Writing phd thesis in English: importance, challenges, and thesis originality

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Summary

In line with the ORPHEUS guidelines, to encourage international recognition of PhD theses, the Faculty of Medicine University of Belgrade (FMUB) promotes writing PhD theses in English. FMUB also requests and encourages PhD candidates to publish their results in international journals before thesis submission so as to increase their visibility in the scientific community. In addition to specific topics in medicine, PhD education needs to cover topics of general interest to researchers, in particular copyright and originality issues in scientific research. By adopting the concepts and terms of copyright, PhD candidates learn the importance of intellectual property and avoid plagiarism. As writing a PhD thesis in English may increase textual overlap between the thesis and the candidate’s own published papers (in English) originating from the thesis, there may be some dilemmas in practice as to whether such textual overlap should be considered self-plagiarism or not. In line with the regulations at the top universities in the field of medicine, FMUB has adopted the conclusion that textual overlap between the thesis and the thesis-based publications of the candidate does not represent self-plagiarism, provided that certain conditions are met. Namely, regardless of the language of the dissertation, the key aspects of academic integrity in writing a PhD thesis should be honesty and transparency, namely, transparently linking the thesis-based publications with the final thesis; honestly and appropriately referencing the statements or any other content taken from the candidate’s own previous work (unrelated to thesis) or other people’s work; and transparently acknowledging the contribution from coauthors and team members in the thesis. These recommendations will improve transparency of thesis writing, protect PhD candidates and their supervisors, enhance internationalization of PhD programs, and further promote academic honesty in medical research and publishing.

Keywords: PhD studies, doctoral thesis, originality, English
INTRODUCTION

PhD studies are completed by writing and defending a PhD thesis, which is an outcome of several-year-long research. A traditional PhD thesis provides an opportunity for detailed presentation of the performed investigations and the methodological approaches that have been used, together with extensive review of literature and discussion of the results (1). Thesis writing is a skill that all PhD candidates should acquire during their PhD studies so that they could present their research findings in an optimal way (2).

According to the ORPHEUS recommendations, “the PhD thesis should be the basis for evaluating if the PhD candidate has acquired the skills to carry out independent, original, and scientifically significant research and to critically evaluate work done by others (BR6.1)” (3). The standard that should be achieved in biomedicine and health sciences is to publish the equivalent of at least three in extenso papers resulting from the PhD project in internationally recognized, peer-reviewed journals, in which the PhD candidate should be the first author, although fewer papers may also be accepted if published in highly rated journals. Apart from this, to encourage international recognition of PhD theses, the ORPHEUS promotes writing theses in English, unless local regulations require otherwise.

THE IMPORTANCE OF PUBLISHING JOURNAL ARTICLES BASED ON THE THESIS

It is a well-known fact that unpublished findings from a PhD theses are a lost opportunity for both the candidate and the scientific community because research findings reported in thesis are less likely to be cited in academic journals, especially if the thesis is not written in English (4). This is an important reason why both candidates and supervisors would like to publish the results before the PhD thesis is submitted and defended. Hence, timely dissemination of scientific results is one of the key reasons for publishing the findings from a thesis. A greater number of publications in high-ranking journals has implications for the development of the future career of PhD candidates, as it contributes to their recognition in the scientific community. It has been shown that without publications and presentations at conferences, PhD candidates cannot hope to achieve professional visibility necessary for the development of their academic careers (5). Additionally, publishing thesis-based results in international journals further provides opportunities for collaboration with other researchers, and preparation and application of joint projects, and increases the chance of receiving grants. The European Commission documents also emphasize the need for research excellence and interdisciplinarity and advocate international networking, underlining that PhD education makes a valuable contribution to the European knowledge society that will be able to compete with other economies of the future (6, 7).

It is very important to keep in mind that for those PhD candidates for whom English is not the first language, writing a thesis in English can be an overwhelming task per se and, consequently, a source of anxiety (8). Additionally, this task is both quantitatively and qualitatively different from their previous experience in academic writing. Particularly sensitive are those for whom English is a second language as they must fight simultaneously in several domains, all of which have been identified as important influencing factors of academic writing at an advanced level (9). Supervisors have a crucial role in providing support to PhD candidates to overcome these obstacles (10).

EDUCATING PhD CANDIDATES ABOUT THE SYSTEM OF SCIENTIFIC COMMUNICATION

In addition to a particular curriculum of doctoral studies, education of PhD candidates must cover the whole system of scientific information that includes topics of general interest for researchers. Specifically, search of scientific resources (commercial as well as noncommercial), journal categorization, open science, citation managers, and copyright are the topics that create a whole system of scientific communication, applicable for all research areas of PhD candidates’ expertise.

