



Analysis of open access digital repositories of social sciences at the University of Zagreb, Croatia

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Abstract

Purpose - The study aims to emphasize the development of institutional repositories' conceptual framework as well as how it has affected academic and scholarly communities in terms of increased exposure, a broader audience, and quicker dissemination of research. In the community of open access academic platforms, the characteristics of institutional repositories that set them apart from the competitors, are highlighted. This study aims to evaluate academic institutional repositories in Croatia in the field of social sciences at the University of Zagreb.

Methodology/approach - Data were collected by examining digital repositories of nine academic institutional repositories (Faculty of Education and Rehabilitation Sciences, Faculty of Kinesiology, Faculty of Law, Faculty of Organization and Informatics, Faculty of Political Science, Faculty of Economics and Business, Faculty of Teacher Education with Faculty of Croatian Studies and Faculty of Humanities and Social Sciences, both of which belong to social sciences and humanities).

Findings - The University of Zagreb has a total of 80,308 digital objects, out of which 29,592 objects are stored in Social Sciences digital repositories (36.85%). A total of 12,426 digital objects (41.99%) are in open access. The Faculty of Education and Rehabilitation Sciences has the fewest stored digital objects, 956 (3.54% of the total number of digital objects in the field of social sciences), but it has the most objects stored in open access (1,050; 90.8 %). The Faculty of Law has the fewest objects

in open access, out of 4,307 digital objects, only 11.1%. Most of the objects are, as expected, in Croatian (27,900, 94.28%) followed by the ones in English (1,089; 3.68%). The most prevalent kind of academic materials to be found in institutional repositories are theses and dissertations, followed by journal articles and conference papers. A total of 28,601 (96.65%) graduation theses and final theses are stored in the repositories. Originality/value - The benefits associated with institutional repositories are manifold. Repositories provide users with information that would not otherwise be accessible for a variety of reasons, such as the absence of supplemental data (unpublished reports and working papers, audio-visual items and multimedia, learning objects, bibliographic references, datasets, lecture notes, other special item types, and so forth) or the paywall/subscription models used by commercial channels of scholarly communication. The findings demonstrate that the University of Zagreb is seeing a wave-like development of institutional repositories. The results from the study provide insight into the development of institutional repositories in the scientific field of social sciences and offer suggestions for higher education librarians and management teams.

Keywords: institutional repository, open access, social sciences, University of Zagreb, webometric

Introduction

Open access is an important part of Croatia's scientific community. The advancement of open access in Croatia began after adopting *Budapest Open Access Initiative* and *Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities* in 2002 and 2003, respectively. Although our own declaration was not proclaimed until 2012 (Croatian Open Access Declaration), numerous librarians and information specialists formed a working group which contributed to promoting open access by designing projects and educating target audiences (scientists and institutions). Consequently, in 2004, Hrčak (Portal of Croatian scientific and professional journals) was born. This enabled a free and unobstructed path to knowledge for scientists and put Croatian scientific production on a global map.

Institutional repositories (IRs) are a place to store and share scientific production of a specific institution and as such they are an important part in distributing knowledge to all its intended participants (Jones, 2007). The first institutional repositories in Croatia that were established in 2006 in subsidiaries of University of Zagreb – School of Medicine, Faculty of Humanities and Social Sciences and Faculty of Mechanical Engineering and Naval Architecture - collected many primarily graduation theses but also articles, conference papers, book chapters and PHD theses. However, the problem arose from the lack of coordination of their policies and metadata outline, while other university libraries faced the problem of resources (Melinščak Zlodi, 2018). With passing of the Law on scientific activity and higher education in 2013, higher education institutions agreed to store all their graduation theses in digital form which resulted in the development of the digital repository Dabar.

Dabar (Digital academic archives and repositories) provides a central location for preserving research data, as well as an institution's intellectual and creative property in an institutional repository with its own website, without charging any fees. For accurate research, the objects are characterized by using a predetermined set of information during upload. The following is offered to institutions (Dabar, n.d.):

- complete control over access rights and repository content usage
- open access publishing and visibility of the institution
- secure long-term data storage



- solution for preserving theses and doctoral dissertations described by metadata descriptions prescribed by the National and University Library in Zagreb
- modifying the design and content of the repository interface with Drupal content management system
- AAI@EduHr account log-in
- establishing a thematic repository for the research community

Besides students' theses, institutions can store versions of their scientists' published works as a way of building a scientific network. However, few institutions actually do this. The main cause is ignorance about copyright and the version of the work that can be archived. It is common practice for authors to transfer some of the copyright to the publisher while the information about self-archiving policy can be found in the contract. Other common reason is the writers' own unwillingness to "waste" their time since their work can often be found on illegal websites (Macan, 2018).

