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EALC
Astana 2022

11TH EURASIAN ACADEMIC LIBRARIES CONFERENCE

«Open Access to Knowledge and Libraries: Achievements and Trends»

October 27-28, 2022

АКАДЕМИЯЛЫҚ КІТАПХАНАЛАРДЫҢ 11-ШІ ЕУРАЗИЯЛЫҚ КОНФЕРЕНЦИЯСЫ

«Білім мен кітапханаларға ашық қолжетімділік: жетістіктер мен үрдістер»

Қазан 27-28, 2022

11 ЕВРАЗИЙСКАЯ КОНФЕРЕНЦИЯ АКАДЕМИЧЕСКИХ БИБЛИОТЕК

«Открытый доступ к знаниям и библиотеки: достижения и тренды»

Октябрь 27-28, 2022

Proceedings of the 11th Eurasian Academic Libraries Conference

Академиялық кітапханалардың 11-ші Еуразиялық конференциясы

11 Евразийская Конференция Академических Библиотек

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October 27-28, 2022

Astana

FOREWORD

It is amazing how a year has gone by rapidly — with life easing back to "normal" in many parts of the world. It is equally encouraging to witness the Eurasian Academic Libraries Conference keep pressing on with elevating Library and Information Science as a field in this part and the rest of the world. This year's theme, "Open Access to Knowledge and Libraries: Achievements and Trends", attracted numerous submissions, and I wish to congratulate the reviewers and the rest of the organizing committee for doing a fantastic job on selecting the best papers for the 2022 conference. Special mention goes to the Ministry of Science and Higher Education of the Republic of Kazakhstan, the Association of University Libraries in the Republic of Kazakhstan, and the Nazarbayev University Library. Each year the papers get better, and with that I wish to congratulate the presenters as well. It is our hope that conversations on open access to knowledge will not end in this venue. Instead, we anticipate how discussions will translate to scholarship, practice, and of course, service.

Karryl Kim Sagun-Trajano, Ph.D.

Wee Kim Wee School of Communication & Information

Nanyang Technological University Singapore

PREFACE

We are glad that for its 11th year, the Eurasian Academic Libraries Conference (EALC) 2022 is back on site since the onset of the pandemic. During these strange times, we understand how important the role of Open Access (OA) is to scholarly articles and other scientific materials. As we optimistically reach the end of the pandemic, libraries should focus on creating OA repositories and OA digital collections. I am honored to be the program chair of this year's conference and I am looking forward to building a network of international colleagues from around the world.

We would like to express special thanks for the Ministry of Science and Higher Education of the Republic of Kazakhstan and the Association of University Libraries in the Republic of Kazakhstan for their support in organizing EALC 2022. This year's theme is "Open Access to Knowledge and Libraries: Achievements and Trends". The conference showed the present state of OA to knowledge, open science, open educational resources, OA technologies, and the roles and tasks of university libraries in promoting OA and discussed their potential future developments worldwide.

The Conference features 23 distinguished speakers and experts across the globe (USA, Canada, Italy, Turkey, Czech Republic, the Philippines, Russia, Kyrgyzstan, Ukraine, and Kazakhstan) demonstrating their experience in creating OA digital collections, repositories and implementing OA technologies in libraries. We featured three keynote presentations: the first keynote speaker, Matthew Voigts (Netherlands, Policy and Research Officer in IFLA), presented his speech with the theme, "Copyright and Publications for the Digital Future: A Global View of Laws, Access and Practice". The second keynote speaker, Paola Corti (Italy, Open Education Community Manager of SPARC Europe), gave an online presentation on "Ready, Set, Action! ENOEL Librarians at the Crossway of Open Education". The third keynote speaker, Raymond Uzwyshyn (USA, Director of Collections and Digital Services at Texas State University Libraries), had his speech on the topic "Open Access Data Research Repositories: From Data to Research Ecosystems to Artificial Intelligence". We also would like to thank our speakers who presented online despite various barriers and life situations in the world. In order to support and develop open access, all presentations and Proceedings of the EALC 2022 conference are placed in the NU Repository, and a video recording of the conference is available on the YouTube channel of the NU Library.[1]

We also would like to express our deep gratitude to our sponsors. Platinum sponsors were: Elsevier, Mikro Information, MA Group AG. Gold sponsors include Clarivate,

[1](https://www.youtube.com/@NazarbayevUniversityLibrary/

Wiley, ID Logic, The Wall Street Journal, InfromaScope, ChronosHub. Silver sponsors were Cambridge University Press, EBSCO, Oxford University Press, Emerald Publishing, and the Bronze sponsor was Springer Nature.