The scope of systematic education of PhD candidates was given through a survey conducted in 2021 by the EUA Council for Doctoral Education, which was a follow-up of the large-scale EUA–CDE study “Doctoral education in Europe today: approaches and institutional structures,” realized in 2017–2018 (11). One of the key conclusions of this survey is that, besides the fact that doctoral education must deal with a multitude of priorities, the research ethics, integrity and quality of supervision “continue to be the two main elements of doctoral education” (11). Likewise, the top three mandatory training topics for PhD candidates offered by most institutions are research ethics and integrity, research methodology, and dissertation writing (12).

Establishing the education of PhD candidates at the national level in Serbia

Planned and continuous education of PhD candidates in Serbia was primarily established through the activities of the Consortium for Joint Acquisition (Serbian, Konzorcijum biblioteka Srbije za objedinjenu nabavku [Kobson]), which was founded in 2001. During mid-2000s, the Consortium started educating PhD scholarship holders with the support of the Ministry of Education and Science of the Republic of Serbia. The program offered one day of intensive education about online services and resources. The other topics covered were copyright, plagiarism,
open access, and Creative Commons Licenses as the key stones for academic integrity.

From 2015, the University Library “Svetozar Marković,” the central library of the University of Belgrade and the biggest scientific library in the country, started programs on the form of doctoral dissertations, necessary elements of the documents, requirements of the university related to digital depositing of the dissertations, and finally—since all dissertations must be in open access—Creative Commons Licenses. Since that time, education on copyright for PhD candidates has become a regular program of education organized by the Department for Scientific Information and Education of the University Library “Svetozar Marković.” The program has been further developed, enriched with new topics (originality check by online services such as iThenticate), and oriented towards comprehensive introduction of the concept of copyright (13). It has been used by the various faculties of the University of Belgrade, including the Faculty of Medicine and the Faculty of Law.

In 2022, the University Library established the Center for Supporting PhD Studies, with the mission to regularly (i.e., monthly) organize and conduct various educational programs intended for PhD candidates that would be performed by librarians but also by invited lecturers, professors, researchers, and publishers (14). Copyright and ethical issues in scientific research are among the important pillars of this program (15).

**The content of the copyright education**

Copyright education programs are organized with the idea that only by adopting the elementary concepts and key terms of copyright will PhD candidates be able to understand properly the importance of intellectual property and give correct answers to the question why copyright infringement is such a huge problem. More importantly, only by understanding what copyright really means can PhD candidates realize that the true research is in strong opposition to plagiarism.

In particular, the program explains the meaning of the term “work.” Namely, the work (article, book, etc.) is an original creation, which means that it has a different, unique contribution to this new, previously nonexistent creation. The work is under copyright from the moment of its formation, which means that it exists independently from its creator. Of note, “copyright protection does not extend to ideas, procedures, methods of operation, or mathematical concepts as such” (16), which is why the primary research data are a most sensitive issue related to open science: not being explicitly under copyright, they can easily become subject of large dispute. Finally, the program must underline that copyright is related to the whole work, but also to every part of the work and finally the title of the work.

The program also indicates the rights that are guaranteed for the author as the copyright holder. The basic right of the author is attribution, that is, the author is entitled to be recognized as the author of a particular work. If the work is used by someone else without attribution to the original author, it means that the work is plagiarized. Research activity is completely incompatible with plagiarism: having an intention to give original scientific contribution, the researcher needs to demarcate his/her contribution from the previous works that he/she has cited in the paper.

The Code of Professional Ethics of the University of Belgrade (17)—the basic document for regulation of ethical issues at the University—defines plagiarism not only as direct usage of other author's text, but also as paraphrasing of someone else's text and usage of other people’s ideas and concepts. That is how The Code extends the term plagiarism from the form of the work to its content, enabling better and more sophisticated approach to plagiarism assessment. The explanation of such basics is also necessary for understanding the real meaning and purpose of Creative Commons Licenses as models of contracts between a copyright holder and unknown user of the copyrighted work; the work available in open access is not “free for plagiarism,” but quite the opposite.