The aim of this paper was to evaluate academic institutional repositories in Croatia in the field of social sciences at the University of Zagreb since the implementation of Dabar in 2015 while focusing on the open access practices of the institutional repositories.

Literature review

When browsing through literature about open access in IRs, we focused on literature published between 2016 and 2022¹ and on both domestic and foreign research. In the last eight years, several studies on repositories have been published in Croatia. Macan (2017) wrote about the existing state of OA self-archiving mandates in the Croatia and European Union, while focusing on the Ruđer Bošković Institute whose scientists were first obligated to self-archive their papers. Similarly, Škorić and Markulin (2018) gave an overview of Dr Med - University of Zagreb School of Medicine digital repository. Horvat (2020) collected and analyzed polytechnic digital repositories of Croatian National repository ZIR to identify the most prevalent access in them. Vrkić et al (2020) wanted to determine differences in openness and sharing of scientific information by analyzing scientific papers from the Croatian Scientific Bibliography (CROSBI) from the University of Rijeka and concluded that the highest tendency for self-archiving is in natural sciences field. Stubečan Ladešić et al (2022) carried out a study about user demographics and their interests in the Repository of the Faculty of Science University of Zagreb.

We will briefly describe several of the most pertinent studies on the growth and development of institutional repositories that used webometrics or a survey to illustrate the global status of institutional repositories. Dlamini and Snyman (2017) conducted a webometric of current status of IRs in African academia and constructed a semi-structured questionnaire on obstacles and challenges of IRs for their managers (usually librarians or information workers). Research has been made by authors Pereira da Costa and Lima Leite (2019) who identified and examined IRs in universities of Latin America.

Authors Kipnis et al (2019) conducted a survey and a qualitative content analysis to provide a picture of institutional repository (IR) landscape in medical schools and academic health facilities in the USA. Aguillo (2020) used a webometric analysis of IRs contents in social tools to prove there is a lack of presence of IRs due to poor promotion and bad naming practice

¹ Dabar started being operational in the second half of 2015, so we concentrated on the research of IRs after 2015.

of URLs. Gul et al (2020) explored the status of IRs from different angles, including their current situation and the content management practices they have employed in South Asia, while Shajitha (2020) made an in-depth study to determine digital curation approach currently being used in South Indian IRs. Ghosh and Roy (2022) also presented current status of agricultural repositories and then examined presence of African agricultural digital repositories on the web. Kyprianos and Lygnou (2022) offered a complete picture of Greek institutional repositories of academic libraries and how they deal with copyright issues of author's self-archived publications.

Research methodology

Data were collected using Dabar website of nine selected repositories during 2-16 November 2022. The analysis included nine digital repositories from the University of Zagreb which were selected on the criteria of belonging to the field of Social Sciences. The repositories which were examined included Faculty of Education and Rehabilitation Sciences, Faculty of Economics and Business, Faculty of Organization and Informatics, Faculty of Political Science, Faculty of Humanities and Social Sciences, Faculty of Croatian Studies, Faculty of Kinesiology, Faculty of Law, and Faculty of Teacher Education. The study used webometric approach to solicit information to examine digital academic repositories of nine selected academic institutions in the Republic of Croatia.

Statistical displays and data available on the repository's website will be used to show the current state of selected digital repositories in terms of storing digital objects, their availability and openness. Each institutional repository was searched to collect data, such as the year the institutional repository was established; the content size; the number of open access objects; the number of published objects; the types of digital objects; and the language of the stored objects. A comparative analysis of the repository content will be made, regarding the number of published objects and types of access.

Findings of the study

The repository of University of Zagreb consists of 34 institutional repositories from the scientific fields of arts, biomedicine, biotechnology, engineering, humanities, natural sciences, and social sciences. The total number of objects is 80,518, out of which 54.6% are open access. With 29,592 digital objects, social sciences account for 36.85 % of the total number of digital objects, out of which 42% are open access.

More detailed information can be found in table 1 which shows analyzed repositories with links, the dates of establishment, the number of open access and the total number of objects per repository.