We are also grateful to Dr. Karryl Kim Sagun-Trajano for generously proofreading the English version of the Proceedings. Also, without the well-established work of the organizing committee, we would not have been able to hold the conference at such a high level, so I express my gratitude to each member of the organizing committee for their contribution to the success of the conference! Of course, we are grateful to our participants, who, we hope, received a lot of new knowledge, and also created networks with colleagues from different libraries.

Tolkyn Jangulova (Chair)

Rustam Toigambayev

Ainash Yeleussizova

Program Committee EALC-2022

Nazarbayev University, Kazakhstan

EALC
Astana 2022

11TH EURASIAN ACADEMIC LIBRARIES CONFERENCE

«Open Access to Knowledge and Libraries: Achievements and Trends»

October 27-28, 2022

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SPRINGER NATURE

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EURASIAN ACADEMIC LIBRARIES CONFERENCE (EALC) 2022

October 27-28, 2022

Nazarbayev University, Astana, Kazakhstan

Theme: *Open Access to Knowledge and Libraries: Achievements and Trends*

PROGRAM

OCTOBER 27, 2022 (THURSDAY, DAY 1) | 08:30AM - 6:00PM			
08:30AM - 10:00AM	**Registration of Participants & Opening of Exhibition "Information Resources from Vendors and Suppliers"**	**Registration Committee**	New Atrium, 2nd floor
OPENING CEREMONY *Moderator: Piotr Lapo, General Expert, NU Library*			
10:00AM - 10:05AM	**Mechanics of the Conference**	**Alexandr Andryukov** *Chair, Steering Committee EALC 2022* Nazarbayev University Library, Kazakhstan	
10:05AM - 10:10AM	**Welcome Message**	**Kuanysh Yergaliyev** *Vice-Minister* The Ministry of Science and Higher Education of the Kazakhstan	

10:10AM - 10:20AM	**Inspirational Message**	**Loretta O'Donnell** *Vice-Provost for Academic Affairs* Nazarbayev University, Kazakhstan	Orange Hall, Block C2
10:20AM - 10:25AM	**Welcome Message**	**Jerald Cavanagh** *Director* Nazarbayev University Library, Kazakhstan	
10:25AM - 10:30AM	**Welcome Message**	**Gulzhan Irzhanova** *President* Association of Academic Libraries in the Republic of Kazakhstan	
SECTION 1: OPEN ACCESS, OPEN DATA AND OPEN EDUCATIONAL RESOURCES *Moderator: Piotr Lapo, General Expert, NU Library*			
10:30AM - 10:45AM	**Copyright and Publications for the Digital Future: A Global View of Laws, Access and Practice**	**Matthew Voigts** (Keynote Speaker) *Policy and Research Officer* IFLA, Netherland	

10:45AM - 11:00AM	**Ready, Set, Action! ENOEL Librarians at the Crossway of Open Education** *(Online Presentation)*	**Paola Corti** (Keynote Speaker) *Open Education Community Manager* SPARC Europe, Italy	Orange Hall, Block C2
11:00AM - 11:15AM	**Open Access Data Research Repositories: From Data to Research Ecosystems to Artificial Intelligence**	**Raymond Uzwyshyn** (Keynote Speaker) *Director of Collections and Digital Services* Texas State University Libraries, USA	
11:15AM - 11:30AM	**Q&A SESSION**		
11:30AM - 11:45AM	COFFEE-BREAK & NETWORKING		
11:45AM - 12:00PM	**Reflections and Directions on Scholarly Communications: A Library Leadership Perspective**	**Carol E. Smith** *University Librarian* Arthur Lakes Library, Colorado School of Mines, USA	Orange Hall, Block C2

12:00PM - 12:15PM	**Trial, Error, Revamp, Success: Implementing Course Readings at the Colorado School of Mines**	**Christopher J.J. Thiry** *Map and GIS Librarian;* **Lisa Nickum** *Systems Discovery Librarian;* **Rebecca Schneider** *Circulation and User Services Manager* Arthur Lakes Library, Colorado School of Mines, USA	
12:15PM - 12:30PM	**Research Data Support at University of Wisconsin-Madison** *(Online Presentation)*	**Cameron Cook** *Data & Digital Scholarship Manager* **Jennifer Patiño** *Data & Digital Scholarship Librarian* University of Wisconsin-Madison, USA	
12:30PM - 12:40PM	Q&A SESSION		