**CONTENT OVERLAP BETWEEN A THESIS AND PREVIOUSLY PUBLISHED TEXT: LOCAL AND INTERNATIONAL REGULATIONS AND GUIDELINES**

**Procedure for checking the originality of PhD theses at the University of Belgrade**

According to the “Ordinance of the Procedure for Checking Originality of Doctoral Dissertations to be Defended at the University of Belgrade” (Serbian, Pravilnik o postupku provere originalnosti doktorskih disertacija koje se brane na Univerzitetu u Beogradu; in the following text “Ordinance”) (18), each submitted doctoral thesis is checked by iThenticate software for the extent and type of textual overlap between the thesis and all texts available to the software. The software-generated report is presented to the thesis supervisor, who is invited to evaluate the thesis originality and write a report with the verdict as to whether the thesis is original (in which case the procedure can be continued) or if the originality of the thesis is disputable (in which case the procedure is interrupted until the thesis is revised as necessary). The members of the thesis evaluation committee (three or five university professors or senior scientists from the appropriate field) are also informed about the software analysis results and the supervisor's verdict before they compile the thesis assessment report, which is then forwarded to the Professional Body for Medical Sciences (Serbian, Veće naučnih oblasti medicinskih nauka) of the University of Belgrade for final approval of the thesis.
Writing a thesis in English may bring about some challenges during iThenticate analysis, especially regarding the textual overlap between the thesis and the candidate’s own published papers (in English) that originated from the thesis. In this context, there may be some dilemmas in practice as to whether such textual overlap is to be considered self-plagiarism or not. In addition, there may be some dilemmas about the numerical “threshold” of originality/plagiarism in all theses, regardless of the language they are written in.

It should be emphasized that there are three different types of content overlap in a thesis: (1) overlap with the candidate’s own publications based on the work on the thesis (thesis-based publications); (2) overlap with the candidate’s own publications that are not directly related to work on the thesis; (3) overlap with other authors’ publications. These three types of overlap are essentially different and should not be treated equally during the assessment of thesis originality.

The Faculty of Medicine University of Belgrade (FMUB) has adopted the conclusion that textual overlap between the thesis and the thesis-based publications of the candidate does not represent self-plagiarism. Namely, the main requirement that each PhD candidate at FMUB has to fulfil before submitting the PhD thesis is to publish at least two articles based on the thesis (in English) in journals indexed in Journal Citation Report, with the Impact Factor of each journal being higher than 1 (19). These papers are the direct results of the thesis, and thus, the content overlap between the thesis-based papers and the final thesis is understandable and necessary. This conclusion of the Scientific Council of FMUB is in accordance with the “Ordinance,” which clearly acknowledges that textual overlap may be necessary “as a consequence of previously published results of the candidate’s work on the thesis” (18).

In contrast, regarding the overlap between the thesis and the candidate’s own publications that are not directly related to work on the thesis, FMUB has adopted the conclusion that this should be treated similarly to textual overlap between the thesis and other authors’ publications. Occasionally, some university professors bring about the question of numerical “threshold” of thesis originality, that is, the percentage of textual overlap that is acceptable. However, the “Ordinance” (18) does not define any numerical “threshold” of originality or lack thereof, and clearly states that “information about the amount of textual overlap is not sufficient” to decide whether the thesis is original or not. According to the “Ordinance,” the purpose of originality assessment is to “determine whether and to what extent the academic work, and whether and to what extent the academic standards of citing and referencing were adhered to” (18). Indeed, software analysis is just a useful tool to help the supervisor and the assessment committee in performing a thorough assessment of thesis originality. Originality and plagiarism are not just the matter of text but also content, ideas, illustrations, and their source; hence, the same percentage of textual overlap may be interpreted differently in different theses depending on the wider context. Software does not evaluate illustrations and ideas, which should also be considered carefully to profoundly determine the degree of thesis originality.

Most candidates at FMUB write their PhD thesis in Serbian but have to publish the minimum required number of papers in Journal Citation Report–indexed journals in English. However, iThenticate typically does not recognize Serbian translation of their thesis-based papers previously published in English, so the textual overlap detected by the software is usually low and there is rarely a dilemma as to whether their theses are original. However, it is important to understand that the use of a Serbian translation of an article is no different from using the original article in English as regards possible plagiarism; thus, if a thesis includes a Serbian translation of a published article, it is necessary to indicate this clearly. Indeed, it is important to understand that the issues of originality and plagiarism are not exclusively a matter of form and language, and mere paraphrasing (17, 20) or translation (21) does not necessarily avoid plagiarism when it exists even though the software may not detect it. Therefore, it is important to educate PhD candidates about the foundations of academic integrity and teach them how to read literature and how to write and cite references appropriately.

As mentioned above, there are sometimes conflicting views at our university as to whether it is acceptable to reuse parts of the text from the candidate’s own publications that have originated from the thesis in the finally submitted thesis. Nevertheless, FMUB has adopted a clear conclusion, which is based on the positive “Ordinance” (18). Before reaching this conclusion, we also considered the current regulations and guidelines at the top universities from the Shanghai ranking list in the field of clinical medicine (22–36). It is quite consistent between these universities from diverse countries (e.g., the United States, the United Kingdom, the Netherlands, Germany, Canada, Australia) that the reuse of content from the candidate’s own papers based on the thesis in the final thesis is not
the matter of self-plagiarism. Hence, these universities allow PhD candidates to reuse parts of their previously published related content in the thesis; however, they emphasize that the main issues with such reuse include the issue of journal publisher’s copyright (22-35) and the issue of coauthor contributions (37). As described in guidelines of some of these universities, most publishers allow such reuse but require acknowledging in the thesis that the initial article was published by the publisher and providing the full reference (27, 29, 32). As for the contribution issue, it is normal that the candidates have multiple coauthors on the thesis-based papers because modern research in medicine is conducted in research teams and is often multidisciplinary; however, candidates can use parts of these publications in their theses, provided that they are the first authors and that they clearly acknowledge in the thesis that their contribution was more than 50% (33, 37); it is also important to describe the specific contributions of the candidate and each of the coauthors (26). Furthermore, there are requirements at some universities that the coauthors provide a written statement of consent (33).