Table 1. DABAR repositories of social sciences University of Zagreb

Academic institution	Date of establishment	URL Address	Number of open access objects	Number of all objects
Faculty of Education and Rehabilitation Sciences	2016-01-12	https://repozitorij.erf.unizg.hr/	953	1,069
Faculty of Economics and Business	2015-11-18	https://repozitorij.efzg.unizg.hr/	1,369	6,639
Faculty of Organization and Informatics	2016-06-21	https://repozitorij.foi.unizg.hr/	1,185	5,719
Faculty of Political Science	2015-10-02	https://repozitorij.fpzg.unizg.hr/	494	1,510
Faculty of Humanities and Social Sciences	2016-02-24	https://repozitorij.ffzg.unizg.hr/	3,770	4,672
Centre for Croatian Studies	2015-10-05	https://repozitorij.hrstud.unizg.hr/	1,590	2,439
Faculty of Kinesiology	2015-09-14	https://repozitorij.kif.unizg.hr/	896	1,284
Faculty of Law	2016-02-24	https://repozitorij.pravo.unizg.hr/	478	4,332
Faculty of Teacher Education	2015-11-18	https://repozitorij.ufzg.unizg.hr/	1,691	2,981

Repository of Faculty of Education and Rehabilitation Sciences was established in 2016. It consists of 1,050 digital objects. Most of them are theses: master's and professional theses with 1,033 (98.38%) objects in total; while 15 (1.62%) of them are doctoral theses. The biggest percentage of digital objects by language is 99.52% (Croatian) while the biggest percentage by access is 90.76% (figure 1). The least number of stored objects are author and editor's books, two in total.

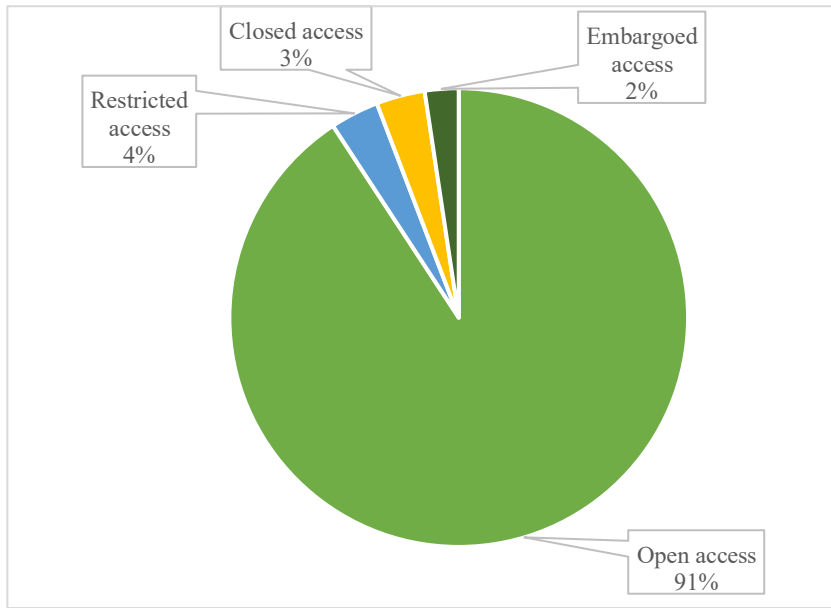


Figure 1. Type of access of objects in Faculty of Education and Rehabilitation Sciences repository

Faculty of Economics and Business repository consists of 6,568 digital objects. These make 99.63% of the total number, the rest are supplements and original scientific papers. The largest group are master’s theses (3,561; 54.22%), followed by undergraduate (2,141; 32.6%), professional (276; 4.2%), and doctoral theses (78, 1.19%). Most of the stored objects are written in Croatian, 6,337 (96.48 %), while 229 (3.49 %) objects are written in English, while there is one object in Bulgarian and one in Portuguese (0.03%). Most objects can be accessed through their institution, 4,372 (66.57 %), while 1,369 (20.84%) are in open access (figure 2).