SPONSORS SECTION: INFORMATION RESOURCES AND SERVICES *Moderator: Ainash Yeleussizova, Specialist, Digitization Office, NU library*			
12:40PM - 12:55PM	**Publishing Open Access Articles with Mikro Information FZE**	**Can Haseki** *General Director* Mikro Information Handling and Distribution FZE	Orange Hall, Block C2
12:55PM - 01:10PM	**Elsevier's Digital Ecosystems**	**Damir Rakhmetov** *Account Manager* Elsevier B.V.	
01:10PM - 01:25PM	**New Trends of Digitalization of The Educational Process Through the Implementation of International Scientific E-resources: How Not to Get Lost in the Variety of Proposals and Make the Right Choice**	**Maria Kondratyeva** *Sales Director* MA Group AG	
01:25PM - 02:25PM	LUNCH BREAK & NETWORKING		Block 4, 3rd Floor, Cafeteria

SECTION 2: OUT IN THE OPEN: PERSPECTIVES AND CHALLENGES OF OPENNESS *Moderator: April Manabat, Senior Expert Librarian, Reference Office, NU Library*			
02:25PM - 02:40PM	**Open Access: The Key Driver to Address the Grand Challenges**	**Yaşar Tonta** *Professor* Hacettepe University, Turkey	Orange Hall, Block C2
02:40PM - 02:55PM	**Act Local, Think Global: The Scaling up of Open Science and the Role of Repositories** *(Online Presentation)*	**Kathleen Shearer** *Executive Director* Confederation of Open Access Repositories (COAR), Canada	
02:55PM - 03:10PM	**Librarian and Information Professionals' Perspectives and Roles on Open Science**	**Stephen Alayon** *Associate Professor* West Visayas State University, Philippines	
03:10PM - 03:20PM	Q&A SESSION		
03:20PM - 03:35PM	**Research Activity in the State Public Scientific-Technical Library of the Siberian Branch of the Russian Academy of Sciences: Experience and Modern Directions of Development**	**Irina Lizunova** *Director* State Public Scientific-Technological Library of the Siberian Branch of the Russian Academy of Sciences, Russian Federation	

03:35PM - 03:50PM	**Bridging Theory Into Reality**	**Jonathan Zhang** *Regional Channel Sales Manager* Dow Jones International Ltd, The Wall Street Journal	Orange Hall, Block C2
03:50PM - 04:05PM	**Knowledge is No Longer Shelved: "OPENNESS" of the Oriental Institute of the Academy of Sciences in Czech Republic**	**Reysa Alenzuela** *Head Librarian* Oriental Institute of the Academy of Sciences, Czech Republic	
04:05PM - 04:15PM	Q&A SESSION		
04:15PM - 04:20PM	REFRESHMENT		
PARALLEL SESSIONS			
04:20PM - 05:20PM	**Panel Discussion with Publishers**		Block 5, 2nd Floor, 5E.230
04:20PM - 05:20PM	**Research Through Lens of SDGs. Elsevier Tools**	**Rabiga Khozhamkul** *Customer Consultant* Elsevier	Block 5, 1st Floor, 5.103

04:20PM - 05:20PM	**How to Find Open Access Articles in IEEE Xplore**	**Assel Zharassova** *Sales Support Executive* Mikro Information Handling and Distribution FZE	Block 5, 4th Floor, 5E.416
MA Group AG			
04:20PM - 05:20PM	**Begell House Inc. Publishers: "Read & Publish" with Begell House: Advancing Engineering and Medicine through Open Access** **World Scientific: Open Access for Academics** **McGraw Hill: Future Trends of Education: Delivering an Enhanced Learning Experience with McGraw-Hill Medical and Engineering Content"** **Informa: Anatomic Modules and Demonstration of VR Headsets**	**Meghan Rohrmann** *Marketing Director* **Dr Rick Lee** *General Manager* **Olga Dryn** *Digital Sales Representative – EUROPE* McGraw-Hill | Professional **Raymond Ta** *EMEAI Channel Manager* Primal Pictures | Citeline	Block 5, 2nd Floor, 5E.228
06:00PM	GALA DINNER		Legrand Ballroom Turan Ave 47

