

# Digitization of Doctoral Dissertations as a Part of Scientific Heritage: Objectives, Mission and Copyright Issues

**Tatjana Brzulović Stanisavljević, MA**

University library "Svetozar Marković", Belgrade, Serbia  
[brzulovic@unilib.bg.ac.rs](mailto:brzulovic@unilib.bg.ac.rs)

**Dragana Stolić, PhD**

University library "Svetozar Marković", Belgrade, Serbia  
[stolic@unilib.bg.ac.rs](mailto:stolic@unilib.bg.ac.rs)

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## **Abstract**

*Doctoral dissertations are very challenging material for library research and especially digitization. Different kinds of publications make a group of PhD theses as a part of library collection: from non published papers which are considered as grey literature that students apply as final work of their doctoral studies, to old books printed in small number of copies, which was a practice on many universities at the end of 19<sup>th</sup> and in the beginning of 20<sup>th</sup> century. Old theses can also be treated as a relevant part of national scientific heritage. The subject of this paper is to present the experience of the University library "Svetozar Markovic" in Belgrade during the project of digitization of old doctoral dissertations and issues which arose during that activity. We can define at least three main aspects: 1) the relevance of dissertations as a part of national identity (one part of digitized dissertations, for example, Serbian scientists defended on the foreign universities) and historical significance of that material, 2) enhancement of the visibility of dissertations and possible revalorization of their scientific achievements and 3) resolving the issue of copyright and a question of orphan works. The digitization of old doctoral dissertation poses great tasks in front of one university library which has to activate not only library resources, but also team of experts including historians and professors of law. This kind of activity promotes, at the same time, team work and interlibrary cooperation and should establish long term practice and research work of remarkable social and national interest.*

## **Key words**

PhD theses, scientific heritage, orphan works

## **Introduction**

Since 2012 the University of Belgrade has been systematically archiving doctoral dissertation defended on that oldest and biggest academic institution in Serbia in the Digital repository of the University of Belgrade – PHAIDRA (PHAIDRA, 2012). It means that permanent archiving of PhD theses in electronic database became mandatory, while open access at the beginning was preferable, when the University of Belgrade signed Berlin declaration on Open Access to Knowledge in the Science and Humanities in 2011. Since 2014, by the new changes of the law on higher education, the open access became obligatory (University of Belgrade, 2015).

This practice was followed by the decisions brought by the University which adopted several documents including statements that PhD students sign and integrate in their work (University of Belgrade, 2015). University also recommended technical characteristics of

electronic document and propositions for its structuring. Soon after, other Serbian state universities made similar decisions and some of them, which established their repositories on the same platform, joined the system “E-theses” with the dissertations from their universities.

After establishing these systems, the question of retrospective archiving was posed, mainly as the interest in electronic versions of theses defended before 2012. The PhD theses became the subject of larger expertise which indicated how diverse and various the corps of this material could be, demanding different approaches and becoming very challenging for any library institution.

### **Collection of doctoral dissertations at the University library “Svetozar Marković”**

University Library “Svetozar Marković” is a central Library of the University of Belgrade and a parent library for network of academic and special libraries in Serbia. Its main mission is to provide resources for improvement of educational and scientific work of the University (University library, 2015).

Library was depository for doctoral dissertations defended in Yugoslavia, but from 1990 only theses from the University of Belgrade are deposited here. It has a collection of more than 25.000 items classified as doctoral dissertations. This is a unique and precious collection but still not uniform. However, it contains several sub-collections with their own particularities. Apart from current theses as a part of PhD studies, which students defend at their faculties as finalization of their education, at least two more groups can be distinguished:

- 1) Old theses from the University of Belgrade defended before World War II; the University of Belgrade was established in the year of 1905 when High School, the oldest Serbian academic institution, successor of Serbian Lyceum (1838), by law got the status of the University. Very soon, the first doctoral dissertations were defended on this University. These dissertations by University library make specific material, since they are printed in small number of copies (less than hundred). Quality of that print is not very high (paperback) and often theses are damaged or in rather bad condition which requires conservation and adequate protection.
- 2) Special collection of theses from foreign universities, with those which Serbian scientist defended mostly in Europe. These are mainly printed theses, very heterogeneous, concerning their subject areas.

Both parts of the collection demand particular approach in treatment and presentation, bearing in mind their specificity, scope and condition.