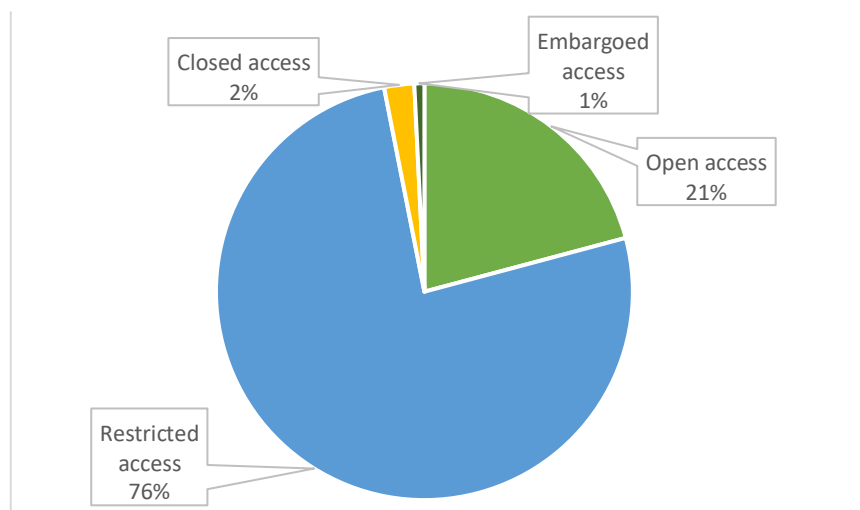


Figure 2. Type of access of objects in Faculty of Economics and Business IR

Repository of Faculty of Organization and Informatics has 5,712 digital objects, most of which are undergraduate theses, 3,482 (60.96%), followed by master's theses, 2,062 (36.1%). 98.56% of stored digital materials are in Croatian. Most objects can be accessed institutionally, 3,413 (59.75%), while 1,185 (19.33%) of all objects are in open access. The category of undergraduate theses, which represents the largest group of stored digital objects, has the most objects in open access, 720 (20.68%) (figure 3).

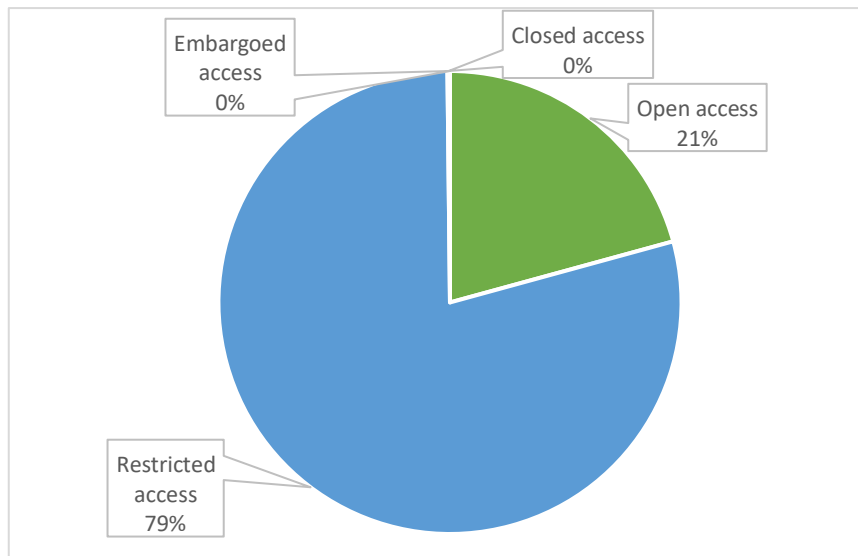


Figure 3. Type of access of objects in Faculty of Organization and Informatics repository

In the repository of Faculty of Political Science, except for one supplement (interview appendix), theses are the most stored type of objects (figure 4). As in previous cases, most of the objects are written in Croatian, 1,471 (98.33%). The number of closed objects and objects in open access is very similar: 514 (34.38%) objects are closed, while 494 (33.04%) are in open access (figure 5).

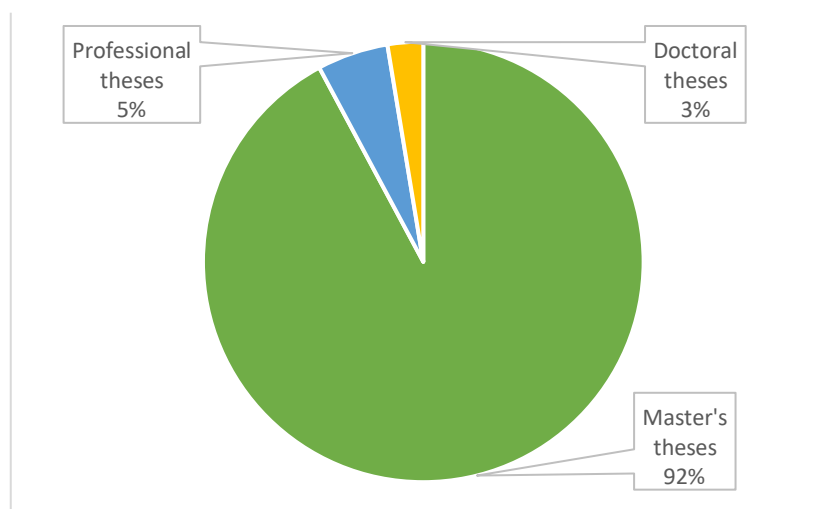


Figure 4. Number of theses in repository of Faculty of Political Science repository