OCTOBER 28, 2022 (FRIDAY, DAY 2) | 8:30AM - 4:30PM			
08:30AM - 09:00AM	**Registration of Participants**	**Registration Committee**	New Atrium, 2nd floor
SECTION 3: THE TECHNOLOGY TRENDS OF OPEN ACCESS IN LIBRARIES *Lazzat Arystanova, Manager, Patron Services Office, NU Library*			
09:00AM - 09:45AM	**Open Access and Open Source Software and Digital Scholarly Ecosystems: New Opportunities for Libraries**	**Raymond Uzwyshyn** *Director of Collections and Digital Services* Texas State University Libraries, USA	Orange Hall, Block C2
09:45AM - 10:00AM	**Virtual Reality and Open Access: A Brief Overview** *(Online Presentation)*	**Emily Weyant** *Senior Clinical Reference Librarian / Assistant Professor* **Nakia Woodward** *Assistant Director for Administration & Collections / Assistant Professor* ETSU James H. Quillen College of Medicine, USA	

10:00AM - 10:15AM	**Open Repositories of the Russian Federation: The Way to the Top-25 of the Best Repositories in the World**	**Alexander Efimov** *Deputy Director of the Department of Information and Analytical Support* Ural Federal University, Russian Federation	
10:15AM - 10:30AM	Q&A SESSION		
10:30AM - 10:45AM	COFFEE-BREAK & NETWORKING		
SECTION 4: OPEN ACCESS AND SCHOLARLY PUBLISHING *Moderator: Assemgul Temirkhanova, Head of Acquisition and Library activity support, NU Library*			
10:45AM - 11:00AM	**Google it! Making Sense of Information Literacy and Evidence-Based Practice**	**Paolo Colet** *Assistant Professor* Nazarbayev University, Kazakhstan	Orange Hall, Block C2
11:00AM - 11:15AM	**Open Data, Open Repositories, Open Education: The Canadian Context** *(Online Presentation)*	**Susan Haigh** *Executive Director* Canadian Association of Research Libraries, Canada	

11:15AM - 11:30AM	**Status of Open Access, Digitization Initiatives, and Institutional Repositories in the Philippines**	**Stephen Alayon** *Associate Professor* West Visayas State University, Philippines	
11:30AM - 11:45AM	**Q&A SESSION**		
11:45AM - 12:00PM	**Open Access and Open Educational Resources in Kyrgyzstan: Developments and Perspectives**	**Zhyldyz Bekbalaeva** *Director Library* American University of Central Asia, Kyrgyzstan	
12:00PM - 12:15PM	**The Focus of the Wartime University Library - Open Educational Resources: On the Example of the Ukrainian State University of Science and Technology** *(Online Presentation)*	**Tetiana Kolesnykova** *Director of the Scientific Library* Ukrainian State University of Science and Technologies, Ukraine	

12:15PM - 12:30PM	**Open Data Management at Peter the Great St.Petersburg Polytechnic University**	**Natalia Sokolova** *Director* Center for Corporate Library Information Systems of the ILC of SPbPU, Russian Federation	Orange Hall, Block C2
12:30PM - 12:45PM	**The Limits of Open Access** *(Online Presentation)*	**Celia Emmelhainz** *Manager* National Anthropological Archives, Smithsonian Institution, USA	
12:45PM - 01:00PM	**Q&A SESSION**		
01:00PM - 02:15PM	**LUNCH BREAK & NETWORKING**		Block 4, 3rd Floor, Cafeteria
SPONSORS SECTION: INFORMATION RESOURCES AND SERVICES *Moderator: Zhuldyz Orazymbetova, Manager, Patron Services Office, NU Library*			
02:15PM - 02:30PM	**Open Access Management – Challenges & Solutions in Europe** *(Online Presentation)*	**Martin Jagerhorn** *Head of Business Development* ChronosHub	

02:30PM - 02:45PM	**Digital Publishing Initiatives & Informascope Solutions**	**Yerkhanov Bakdaulet** *Account Manager in Central Asia* Informascope	Orange Hall, Block C2
02:45PM - 03:00PM	**Library Automatization Based on RFID Equipment**	**Danat Nakenov** *Director* ID Logic	
03:00PM 03:05PM	**EBSCO** *(Promo video)*		
03:05PM - 03:10PM	**Oxford University Press** *(Promo video)*		
03:10PM - 03:25PM	**Open Access Opportunities and Challenges for Authors and Organizations** *(Online Presentation)*	**Sergey Paramonov** *Senior Editor* John Wiley & Sons, Inc.	
03:25PM - 03:40PM	**Clarivate: Building an Open Science Research Ecosystem**	**Anna Trifonova** *Account Manager Germany (BW, BY), Baltics, Central Asia and & South Caucasus* Clarivate	

