

Global visibility and exposure to drive the quality of doctoral education

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Abstract

Universities worldwide are expanding how they showcase electronic theses and dissertations and their authors. One way this is accomplished is video recordings of “3 Minute Thesis” competitions. Saint Petersburg State University goes one step further and documents the full defense of their dissertations on video and makes the recording openly available on the official university site together with full texts and opponents reviews. This is one part of their strategy to provide more transparency with the goal of enhancing the overall quality of dissertations. The second part of this strategy is the Library of Saint Petersburg State University working with ProQuest to disseminate dissertations to a global audience through ProQuest Dissertations and Theses (PQDT) database.

Keywords: Doctoral thesis, video, institutional repository, ProQuest Dissertation and Theses.

Electronic dissertations, Open Access, and Discoverability

Dissertations and theses have always played a central role in scholarly communication. According to the academic tradition and as required by most degree granting universities, graduate works submitted to obtain a doctoral degree must not only review and discuss existing literature on their specific topics, but also contribute new and original research. In

many cases, new ideas and concepts first appear in doctoral dissertations, before they find their way into the appropriate scholarly journals.

Today, however, journal articles seem to dominate the discussion as the major, if not exclusive channel of research communication. The pressure on researchers to publish, as well as the metrics to measure relevance and impact of publications, especially in the sciences, technology and medicine (STM), put journals in the focus even more.

Disruptions have taken place in scholarly communication, triggered by the transition from print to digital and subsequently to online formats in all publishing fields, starting about 25 years ago. They affected the turnaround-time of results dissemination, their discoverability and accessibility, as well as the distribution channels.

With an ever-growing amount of output to be published, we observe an increasing number of publication venues and access models globally, offering more choice – and potentially creating confusion by complexity at the same time, both for authors and consumers.

In 2017, ProQuest surveyed about content resource types researchers use. It turned out, that, although journals are still the most popular channel, faculty rely on a variety of different resources including books (print + electronic), conference proceedings, video, datasets, etc. In fact, 73 % of the respondents use dissertations and theses and even more recommended their use to students. (Research and Teaching Relies on Content Diversity, A ProQuest Whitepaper, 2017)¹

Therefore, it seems to be advisable to remind faculty users of the wealth of information and data that goes into doctoral dissertations. For PhD students preparing their dissertations, the breadth of topics, as well as, the depth of detail of dissertations contain invaluable insights. Although not classified as peer-reviewed literature, dissertations communicate innovation and new findings often much earlier than journal articles related to the topic.

The envisioned and ongoing transition of scholarly communication to Open Access-based models is in the center of hot debates. The perception is, that this again applies mainly to scholarly journals, whereas resources like dissertations seem to have already completely transitioned to open access and full availability. Indeed, many dissertations are made available on openly accessible institutional repositories all over the world and their number is growing. However, the freely available material still represents only a part of all works written and submitted. Due to missing international standardization as well as the academic culture granting maximum freedom to the doctoral author, we can find many different regulations within the doctoral education on national or even institutional level. One result of the variety is, that even today, not all dissertations are submitted in electronic form so that getting access

¹ <https://www.proquest.com/blog/pqblog/2017/Researchers-Demand-More-Diversity-in-Content-Sources.html>

to them might get complicated or impossible for foreign users. The German National Library, as an example, collects and archives all doctoral dissertations from the country. The latest figures show that a ratio of 57% of about 28,000 German dissertations was submitted in electronic form in 2018, which means that the remaining 43% are available only in print, as shown in Figure 1. Online availability is even more challenging in countries where an infrastructure of repositories is non-existent or only emerging.