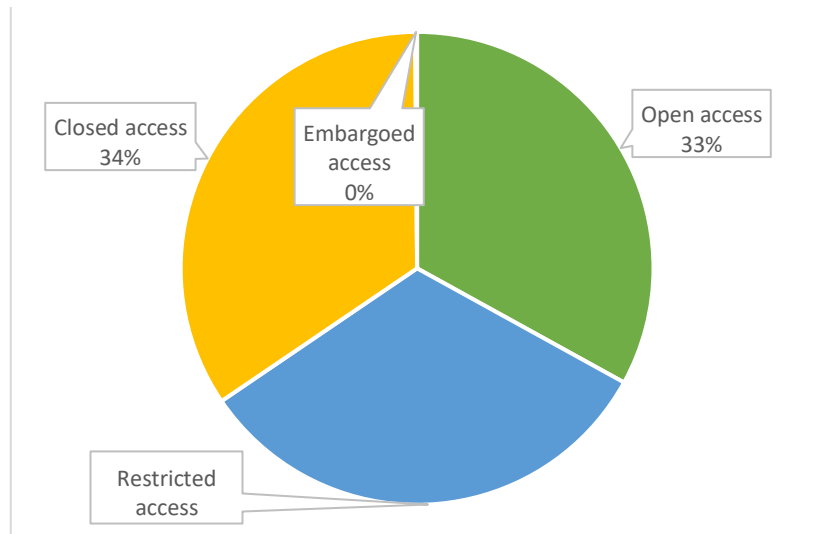


Figure 5. Type of access of objects in Faculty of Political Science repository

Faculty of Humanities and Social Sciences has 4,555 stored digital objects. Biggest percentage of them are master’s theses (68.14%), followed by undergraduate (552), doctoral (226) and professional theses (17). Three most represented languages of digital objects are: Croatian (3,339, 70.40%), English (606, 17.78%) and Spanish (196, 4.13%) (figure 6). Percentage of objects in open access is 81.85% (figure 7).

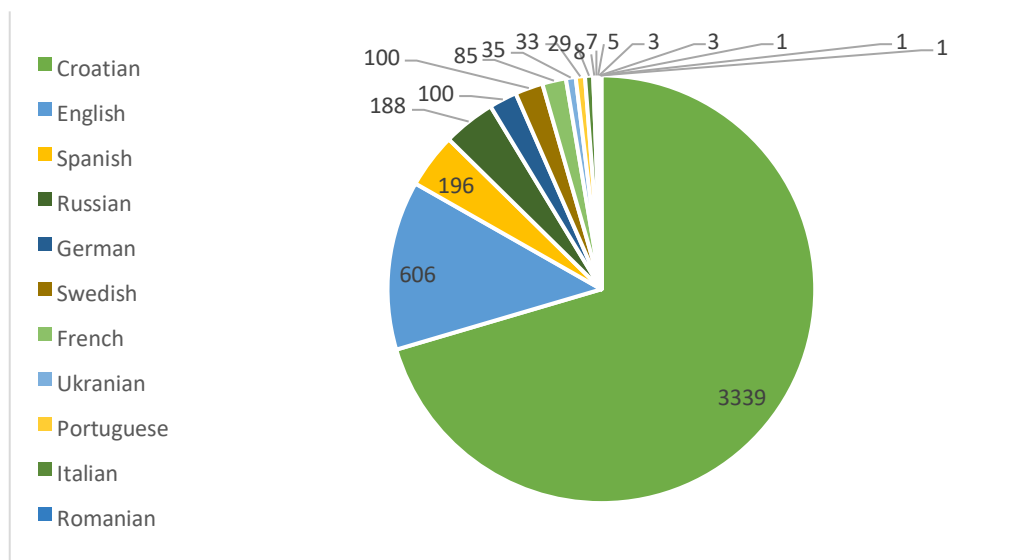


Figure 6. Linguistic distribution of objects in repository of Faculty of Humanities and Social Sciences

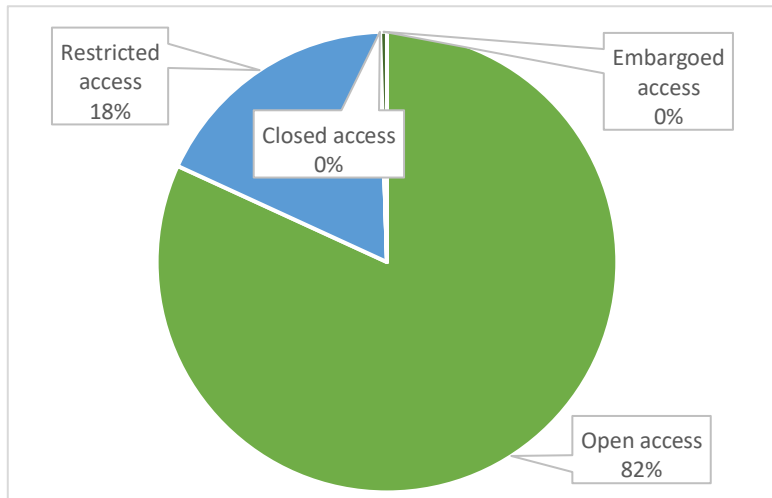


Figure 7. Type of access of objects in Faculty of Humanities and Social Sciences repository

Digital repository of Centre for Croatian Studies has a total of 2,396 digital objects: 66.36% are in open access (figure 8), while most represented language is Croatian (97.89%). and are master's theses. After master's theses (60.85%), the most represented types are undergraduate theses (23.75%) and doctoral theses (5.63).