03:40PM - 03:45PM	**Cambridge University Press & Assessment** *(Promo Video)*	**Leszek Czerwinski** *Regional Sales Manager for CEE and CIS* Cambridge University Press & Assessment	
03:45PM - 03:50PM	**Emerald** *(Promo Video)*		
CLOSING CEREMONY			
03:50PM - 04:30PM	**Closing ceremony and awarding of certificates**	**Jerald Cavanagh** *Director* Nazarbayev University Library, Kazakhstan	Orange Hall, Block C2
04:30PM - 06:00PM	**General meeting of members of the Association of University Libraries in the Republic of Kazakhstan**		Block 5, 2rd Floor, 5E.228

WELCOME REMARKS

Ladies and Gentlemen, esteemed conference attendees and dear friends,

It is my utmost honour and pleasure to extend to you a warm welcome to the 11th Eurasian Academic Libraries Conference 2022. As the newly appointed Director of the Nazarbayev University Library, I am delighted to have the opportunity to welcome old acquaintances and make new ones, at this fantastic event.

The theme of this conference, "Open Access to Knowledge and Libraries: Achievements and Trends," promises to be a thought-provoking and insightful two-day gathering, covering a wide range of subjects of great importance.

When considering the various elements of the theme, such as Open Access, Knowledge, Libraries, Achievements, and Trends, each term alone is enough to spark lively discussion and debate. Yet, they hold even greater significance when taken together, as libraries are the very repositories of information. The manner in which information is accessed and utilized, and the freedom with which it can be obtained, are questions of paramount importance.

As we embark on these two days of intellectual exchange, let us reflect on the ramifications of limited access to information, and the opposite to open access. Imagine a world in which libraries are closed, where access to necessary information is restricted, creativity and innovation are discouraged, and diversity and inclusion are not valued.

Let us instead embrace the possibilities of open access to knowledge and libraries, and the positive impact they can have on our societies. Contemplate, if you will, a world of abundance where information flows freely and the sum total of human knowledge is within reach. A place where education knows no bounds, and where one can study any subject, delve into any genre, and expand their horizons. A world where scientific discovery is accessible, can be scrutinised and improved, and where learning is the advancement and the discovery of what was previously unknown.

When we talk about knowledge, we are not talking about its transfer between organizations, but rather its exchange between people, for it is then and only then that it can truly be transferred and absorbed. We must create an environment that fosters this exchange of ideas and sharing of experiences, so that we may create and innovate together.

Here in this room, and online, we are fortunate to have gathered some of the brightest minds from around the world. Represented are over 15 countries, including Kazakhstan and its neighbouring countries of Uzbekistan, Tajikistan, and Kyrgyzstan. Our keynote speakers come from the International Federation of Libraries (IFLA) in the

Netherlands, Open Education Community of the European Network of Open Education Librarians (ENOEL) in Italy, and universities from across the United States, Canada, Russia, the Philippines, and the Czech Republic, to name but a few.

Over the next two days, we have a unique opportunity to learn from each other, share our wisdom and experiences, and grow together. Although this conference is organized for Eurasian Academic Librarians, our ambitions extend far beyond our regional borders. We welcome the world to join us, to share, to learn, and to help us improve our library services, both today and in the future.

It is with the utmost gratitude that we extend our sincere thanks to our friends and esteemed colleagues at the Association of Libraries of Higher Education Educational Institutions of the Republic of Kazakhstan for their unwavering support and annual contribution to the successful organization of this conference.

Our sincerest appreciation also goes to the dedicated members of the organizing committee who have worked tirelessly to ensure that this event was meticulously planned and executed to the highest standard.

Special recognition must be given to the Steering committee Chair – Alexandr Andryukov, Program Chair – Tolkyn Jangulova, Finance Chair – Zaure Bekentayeva, Sponsorship Chair – Aigerim Kozhakhmetova, and all the other committees members who played a vital role in organising this event.

A special thanks to Madina Abdykaimova, Yelizaveta Kamilova, Zhuldyz Orazymbetova, Anar Dautova, Aigerim Akparova, Galiya Alimova, and Tendik Yermekpayeva.

Jerald Cavanagh

Director,

Nazarbayev University Library

CONGRATULATORY MESSAGE

Dear conference participants! Dear guests and colleagues!