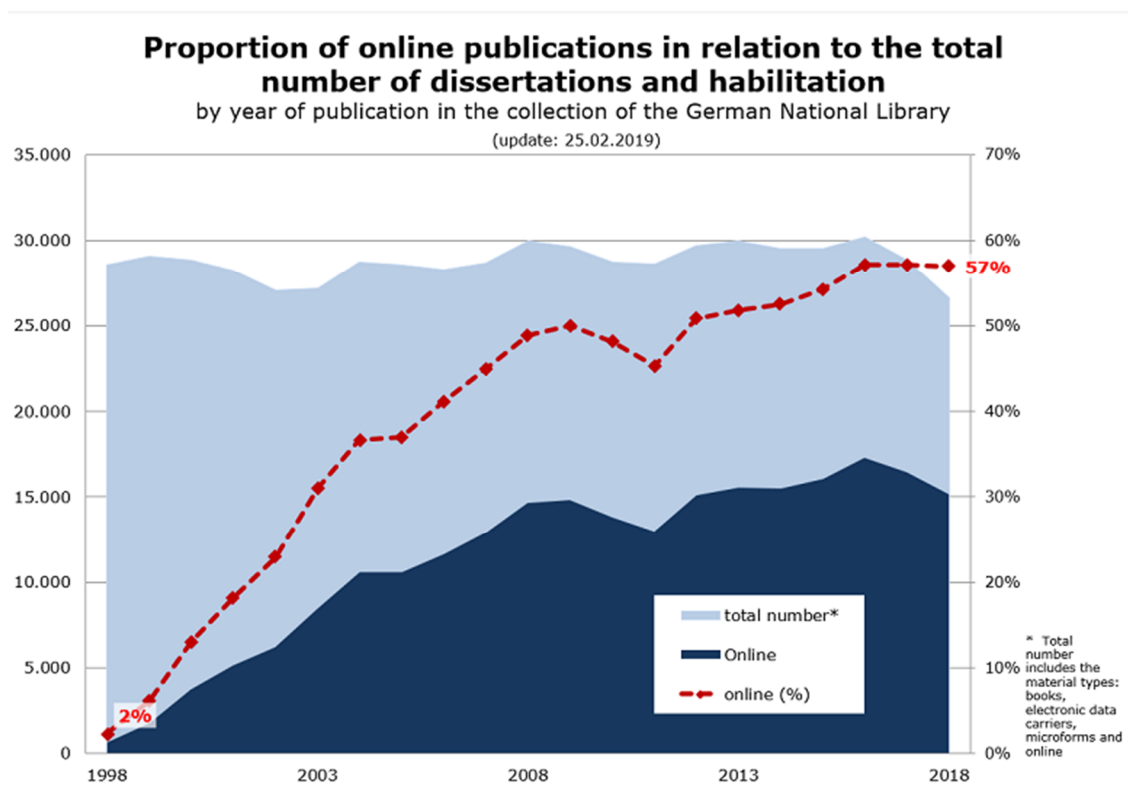


Figure 1: German National Library; Proportion of online dissertations;
https://www.dnb.de/EN/Professionell/Services/Dissonline/dissonline_node.html

On the other hand, even openly available content can be difficult to discover and retrieve for interested readers, depending on the language, quality of metadata, and indexing. In a decentral landscape of thousands of institutional online portals spread over many countries, discovering the available content and understanding how many of the total submissions are findable and available at all remains challenging.

Visibility and discoverability are key to promote the output of universities. Readership and citations help to promote the institution's profile and result in improved ranking positions and, ultimately, in enhanced attention by potential new students as well as funders. Therefore, from the perspective of authors and degree-granting institutions, to find more potential readers, it might be helpful to make use of multiple ways of dissemination to drive awareness to the research output, as shown later in this paper.

University leaders in emerging countries like the Russian Federation are aware of the impact of these key indicators to improve the global reputation of universities. However, many challenges have to be dealt with, including the need to change both structure and culture in education, which, in the Russian example, is partly still characterized by the Soviet legacy. One of the significant differences to West European or US universities consists of a different degree system.

As it will be shown in the example from Saint Petersburg, after the Soviet time the number of postgraduate students grew very fast. Subsequently, it came clear that, simultaneously, the overall quality level of the degree and the corresponding dissertations had declined. When the graduation system became subject to a general overhaul, one important aim to obtain higher quality was a higher level of transparency.

Academic degrees in Russia

Academic degrees in Russia differ significantly from that in most of Europe and other countries. The modern existing system of postgraduate education and academic degrees was established at the beginning of XX century in soviet period (Laptev, Pisareva and Tryapitsyna, 2015) and changed the previous system that was quite close to the system of academic degrees in European universities (Andreev, 2019).

The significant differences are the following. First of all, there are two levels of academic degrees – Candidate of Science and Doctor of Science. The degree of the candidate of sciences is in many respects similar to the PhD, while Doctor of Science is the next, higher level of academic degrees. Now only several private universities award degrees of Doctor of Philosophy (PhD), but such a degree is not recognized at the state level and offers no advantages in academic career or salary in state universities or research institutions. A PhD awarded in other countries needs nostrification by a special accredited agency for recognition in Russia. If the PhD degree appears in Russia, as reported by media², it would not replace existing degrees but will add to the list of academic degrees in Russia.