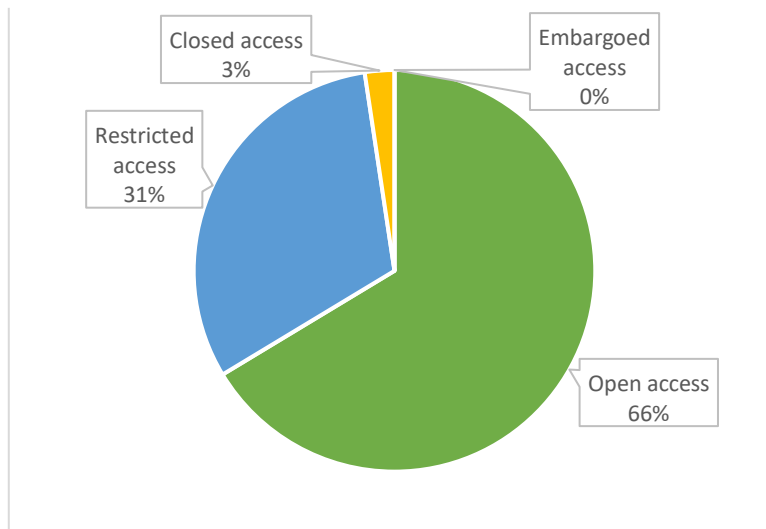


Figure 8. Type of access of objects in Centre for Croatian Studies repository

In the repository of Faculty of Kinesiology, 1,272 objects are stored: master's theses (1,057, 83.1%), doctoral theses (97, 7.63%) and conference proceedings (5, 0.39%). In figure 9 it is visible that 70.28% of all published objects are in open access. Croatian is the predominant language with 99.37% objects; the remaining eight papers are in English (0.63%).

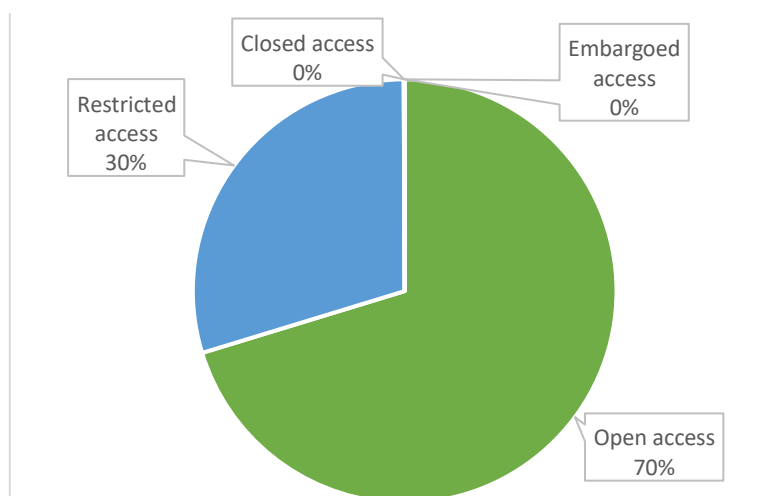


Figure 9. Type of access of objects in Faculty of Kinesiology repository

The Faculty of Law in its institutional repository has 4,307 stored digital objects. Master's theses are the majority group with 2,373 (55.15%) objects. Regarding the right of access to the objects (figure 10), most of them are closed access (3,822, 88.4%). Most objects are in Croatian (4,286, 99.51%), the rest is in English (22, 0.49%).

