4 hours all together. The total number of applicants was 340 while the number of attendees was 275. Their distribution between scientific disciplines is shown in Figure 1. Majority (84 %) consisted of PhD students and ESRs, but professors and senior researchers also participated in a reasonable degree.

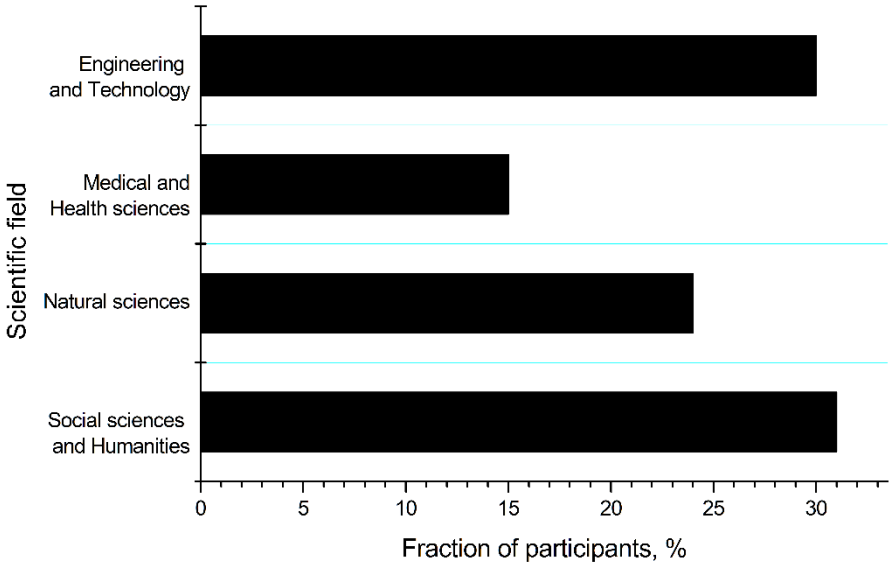

Figure 1. Distribution of researchers by scientific fields participating in seminars on peer-review held from October 2017 to April 2018 in Serbia [16]

After the seminar, participants were asked to perform peer-review of a 2-page article (on-site or on-line) and to fill-in an on-line survey within a week, to evaluate the seminar and pose questions. Peer-review reports were received from

82 persons (out of 275 attendees). Out of three mistakes deliberately introduced in the text, half of the tested respondents recognized at least one. All mistakes were noticed by less than 10 % of respondents. Analysis of the survey (160 responses) revealed that 92 % of respondents acknowledged that they have acquired new knowledge during the seminar and encouraged continuation of such education.

Recently, on the initiative of the National Library of Serbia, we were invited to repeat the seminar [17] on the occasion of the global event: Peer Review Week (officially occurring from September 16 – 19, 2019). There were 133 attendees at the seminar. We used this opportunity to re-check the opinion of the audience on utility of education in peer-reviewing. Again, out of 105 respondents to the survey, 94 % reported gaining certain new knowledge on peer-review and supported the idea of strengthening academic competencies on peer-reviewing through the introduction of an obligatory subject during PhD studies (Figure 2).