The second (and main) difference is that the degrees are awarded not by a certain university, but by an organ of state – the Higher Attestation Commission. The role of the university or research organization is to organize the work of postgraduate students or researchers – the applicants for the degree – and to hold the meeting of the dissertation committee, formed by order of the Higher Attestation Commission.

After the collapse of the Soviet Union, the number of postgraduate students in the Russian Federation doubled from 1996 to 2005, while the number of organizations conducting postgraduate studies increased by 11%. The main growth was observed in economics, law and medicine. During this period, the number of awarded degrees of Candidate of Science in

² <https://www.poisknews.ru/news/dobavili-stepen-novaya-uchenoe-zvanie-mozhet-poyavitsya-v-rossii/>

Economics increased by 5 times, in Law – by almost 10 times. A similar increase was observed for degrees of Doctor of Science (*Training of highly qualified scientific personnel in Russia, 2006*).

In 2013, due to many accumulated problems leading to the devaluation of academic degrees in Russia, a global reform of the system of academic degrees began. This reform resulted in a decrease in the number of dissertation committees, which caused a reduction of the number of dissertations defenses (Donetskaya, 2017).

In 2016 the Governmental Decree delegated the right of awarding academic degrees to Moscow State University and Saint Petersburg State University (*Federal law of May 23, 2016 No. 148-FZ, no date*). Later the list of such organizations was enhanced (*Government Order of August 23, 2017 №1792-p, no date; Government Order of August 27, 2018 №1766-p, no date*). Now 27 universities and research organizations have the right to award academic degrees independently. The criterial indicators for granting the right to award academic degrees to universities were created and formulated according to the general indicators of university activity (Pakhomov *et al.*, 2017).

According to the Decree of the Government of the Russian "On approval of the Unified register of academic degrees and academic titles and the Regulations on the procedure for awarding academic degrees" (*Decree of the Government of the Russian Federation of January 30, 2002 N 74, no date*), the printed copies of the dissertation are submitted to the library of the organization, where the thesis is planned to be defended, at least a month before the defense. After a successful defense, dissertations are transferred to the Russian State Library, together with one copy of the abstract in the prescribed manner for permanent storage. Theses in medical and pharmaceutical sciences are transferred to the Central Scientific Medical Library of the First Moscow State University named after I.M. Sechenov. So, the copies of dissertations are centrally deposited in libraries defined at the state level, the largest of which is the Russian State Library with a specially created library of dissertations (Avdeeva, 2010). Since 2000, the Russian State Library creates the electronic library of dissertations by digitizing the received copies of candidate and doctoral thesis. This year the access to electronic copies of almost half a million dissertations, stored in RSL, has been opened for researchers via virtual reading halls in scientific libraries across all Russian Federation.

Since 2013, the full texts of dissertation have to be placed on the official website of the organization, in which the dissertation committee was created, at least one month before defense. According to the latest regulation of the Ministry of culture, responsible for libraries in Russia (*Order of the Ministry of Culture of the Russian Federation dated February 8, 2019 N 126, no date*), the electronic copies of dissertations in PDF-A format are sent to the Russian State Library or the Central Scientific Medical Library. All these regulations are aimed at increasing openness of the qualification procedures and access to research information that was earlier in a "grey" area. While the RSL dissertation library is available only in virtual reading

rooms in the libraries, the full texts on universities' websites are available 24*7 via the Internet and, in many cases, they are stored in institutional repositories.

Nevertheless, even full open access to dissertations does not guarantee their active usage throughout the world, mainly because of the language. The presence of only Russian-language information about dissertations reduces the possibility of searching them on the Internet. Thus, the availability of English-language metadata becomes crucial to increase the visibility of dissertations. This applies both to materials posted on the websites of organizations and to dissertation collections in institutional repositories.