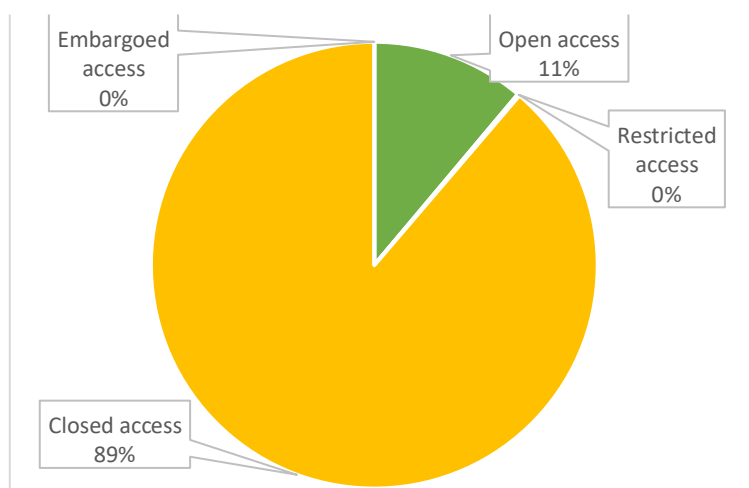


Figure 10. Type of access of objects in Faculty of Law repository

The Faculty of Teacher Education store 2,244 digital objects in their institutional repository. 1,273 (56.73%) are master's theses and 971 (43.27%) are undergraduate theses. The objects are mostly written in Croatian (2,166, 96.52%), English (64, 2.85%) and German (15, 0.67%). Also 77.63% of all digital objects are in open access (figure 11).

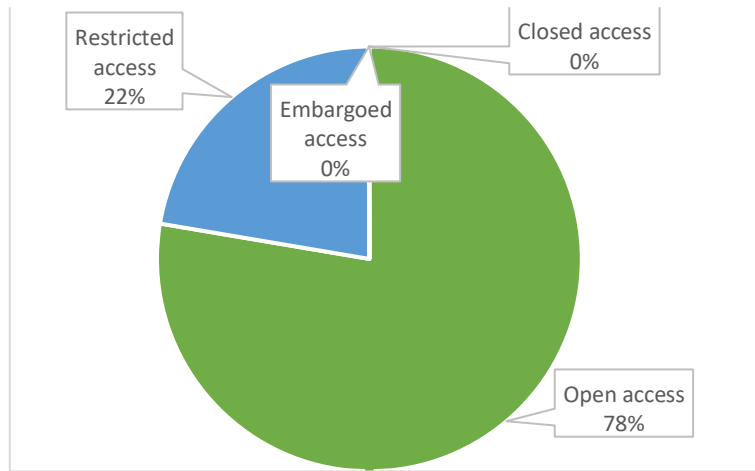


Figure 11. Type of access of objects in Faculty of Teacher Education repository

Discussion

With 29,592 digital objects, social sciences account for 36.85% of the total number of digital objects stored in digital institutional repositories of the University of Zagreb, out of which 42% are open access. The analysis showed that top three institutions with the highest number of stored digital objects are Faculty of Economics and Business, Faculty of Organization and Informatics and Faculty of Humanities and Social Sciences (table 2). The digital objects of the mentioned institutions make up 57.06% of the total percentage of all digital objects stored in social sciences institutional repositories at the University of Zagreb. Faculty of Education and Rehabilitation Sciences has the fewest stored objects.

Table 2. Top three academic institutions according to the number of digital objects

Academic institution	Number of objects
Faculty of Economics and Business	6,568
Faculty of Organization and Informatics	5,712
Faculty of Humanities and Social Sciences ²	4,606
Total	16,886

Although there are many possibilities of storing different kinds of digital objects in Dabar, these are the most stored objects, especially master's theses; their total sum in all nine repositories amounts to 28,601 (96.65%). The only deviation is the Faculty of Organization and Informatics: the most stored objects are undergraduate theses (3,482). Except for theses storage, the repository enables storage of various types of scientific, professional, and educational content such as preprint papers, peer-reviewed articles, conference papers, research data, books, teaching materials, images, video and audio files, and presentations.

² Before transferring to Dabar in 2019, Faculty of Humanities and Social Sciences had their own repository that was operational from 2010 to 2019, where they collected 8047 objects with 68% of them in open access (Faculty of Humanities and Social Sciences Institutional Repository (n.d.)).

Looking at the overall distribution of other content in all repositories in the scientific field of social sciences, the most represented are scientific papers (original scientific paper, review paper, preliminary note/short communication) with 661 objects (2.26%) (figure 12). Repository of Faculty of Humanities and Social Sciences, compared to other repositories, has stored the largest number of other types of digital objects in the repository: scientific papers (475, 10.43%), professional papers (33, 0.72%) and other materials (54, 0.01%).