On behalf of the Association of Libraries of Universities of the Republic of Kazakhstan, I welcome the participants of the XI Eurasian Conference of Academic Libraries (EALC-2022) “Open Access to Knowledge and Libraries: Achievements and Trends”! The conference will cover the role and tasks of university libraries in promoting open access to knowledge, open educational resources, and open access technologies. It will be a platform for scientific discussions, constructive exchange of information, and best practices.

Today, University libraries should become platforms for the successful modernization of higher education. We librarians must believe in and do the "leitmotif" of our work: we are responsible for access to knowledge and for the information literacy of young people.

I sincerely wish all participants successful and fruitful work!

Gulzhan Irzhanova

President

Association of Academic Libraries in the Republic of Kazakhstan

Papers & Abstracts

Copyright and Publications for the Digital Future: a Global View of Laws, Access and Practice

Matthew Voigts

Copyright and Open Access Policy Officer

IFLA, Netherlands

ABSTRACT

This presentation highlights recent copyright and licensing related challenges and opportunities related to digital access with examples from around the world. The COVID-19 pandemic urgently brought to the forefront long standing issues with digital access, which, in addition to infrastructure factors, include copyright laws and licensing contracts most applicable to physical media, private consumers and in-person teaching. These contributed to issues libraries faced in providing access to their collections even as they explored innovative digital lending and information sharing solutions. As we look toward the future, and legal cases work their way through courts in America and elsewhere related to e-book pricing and digitized collections, the capacity to lend and disseminate knowledge remains bolstered by open access policies and copyright laws designed for digital lending with flexibility toward developing technologies.

I am relatively new to the library world. I hold a multi-disciplinary PhD in the social sciences, and am a "digital anthropologist" by academic background. Part of my academic interests include how people use global technologies locally. While globally, we share networks and technologies like books and e-books, people use them uniquely in their own ways.

At IFLA, I work with the Copyright & Legal Matters committee (CLM), connecting experts around the world on issues of copyright, digital publications, and open access. I also work with our FAIFE committee - on Freedom of Access to Information and Expression.

My work is part research, part advice, and part advocacy in international forums, namely, the World Intellectual Property Organization (WIPO)'s Standing Committee on Copyright & Related Rights (SCCR). We want to promote copyright laws and access policies that enable libraries to collect, store, preserve, and share content, which is what I'll be talking about today. As an anthropologist, I'm used to exploring local views, but my own position at IFLA perhaps best offers a big picture "global view". An example of "big picture" projects my colleagues are involved with is the Library Map of the World (available online), which aggregates statistics about libraries at the country level. It also ties them to UN Sustainable Development Goals and collects stories. As for

Kazakhstan, you can see on the map how many libraries are in the country, and you can imagine the value they bring to their communities. You may or may not see your experiences reflected or represented as I speak. If you do, it shows that other libraries are facing similar challenges. If not, this is an opportunity. I'm here not just to speak, but to understand more about your library, here in central Asia, and how it fits into that global picture. I want to explore that big picture view for the recent past and future of digital access. The COVID-19 pandemic, our major recent worldwide event, was not a catalyst, but an event that revealed ongoing trends in digital access, as it accelerated the urgency of addressing them. The pandemic was a flashpoint for the challenges libraries will face in the future as they seek to provide digital content. For libraries, with physical collections closed, books difficult to distribute, and social distancing measures in effect, the pandemic accelerated the impetus to provide access to collections digitally. I explored through a report I wrote in April 2022 on libraries' experiences with copyright during COVID, from which we received 114 survey responses, and I conducted 28 interviews, altogether with respondents from 29 countries.

Moving to digital during COVID, firstly, meant libraries could not as easily provide technological infrastructure to their communities. Libraries could not serve as in-person physical community spaces; even many developed innovative ways to continue services like children's storytelling and information sharing online. They could not necessarily provide computers and internet access, and people's ability to access digital content that libraries could provide became more dependent on their own IT. To use an example from my own home — I'm from a rural, agricultural area in America. A friend of mine was teaching in a town of about 25,000. Many of his students are from economically precarious families. They didn't necessarily have data plans that could cover the demands of video, and so the school had to arrange for access through an Internet Service Provider (ISP). The ISP initially gave a data-capped version of the Internet, to be used only for schoolwork. This of course proved unworkable. They couldn't give kids a limited amount of data, during lockdown, and expect they would only use it for school. Eventually the ISPs provided more data. This was in a place where Internet infrastructure was good, and the challenge was providing it. Things were much more difficult in places where Internet connections were not reliable — and these issues will remain. Even if the Internet is available, however, libraries face challenges related to copyright and licensing. They could not provide material on site due to lockdowns. They could not necessarily send articles to institutionally-unaffiliated patrons who would have previously served as walk-ins. Licenses limited by country posed challenges for universities whose international students and faculties returned to their home countries. Put simply, even if books existed, licensing restrictions and digital rights management put the capacity to use them in doubt.