**CONCLUSIONS**

In accordance with the ORPHEUS guidelines, FMUB strongly recommends writing a PhD thesis in English. Regardless of the language of the dissertation, it is obvious that the key aspects of academic integrity in writing a PhD thesis should be honesty and transparency: transparently linking the thesis-based publications with the final thesis, regardless of the language in which the thesis is written; honestly and appropriately referencing the statements or any other content taken from the candidate’s own previous work (unrelated to thesis) or other people’s work; and transparently acknowledging the contribution from coauthors and team members in the thesis.

Therefore, considering the current international regulations and guidelines, the Scientific Council of FMUB in principle allows content overlap between the candidate’s thesis and the thesis-based publications; nevertheless, FMUB requires that the candidate confirms that the publishers of journals in which the thesis-based articles were printed allow the reuse of content from these papers in the author’s own thesis and cite these publications in line with academic rules of referencing and according to the publishers’ requirements. Moreover, the candidates need to clearly acknowledge in the text of the thesis all their coauthors and specify their exact contributions to the thesis research. The same requirements have to be met by the candidates who write their thesis in Serbian and those who write it in English. We particularly recommend following the extensive and detailed instructions from the universities KU Leuven and Charite on increasing transparency in PhD theses (20, 25). We believe that such recommendations will improve transparency of thesis writing, protect PhD candidates and their supervisors, enhance internationalization of PhD programs, and further promote academic honesty in medical research and publishing.

**Conflict of interests:**

None to declare.

**Author contributions:**

PM, DS, and TP conceived and wrote the paper, revised it for important intellectual content, and approved the final submission.

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PISANJE DOKTORSKE DISERTACIJE NA ENGLESKOM JEZIKU: ZNAČAJ, IZAZOVI I ORIGINALNOST DISERTACIJE

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Sažetak

U skladu sa smernicama ORPHEUS-a, Medicinski fakultet Univerziteta u Beogradu (FMUB) promoviše pisanje doktorskih disertacija na engleskom jeziku. FMUB takođe zahteva i ohrabruje studente doktorskih studija da objave svoje rezultate u međunarodnim časopisima pre podnošenja same disertacije radi veće vidljivosti rezultata u naučnoj zajednici. Pored specifičnih tema u odgovarajućoj oblasti medicine, doktorske studije treba da pokrije i teme od opštega interesa za istraživače, a posebno pitanja autorskih prava i originalnosti naučnog rada. Usavjeljanjem osnovnih koncepta pojma autorskih prava, studenti doktorskih studija se uče značaj zaštite intelektualne svojine i izbegavaju plagijarizam. Kako pisanje doktorske disertacije na engleskom jeziku često povećava stepen preklapanja teksta između same disertacije i objavljenih radova kandidata (na engleskom) koji potiču iz disertacije, u praksi se nekada može javiti dilema da li takvo preklapanje teksta treba smatrati autoplagijarizmom ili ne. U skladu sa propisima vrhunskih univerziteta u oblasti medicinе, FMUB je usvojio zaključak da preklapanje sadržaja između disertacije i publikacija prošlekih iz disertacije kandidata ne predstavlja autoplagijarizam, pod određenim, precizno definisanim, uslovima. Naime, bez obzira na jezik kojim je pisana doktorska disertacija, ključni aspekti akademskog integriteta treba da budu iskrenost i transparentnost: transparentno povezivanje publikacija proizvištenih iz disertacije sa samom disertacijom; pravilno citiranje sadržaja preuzetog iz prethodnog rada kandidata (koji nije u vezi sa disertacijom) ili rada drugih autora; i transparentno uvažavanje doprinosa koautora i članova tima u radu. Ove preporuke će poboljšati transparentnost pisanja doktorskih disertacija, zaštiti kandidate i njihove mentore, poboljšati internacionalizaciju doktorskih programa i dalje promovisati akademsko poštivanje u medicinskim istraživanjima i objavljivanju rezultata.

Ključne reči: doktorske studije, doktorska disertacija, originalnost, engleski jezik

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