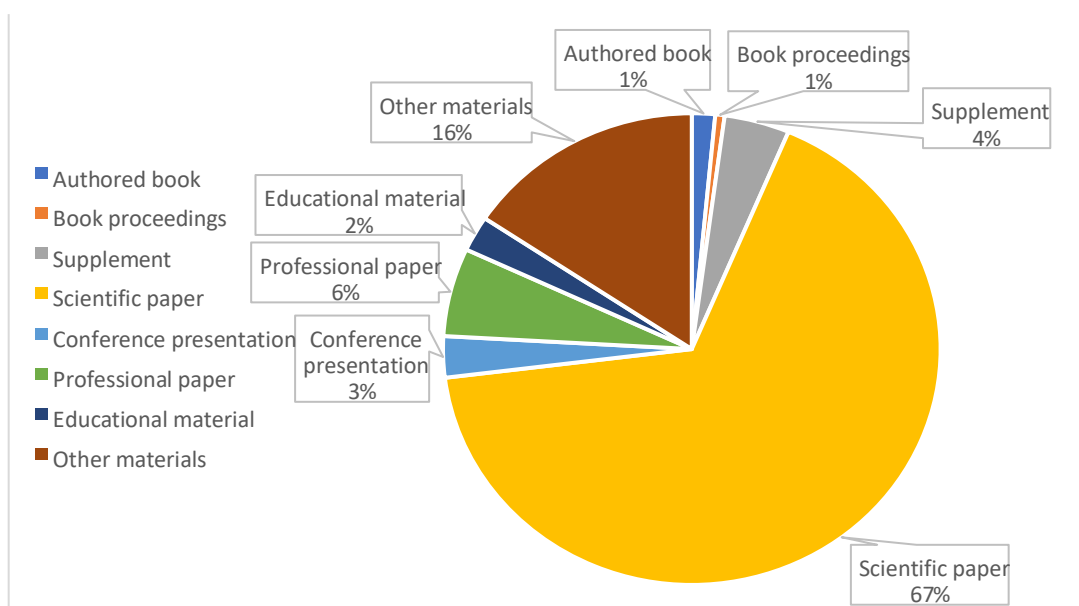


Figure 12. Distribution of other content in all repositories

Although Faculty of Education and Rehabilitation Sciences has the fewest stored objects (1,050), a large number of them (90.8%) are in open access. The next in number of objects in open access are Faculty of Humanities and Social Sciences (3,770, 82.77%), Faculty of Teacher Education (1,742, 77.43%) and Faculty of Kinesiology (1,272, 70.28%). The following faculties have the fewest objects in open access: Faculty of Law (478, 11.1%), Faculty of Organization and Informatics (1,185, 20.7%) and Faculty of Economics and Business (1,369, 20.8%).

The reasons why an object (a thesis or another type of material) is not in open access may differ depending on the author or the institution. Students who are not familiar with the concept of open access nor with its advantages will often think that their publicly available paper will be an available source of plagiarism for future students. If they are unsure about the quality of their paper, they will also not want it to be in the open access. An important role here is played by mentors who guide them through the writing process and approve their final version. The role of librarians is also important, as they should inform the academic community about the advantages of open access.

Another reason why paper is not in open access may be the fact that it contains classified information of a company, and it was predefined at the beginning of a research that author can use them to write a paper, but it will not be published in open access. Papers for which there is no written consent by the student to be published in digital form, e.g., in the case of



subsequently digitized papers, will not be found in open access of the institution's digital repository. As these form the largest group of digital objects stored in analyzed repositories, out of a total of 28,601 digitally stored theses, there are 12,090 (42.28%) in open access. As for other material, 948 (95.66%) are in open access. By far, the largest number of digital objects is written in Croatian (27,900, 94.28%). This is no surprise, if we consider the fact that it is mandatory to write them to obtain a certain academic degree. The largest language diversity of stored objects is visible in the repository of Faculty of Humanities and Social Sciences. The reason lies in the existence of numerous foreign language study programs such as English language and literature, Czech language and literature, French language and literature and many others.

Conclusion

The advantages of open access are numerous. Analyzing the data regarding open access in digital repositories of social sciences faculties at the University of Zagreb, it was determined that open access is not the first choice of access: only 42.00% of the analyzed repositories objects chose this option. Considering theses are the largest group of stored digital objects, out of 28,601, only 12,090 (42.28%) are in open access. Other materials such as pre-print papers, peer-reviewed articles, conference papers, research data, books, teaching materials, images, video and audio files, and presentations make up 3.35% of the analyzed sample, and most of them (95.66%) are in open access.

To increase the number of objects in open access, it is important to promote it, its advantages and importance for further development. High-quality theses are valuable sources for other users and authors, and, at the same time, it is an indicator of the quality of the students' work as authors, professors' work as mentors and the institutions where the theses were defended. Since the availability of repositories in open access increases the visibility of all types of works, faculties should therefore recognize their importance and encourage their use.

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