One of the most effective ways for increasing visibility may be uploading dissertations to the international database ProQuest Dissertations & Theses Global (PQDT). ProQuest offers this option to showcase graduate research to universities all over the world against no fee. Up to now, only two modern Russian Universities have started projects of having dissertations indexed in full text this database – Saint Petersburg State University and the Russian Presidential Academy of National Economy and Public Administration (25 dissertations in total). Also, we can find two dissertations from Moscow State University and Siberian Federal University, submitted to ProQuest individually by postgraduate students. The full texts are in Russian (21 dissertations) and English (6 dissertations). As PQDT covers also a lot of material from previous decades and centuries, Russian dissertations from the 19th and the beginning of the 20th century from the “Imperatorskii Iurevskii Universitet” and “Imperatorskaia Voenno-meditsinskaia Akademiia” can also be found, though without access to full text.

The SPbSU case

St. Petersburg University began the work on changing the regulation of dissertations, when it became clear that the general quality level of dissertations in our country went down, as well as public confidence in academic degrees. Selected outstanding works continued to appear in various branches of science, but the overall quality of dissertation defenses in Russia declined. This fact was confirmed by numerous studies and resulted in a huge reorganization of the whole system of postgraduate education and attestation in Russia (Laptev *et al.* 2015, Donetskaya 2017).

The leaders of SPbSU categorically disagreed with such a development in the scientific and educational sphere – as the most important field for the development of our country. In 2013 SPbSU launched its regulations regarding the defense of dissertations for the degree of *Ph.D. SPbSU*. This was a kind of continuation of the long tradition of awarding individual, independent degrees at St. Petersburg State University, which had existed almost a hundred years ago. In 2013–2014, 13 researchers received a *Ph.D. SPbSU* in mathematics, biology, physics, and geology.

These dissertations have been written and defended in English. The dissertation committees had been created for each individual dissertation, including specialists from

several foreign countries. The texts were published in a special series by St. Petersburg University Press – Saint Petersburg State University Studies in Physics, in Biology, etc. The defenses were translated online over the Internet and video recordings are available on a dedicated site for dissertation committees in combination with dissertation texts and opponents reviews (<https://disser.spbu.ru/ph-d-spbsu.html>). Furthermore, several of these PhD theses have been uploaded to PQDT.

The experience was regarded as successful, and in 2016 a law was issued, according to which two leading universities of the country – St. Petersburg State University and Moscow State University – were given the right to have dissertations defended according to their rules and to award scientific degrees of candidates and doctors of science acknowledged by the state (*Federal law of May 23, 2016 No. 148-FZ*, no date).

According to this law, until September 1, 2018, current dissertation committees created in accordance with the permission of the Ministry of Education and Science based on the recommendations of the Higher Attestation Commission should be closed at Moscow State University and St. Petersburg State University. The level of defenses in dissertation committees, where SPbSU degrees are awarded, and the requirements for applicants and members of dissertation committees should be not lower than recommendations of Higher Attestation Commission.

New rules for awarding scientific degrees at SPbSU in general, approved by Order No. 6821/1 “On the procedure for awarding academic degrees at St. Petersburg State University” dated September 1, 2016, in fact were the same, as had been elaborated earlier for PhD SPbSU degrees. Now the composition of St. Petersburg State University's dissertation committees for the defense of each particular dissertation is determined individually. It is formed from the leading specialists connected to the profile of the work, with mandatory involvement of Russian and foreign scientists not being employees of St. Petersburg State University.

The announcement of the defense, the composition of the dissertation committee, the full text of the dissertation and the reviews of the dissertation are posted on the St. Petersburg State University website before the defense, so that anyone can read these documents. The defense is conducted publicly in Russian or English and is broadcasted online on the St. Petersburg State University portal.

Online broadcast of dissertation defenses was first introduced in Russia at St. Petersburg State University in 2010. Anyone can personally observe the correctness of all procedures carried out, the presentation of materials by the author, the evaluation by opponents, the progress of scientific discussion and, finally, the announcement of the dissertation committee's decision. The experience of Saint Petersburg University was extended to the whole country and, since 2011, the rules for dissertation defense include obligatory online

translation or at least audio/video record of the defense.

As of now, the special website for dissertation committees in SPbSU contains full information about 150 successful defenses according to the university's own rules, including the full text of dissertations, reviews and audio and video recording of the meeting of the Examination Board for postgraduate studies, both Russian and English versions. Data on upcoming defenses contain full texts of dissertations, a list of publications of the applicant, the composition of the dissertation committee and other necessary information.