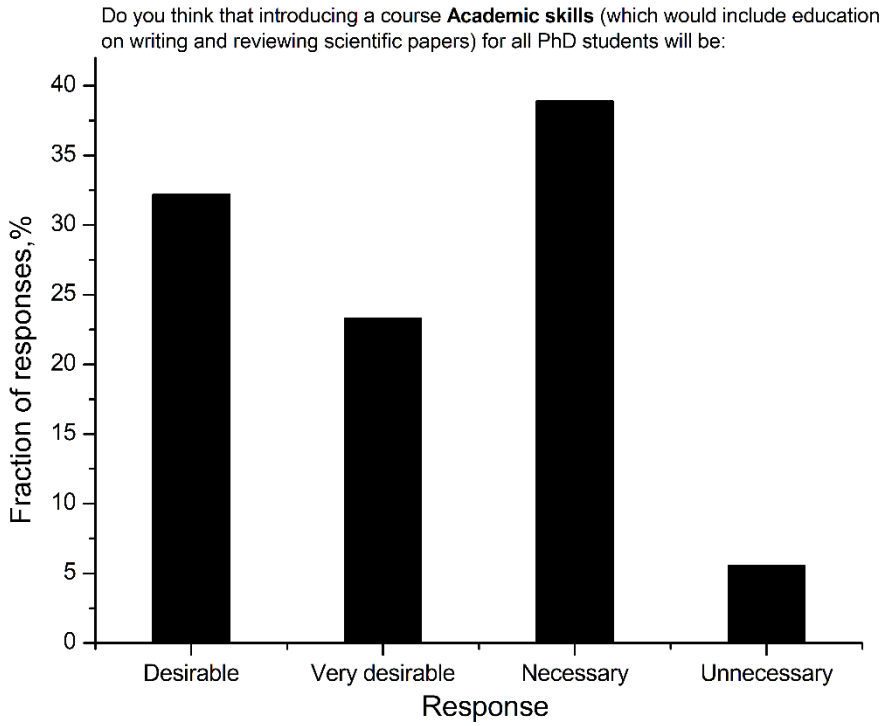

Figure 2. Response of seminar participants [17] on the idea of introduction of a PhD course on writing and reviewing scientific papers. Answered by 95 out of 105 attendees who replied to the survey

When asked to extract the most useful lecture from the seminar, the greatest number of participants (88/265) marked the first one (*i.e*. basic aspects of the peer-review process), supporting our initiative that systematic education on peer-reviewing in Serbia is needed.

We are aware that the opinion expressed by participants of the seminar reflects only impressions of this population which, by attending the seminar, already exhibited an attitude towards this kind of education. In order to acquire stronger confirmation that a PhD course on peer-reviewing is needed, a survey on the larger cohort of PhD students and ERSs is necessary.

RECOMMENDATION FOR FUTURE

Taking into account all said above and the empirical data obtained at four universities in Serbia during the 2-year period, it is obvious that there is a need for acquiring new knowledge and skills on peer-reviewing. Thus, we invite responsible academic officials and professors to support our idea of introduction of a specific course dealing with peer-reviewing of scientific articles (and not only that but possibly also scientific projects) and enable a vast potential of PhD students to be properly realized and directed towards creation of a skilled reviewer population. We hope that experts

from different scientific disciplines will join this initiative and contribute to introduction of a field specialization in peer-reviewing in order to design courses, which will suit specific needs of each scientific field.

REFERENCES

[1] Elsevier, https://www.elsevier.com/connect/elsevier-publishing-a-look-at-the-numbers-and-more, Accessed October 10, 2019.

[2] Warne V. Rewarding reviewers – sense or sensibility? A Wiley study explained. *Learn Publ*, 2016;29 (1): 41-50.

[3] Clarivate Analytics, https://clarivate.com/webofsciencegroup/blog/publons-addressing-challenges-peer-review/, Accessed 1 October, 2019.

[4] The Guardian, https://www.theguardian.com/science/2017/jun/01/peer-review-is-essential-to-good-science-its-time-to-credit-expert-reviewers, Accessed 15 October 2019.

[5] Kovanis M, Porcher R, Ravaud P, Trinquart L. The Global Burden of Journal Peer Review in the Biomedical Literature: Strong Imbalance in the Collective Enterprise. *PLoS ONE*, 2016; 11(11): e0166387.

[6] Publons, https://publons.com, Accessed 10 October 2019.

[7] Science Open, http://about.scienceopen.com/peer-review-guidelines/, Accessed 10 October 2019.

[8] Reviewer Credits, http://reviewercredits.com, Accessed 10 October 2019.

[9] Callaham ML, Tercier J. The relationship of previous training and experience of journal peer reviewers to subsequent review quality. *PLoS Med.* 2007; 4: e40.

[10] Schroter S, Black N, Evans S, Godlee F, Osorio L, Smith R. What errors do peer reviewers detect, and does training improve their ability to detect them? *JR Soc Med.* 2008; 101: 507-514.

[11] Schroter S, Black N, Evans S, Carpenter J, Godlee F, Smith R. Effects of training on quality of peer review: randomised controlled trial. *BMJ.* 2004;328(7441):673.

[12] Callaham M, McCulloch C. Longitudinal Trends in the Performance of Scientific Peer Reviewers, *Ann Emerg Med.* 2011; 57 (2) 141-148.

[13] Patel J. Why training and specialization is needed for peer review: a case study of peer review for randomized controlled trials. *BMC Med* 2014, 12:128.

[14] Dekanski A, Drvenica I, Nedić O. Peer-review process in journals dealing with chemistry and related subjects published in Serbia. *Chem Ind Chem Eng Q.* 2016; 22 (4): 491−501.