### **The strategy of retrospective digitization**

Digital repository of the University of Belgrade became necessary infrastructure for creating the strategy of retrospective digitization, which at first step included dissertations defended before 2012. The users’ interest in putting their dissertations in Repository and in open access was recognized and this was the reason why University library started new service – digitization “on demand”. If users, who had defended his dissertation before 2012, want to put their doctoral paper online, they can send a request to University library together with the License agreement, Library will scan the printed copy from its collection and deposit it into the Repository (Stolic, 2014).

This kind of users' service in practice became dynamic, interactive and cooperative process between users and the Library. Its purpose is to satisfy users' needs in short notice and efficiently. On the other side, by filling the request a user provides additional data about himself and his paper, and enables completion of the catalogue and other information already possessed by the library.

Still, this part of retrospective digitization is very similar to the process of archiving current dissertations, since almost in every case users personally sign the necessary License agreement. However, a part of the collection mentioned above which includes dissertations from the end of 19<sup>th</sup> and beginning of 20<sup>th</sup> century lacks that kind of agreement and makes particular challenges to the Library.

## **Project**

In 2014 University library started a project "Digitization of doctoral dissertations defended before 1941: dissertations of Serbian scientists defended on foreign universities and dissertations from Belgrade University (1905–1941)" supported by the Ministry of culture and information of the Republic of Serbia during first year of its realization. The aim of the project is to digitize only items from the University library collection: around 140 dissertations from the Belgrade University and more than 40 dissertations from foreign, European universities.

Theses from Belgrade University (today officially University of Belgrade) are deposited in the existing system "E-theses". Integration of first defended theses with current papers enables drawing the development path of the University from its founding to present day and outlines its growth and achievements.

The collection of theses from foreign Universities, making diversified group of items, is integrated in the newly established portal "Doctoral dissertations of Serbian scientists defended abroad" ([inoteze.unilib.rs](http://inoteze.unilib.rs)). The main issue about this dissertation is which criteria should be used: geographic or national. In turbulent Serbian history, during the difficult battle for freedom and sovereignty the state borders were changed, and commitment to these criteria would leave out many scientists that formally lived outside of Serbia, but make part of its scientific and cultural context. That is why the orientation is made towards national principle, so that these names would be included (Inoteze, 2015).

This material have to be considered as scientific heritage, although „scientific heritage does not have clear and well-defined concept“ (Laurenço & Wilson, 2013), and there are no particular papers that indicate the old PhD theses as this kind of legacy. But still, we can easily apply this broadly set designation to theses: "Scientific heritage is the shared collective legacy of the scientific community, in other words what the scientific community as a whole perceives as representing its identity, worth being passed on to the next generation of scientists and to the general public as well. It includes *what* we know about life, nature, and the universe, but also, *how* we know it. Its media are both material and immaterial. It encompasses artifacts and specimen, but also laboratories, observatories, landscapes, gardens, collections, *savoir faire*s, research and teaching practices and ethics, documents and books." (Laurenço & Wilson, 2013)

The Serbian doctoral dissertations from the 19<sup>th</sup> century and beginning of 20<sup>th</sup> century surely meet these criteria such as "representing the identity" and passing the knowledge to the next generations. Still, all issues that have arisen from this project can be divided into three main topics:

- historical relevance or historical context
- increasing of visibility and revalorization

- dealing with “orphan works”.

Each of these aspects can be treated separately but still the real meaning of them can be understood in interaction and relation with the others.

### **Historical relevance**

More detailed insight into the collection of old theses reveals its real significance not only as a part of history of science, but as a representative material evidence of national educational strategy during 19<sup>th</sup> century.

Process of getting the sovereignty of Serbia was long and hard, and it started with uprising in 1804 against the occupation which had lasted for almost five centuries. Although these first steps failed, they succeed to put the foundations for reestablishment of Serbian state, which fell under the Turkish authority in 15<sup>th</sup> century. Simultaneously with the battles for political independence, Serbian leaders fought for cultural and educational recovery. In 1830, on 16<sup>th</sup> September the Prince Miloš Obrenović brought a decree of sending cadets abroad (Vasojević, 2015). That was the first act that legislated sending of high school students to study at foreign universities. The purpose was very clear: Serbian state, which was in the state of total restoration after centuries of occupation, needed young educated human resources in order to recompense the lost time and join other developed European countries.

From 1882 to 1914 Serbian state granted scholarships for more than 850 students to educate on the European universities (Trgovčević, 2003). Among them there were those who returned with the PhD theses. According to the available data, from 1885 till 1914 on the German universities there were 110 doctorates of the students from Serbia. Some of them became well known scientists, scholars and writers (Trgovčević, 1993/1994). At the same time the middle class became wealthier and many of them sent their children to studies on their own expense.