Since its launch in 2016 there were about 280,000 visitors of personal applicant pages and over 140,000 views of the technical pages of the defense degree section of St. Petersburg State University. A special interest is given to rejected dissertations. For example, one of the rejected theses was viewed about 7,000 times. Videos of defenses are also uploaded to a special YouTube channel – “Dissertations in SPbSU”. The total number of video views of PhD defenses is 7,344, and candidate and doctoral defenses were viewed from 10 to 200 times each.

All dissertations, defended in Saint Petersburg State University (earlier – Leningrad State University) since 1936, are stored in the Scientific library. Since 1959, there have been about 25,000 Candidate of Science dissertations and more than 5,000 Doctoral dissertations. After having started the University repository in 2013 (<https://dspace.spbu.ru>), we began digitization of dissertations on demand together with the possibility of uploading new dissertations to the special collection “Dissertations & Theses”. Since 2016, all Master theses and Bachelor graduation qualifications are also uploaded to the collection “Graduation projects” in the SPbSU repository. Now there are more than 8.5 thousand graduation works in 26 sub-communities within this chapter. Each month there are about 500 unique visitors in both “Graduation projects” and “Dissertations & Theses”. Almost half of the visitors in both communities are not from Russia, but mostly from the USA, United Kingdom, and China.

In 2017, SPbSU started the project with ProQuest Dissertations & Theses Global, which enabled the upload of dissertations of Saint-Petersburg State University to this international database. ProQuest created a special site for submitting SPbSU dissertations – based on their tool ETD Administrator. The detailed instructions for SPbSU students and researchers were posted on the library website <http://www.library.spbu.ru/blog/?p=5849>.

The main selection criteria for uploading dissertations through the website of the St. Petersburg State University ETD Administrator are the following:

- Type of dissertations – PhD, Candidate of Sciences, Doctor of Sciences
- The defense took place at St. Petersburg State University (SPbSU)
- The diploma has been received or an official confirmation of the award of a degree has been given.

The instructions were read by about 20 visitors weekly during the first 4 months of the

project implementation. The first people to test the service for submission of theses to PQDT were applicants of degree SPbSU PhD. Later candidates of science also started to submit their dissertations.

While the system was tested, the access rates to PQDT and other ProQuest electronic resources doubled.

The submission to PQDT has an option of simultaneous upload to the institutional repository, so both processes can be fully integrated with ETD Administrator. Submission of dissertations both to PQDT and the repository is voluntary now, but we plan to make it mandatory for all applicants of SPbSU academic degrees.

Conclusions

There are two main principles for the system of SPbSU academic degrees awarding – those are quality and openness, whereas the remaining details of the procedure can be revised. The global goal of this work is to increase the level of confidence in the result. To achieve this goal, we improve the quality of dissertations, improve the system for conducting examination of research works, increase the transparency of procedures, promote the involvement of Russian scientists in the international academic community at the stage of preparing and defending a thesis, and provide applicants with the opportunity to present their research to a wide range of stakeholders.

The openness of university research, including full information about awarded academic degrees, contributes to a higher academic reputation of universities, which is an important part of university rankings. This is especially important in light of the task of promoting the ratings set by the Russian government to leading universities.

On the other hand, open access to dissertations makes it possible to use this type of information resources for vast analysis of research activities, including the creation and development of scientific schools, or revealing emerging research areas. Such an approach was used, for example, for the analysis of dissertations in the Boreskov Institute of Catalysis of the Russian Academy of Science (Zibareva, Alperin and Vedyagin, 2019).

Similarly, the database of 2.5 million full text dissertations and theses, curated by ProQuest, attracts more and more individual researchers from various disciplines, who wish to use specific extracts of the metadata or the full text corpus for text and data mining analysis within their research. ProQuest is currently developing a TDM interface, which is used in a pilot phase by several partner institutions, as well as a TDM toolkit to support teaching and learning.

The public video streaming and recording of dissertation defenses at Saint Petersburg State university described above is in line with the trend to present research from dissertations to the general public. One of the ways to do this is “3MT” competitions, initially invented and started at the University of Queensland, Australia¹ and now developed into a true success story by the global adaption in countless international universities. In competitions on university,

national, or international level, PhD students are challenged to present their research to non-experts within 3 minutes. In order to both enhance the visibility of these events and to preserve and archive the visual records, ProQuest has now also started to integrate such videos in their dissertation database.

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ⁱ <https://threeminutethesis.uq.edu.au/>