As our report describes, “83% of responding library professionals — 114 from 29 countries — said they had copyright related challenges providing materials during pandemic-related facility closures.” When researching the report, we saw questions around the world concerning whether content that could be used on-site in libraries, or in in-person classrooms, could be legally used in online spaces that served similar purposes. It was unclear if educational copyright exceptions covered online use, if educators could discuss and use illustrations from a text, music, or video in an online classroom as they would an offline one. Content that educators had general legal rights to use, or sometimes that they had received direct permission from rights holders to use, could not be presented due to technical Digital Rights Management restrictions within platforms designed to protect against unauthorized sharing — particularly audio-visual content. In other words, if a teacher tried to play a video, sometimes the platform wouldn’t allow it — even if they had the rights to use it. Publishers partially mitigated pandemic-related closures by offering expanded access to journals, e-books and other content during the pandemic’s early months. However, this was an extraordinarily chaotic period, as libraries and their users had to adjust to any number of new challenges. Libraries and educators’ priorities during this time were finding working solutions for existing plans — including providing content to educators for planned courses and research projects — and they were not in a position to radically expand their offerings. By the time people were settling into the ‘new normal’ for the classroom and library, the offers had ended.

Libraries further ran up against the ongoing challenge that only a fraction of published books are available as e-books. E-book licenses are expensive for libraries, more so than those for private consumers. A physical book can be purchased, owned, and leant. E-books are typically licensed for a period or number of uses, at rates that are exponentially higher than indefinite-period licenses available to private consumers. They are also sometimes blocked from acquiring and lending digital textbooks, transferring the responsibility onto students to pay for content.

In these cases, beyond infrastructural challenges, digital content faced barriers due to copyright, licensing, and other human-made technical challenges designed to restrict the flow of information. This, in some ways, runs contrary to the spirit of copyright, which has in one part been historically concerned with protecting the rights of creators and rights holders. Another strong current in copyright, however, makes provision to distribute works to promote social benefits, including education and scientific knowledge. This goes back to the 1710 Statute of Anne in England, the first copyright law. The United States Constitution grants Congress the power "To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." The key

words: for limited times. Copyright places limits on rights holders' rights, because the public has rights too.

These are “limitations and exceptions” to copyright law: rights to quotation, to copy, parody, transformative uses, to create a public domain so that new creators might build on existing works. It places limits on the length of time that you might exclusively have the right to copy work. In the US this is 70 years after the death of the author and has become widely used internationally. These limit uses after the literal death of the author, but also protect the figurative ‘death of the author’, to quote the title from Roland Barthes’ 1967 essay — that is, they enable readers and creators the rights to make new readings of texts beyond what their creators may have envisioned.

This is the double-edged sword of developed, expansive copyright ecosystems: they tend to have expansive rights for rights holders, and broad limitations & exceptions for users. Many countries, however, have written into law the rightsholder half, but have not necessarily developed reasonable limitations and exceptions.

This is unfortunate in part because the commercial life of most texts is far shorter than many authors’ lifetimes, which has historically been where libraires play a key role in “preservation”: making books available after they’ve left bookstore shelves.

Human Rights and other ideas legal protections or obligations may further supersede copyright law. The most well-known relatively recent success in this area is the Marrakesh treaty for individuals with print disabilities (2013), which enables the production of materials for the visually impaired, and the coordination of access among organizations doing that work, which was difficult to provide commercially. At WIPO SCCR lately, a consortium of African countries has led the way in promoting instruments and toolkits for countries to develop up-to-date limitations and exceptions to copyright.