Unfortunately, research of this material requires investment of significant resources. In the case of Serbian students, investigations must be very broad and have to include many countries and universities. That is why this kind of projects can be only long-term and realized in cooperation of several groups of specialist, mainly historians and archivists.

### **Visibility and revalorization**

Digitization of dissertations is the first part of activity with the final goal to collect and represent old theses defended abroad, and complete the collection of theses defended on Belgrade University till 1941. This gives the possibility for recognizing this material as a part of unique cultural and national identity.

In particular objectives of the projects are:

- revelation of part of the national heritage;
- introducing the educational and cultural tendencies of society in one historical moment;
- revealing or reminding on the educational and scientific strategies of that time;
- better overview in achievements and results of particular scientists and reevaluation of their scientific contribution to national and European science
- knowledge about subjects of scientific search before World War II and estimation of their actuality.

Finally, old PhD theses, printed in small number of copies and in paperback, and often much damaged and the digitization are ways to preserve them.

Thus, digitization enables recognition and reevaluation of these achievements and presenting them properly so that they could be seen as an integral part of national history. It gives the possibility for better understanding the accomplishments of whole generations of scientists as well as their missions and significance.

### **Copyright and “orphan works”**

The copyright for current theses, defended from 2012 is regulated with the License agreements that PhD students sign personally. It means the implementation of the Creative Commons standardization in university practice. Students choose one of six CC licenses and they authorize University library to deposit their theses into the Repository.

But retrospective digitization creates for the library specific problems mainly related to copyright issues. Digitization “on demand” could also include not only authors of the paper but their inheritors who would like to make the work of their ancestors more visible. However, the copyright holder has to sign this agreement or license as an obligatory condition for putting the thesis into the Repository and in open access.

On the other side, old theses set up new challenges since among them there are many “orphan works”: the papers with unknown or unavailable copyright holder. There are two situations in which such problem reveals:

- Impossibility to identify the inheritors of the work although the author of the thesis is well known;
- Impossibility to determine year of death for some authors, and therefore to establish if the work in the public domain, which is the case for significant number of theses.

But the problem which can be considered as unsolvable is inexistence of legislation for usage of “orphan works”, since the existing Directive has not become the part of Serbian legal system yet, so it cannot be applied to any paper or dissertations as well.

The Directive of the European Parliament of “certain permitted uses of orphan works” was brought by the European Commission in October 2012 (2012/28/EU). That Directive indicates that a “diligent search” should be conducted to search the rights holder and the evidence of such search should be provided (Directive 2012/28). That opens a new set of questions such as: if the directive is a legal act which doesn't specify the method of application although it prescribes the purpose for this action. Besides, there is no unique list of relevant sources that should be searched (Popović, 2013).

All this leaves little space to librarians which in practice means that only a small number of papers whose copyrights are for sure expired can be put in open access. In Serbian legislation it means that dissertation whose author died before 1954 are in public domain, since in 2004 new copyright law was adopted and a required period for copyright expiration is changed from 50 to 70 years, but all dissertation that fell into the public domain will remain in that status.

### **Conclusion**

All this puts the Library in a specific situation since it has to be confronted with several problems. On one side, the Library mission is not only to preserve national, cultural and scientific heritage, but to make it visible and reveal it for the users. It also has to provide relevant information and establish sustained instruments for transferring information to the users.

The digitization of doctoral dissertations is an opportunity for performing and resolving all these tasks: to provide visible results of project of specific national interest and with expectable reception. Since it requires not only resources of the Library itself but also those by other institutions, it gives a possibility for cooperation with specialists from other subject areas: historians, law professors, archivists and others.

The project itself cannot be realized in a short period, and the first phase makes only the base for long term research, which must be spread among other library institutions in the country and abroad. It also means widening of the activity to the research which can be coordinated by the library.

Resolving of copyright issues and finding the best possible solution considering the possibilities and limitations can establish the model for similar situations where the Library can have instructive role. Although the open access for a majority of the material is not the option, it should not disable the process of digitization since other goals can be accomplished, such as preservation, and increasing visibility through information centers, like portals, with theses available on metadata level. Users can, under the indicated condition within the library, get the digital copy. Finally, it offers the possibility to draw parallels and underline the main courses of national science, and provide initial conditions for further research.

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