[15] COST action TD1306: New Frontiers of Peer Review (PEERE), http://www.peere.org/, Accessed 15 October 2019.

[16] Centar za promociju nauke, https://www.cpn.rs/programi/seminar-o-recenziranju/, Accessed 15 October 2019.

[17] Konzorcijum biblioteka Srbije za objedinjenu nabavku, KoBSON, https://kobson.nb.rs/predavanja/predavanja.37.html, Accessed 15 October 2019.

SAŽETAK

Da li postoji potreba za sistematskom edukacijom o recenziranju u Srbiji?

Ivana Drvenica[1], Aleksandar Dekanski[2], Nevena Buđevac[3], Ivan Umeljić[4], Olgica Nedić[5]

[1]*Instutut za medicinska istraživanja, Univerzitet u Beogradu, Srbija*
[2]*Institut za hemiju, tehnologiju i metalurgiju, Odeljenje za elektrohemiju, Univerzitet u Beogradu, Srbija*
[3]*Učiteljski fakultet, U Univerzitet u Beogradu, Srbija*
[4]*Centar za promociju nauke, Beograd, Srbija*
[5]*Institut za primenu nuklearne energije (INEP), Univerzitet u Beogradu, Srbija*

(Pismo uredniku)

Velika brzina stvaranja naučnih informacija u poslednjih nekoliko godina nameće potrebu za povećanjem broja stručnih recenzenata, posebno što recenziranje dobija novu dimenziju važnosti i u svetlu rastućeg broja prepoznatih plagijata i izmisljenih rezultata. Potencijalno rešenje potrebe za povećanjem broja recenzenata je sistematska edukacija doktoranada i mladih istraživača, posebno u zemljama razvoju.

Prema podacima sa četiri državna univerziteta u Srbiji (u Beogradu, Novom Sadu, Nišu i Kragujevcu) i jednog privatnog univerziteta (Univerzitet Singidunum), postoji niz doktorskih kurseva koji studente obrazuju o načinu sprovođenja istraživanja, nekoliko o tome kako da pišu naučne publikacije, ali samo jedan od njih skromno osposobljava studente za recenziranje naučnih radova. Dakle, U Srbiji ogromni potencijal doktoranada i mladih istraživača nije pravilno prepoznat i usmeren ka stvaranju kvalifikovane populacije recenzenata. Sa idejom da doprinesemo svetskim trendovima na polju unapređenja recenziranja, predstavili smo pilot seminar na univerzitetima u Beogradu, Novom Sadu, Nišu i Kragujevcu u Srbiji u periodu od oktobra 2017. do aprila 2018. godine. Seminar u organizaciji Centra za promociju nauke obuhvatio je četiri predavanja koja su se bavila: (i) osnovnim aspektima procesa recenziranja, (ii) etičkim pitanjima, (iii) društvenim značajem i (iv) priznavanjem doprinosa recenzenata. Od ukupnog broja polaznika koji je iznosio 275, većina (84 %) se sastojala od doktoranada i mladih istraživača. Nakon seminara, učesnici su zamoljeni da izvrše test recenziju i popune anketu o kvalitetu seminara. Izveštaji o recenziji primljeni su od 82 osobe (od 275 polaznika). Od tri greške koje su namerno unete u tekst, sve greške primetilo je manje od 10 % ispitanika. Analiza ankete (160 odgovora) pokazala je da je 92% ispitanika izjavilo da su stekli nova znanja tokom seminara i ohrabrilo nastavak takve edukacije. Seminar je ponovljen 2019. g. na inicijativu Narodne biblioteke Srbije povodom globalnog događaja "Nedelja recenziranja 2019" i od anketiranih 105 novih polaznika, 94 % je iznelo stav o korisnosti obrazovanja o recenziranju i podržalo ideju o jačanju akademskih kompetencija za recenziranje kroz uvođenje obaveznog predmeta tokom doktorskih studija u Srbiji.

Nadamo se da će se predstavnici akademske zajednice iz različitih naučnih disciplina pridružiti ovoj inicijativi i doprineti formiranju kurseva o recenziranju koji odgovaraju specifičnim potrebama svake naučne oblasti.

Ključne reči: naučno izdavaštvo; traženje recenzenata; kurs o recenziranju za doktorande; anketa