To help libraries navigate this, IFLA has recently released a reader on Copyright for Libraries. It is available OA from the De Gruyter website and the IFLA repository. Search and you’ll find it online, and if you’d like a hardcover they are available for purchase from the publisher. It’s 570+ pages, 20 chapters and a tremendous resource on copyright from its history to current, cutting-edge issues like user-generated content, Open Content, and Text & Data Mining, and their applications for libraries

IFLA has likewise produced several recent statements in support of Open Access and related movements. These statements are in part intended to function as advocacy tools, so that people wishing to support Open Access policy have materials to work with. These are topics, further, that IFLA would like to work with you on: if your country’s copyright law does not have strong exceptions and limitations, and you would like to develop it, please talk with us. Other IFLA members support Wikimedia groups at

libraries to provide infrastructure to create content in diverse languages, based on local knowledge. On a practical, in-library level: a great place to start with Open Educational Resources is SPARC Europe's website.

Back to the challenges wrought by shifts towards licensing for digital content, and libraries not "owning" content but paying for subscriptions. As mentioned, libraries are not offered access on comparable terms to consumers and are often offered access under license. These catalogs shift and change. This poses challenges for libraries. This month, October 2022, Wiley removed 1,300 textbooks from its digital catalogs and only reinstated them — temporarily — after pressure. The removals came just as the term was starting, and forced librarians and educators to quickly reconfigure their courses when available materials suddenly weren't available — then reconfigure them again when they became available. You shouldn't have to keep tabs on this — as a library, as an educator. In 2020 the e-book platform DawsonEra ended service. These contracts would have gone unfulfilled had other platforms not hosted its content, and the content — particularly French language content — might have been lost if other platforms could not migrate it. In several US states, laws have been passed that have sought to compel publishers to provide e-book licenses to libraries at reasonable rates. These have been challenged in court, and some have been declared unconstitutional. In response to the lack of availability of digital content, some libraries have embraced digitization projects, sometimes under the heading of Controlled Digital Lending (CDL). They have either digitized their own collections or worked with digitized collections of other institutions, locking their physical collections to lend out digital copies on a 1-to-1 basis. From the library perspective, it's an extension of established practice, that is, making legitimately-acquired collections available. These include:

HathiTrust, a consortium where libraires locked down their collections in their entirety to pool their resources, and lent them on a 1-to-1 basis. Not many institutions I talked to used the Hathi Trust, after they opened their own doors post-lockdowns — the physical collections were still too used to be closed off entirely for long.

SciHub, which disregards copyright entirely, was developed by a Alexandra Elbakyan, a Kazakhstani student. If content is unavailable, it is unsurprising that people will develop localized workarounds. How these practices, legal cases and challenges sort out will shape libraries' relationship to e-books and digital content in the future — including their capacity to acquire and retain content.

These different approaches underscore the extent that there is no single model for licensing, and that many access problems are socio-technical. People are working out on their own, in legal grey areas. Where norms, laws and standards go in part depend on our actions.

In the frontiers are Text and data mining (TDM) exceptions to copyright. TDM requires copying large amounts of content into machine readable databases. Publication in reputable journals generally requires the info to have been obtained legally and ethically. I love opening books. In the future, I hope physical collections continue to play a key role in libraries' activities. Books are still easy to read and distribute, and digital technologies can be challenging to acquire and maintain. However, digital access will remain a key part of the future of libraries, and law and policy must proactively keep pace with the longstanding historic purposes of copyright, not just to restrict publications for profit, but to make them available for people to use.

Авторлық құқық және цифрлық болашақтағы жарияланымдар: заңдарға, қолжетімділікке және тәжірибеге жаһандық көзқарас

Мэттью Фойгтс

Саясат және зерттеулер жөніндегі қызметкер

ИФЛА, Нидерланды

АБСТРАКТ

Бұл мақала авторлық құқық пен лицензиялауға қатысты соңғы мәселелерді және әлемнің түкпір-түкпірінен алынған мысалдармен цифрлық қолжетімділікке қатысты мүмкіндіктерді көрсетеді. COVID-19 пандемиясы инфрақұрылымдық факторлардан басқа, физикалық тасымалдаушыларға, жеке тұтынушыларға және күндізгі оқытуға ең қолайлы авторлық құқық туралы заңдар мен лицензиялық келісімшарттарды қамтитын, бұрыннан келе жатқан цифрлық қолжетімділік мәселелерін шұғыл түрде алға тартты. Бұл цифрлық несиелеу мен ақпарат алмасу үшін инновациялық шешімдерді зерделеген кезде де өз коллекцияларына қолжетімділікті қамтамасыз ету кезінде кітапханалар алдында мәселелердің туындауына ықпал етті. Біз болашаққа көз жүгірткен сайын, ал Америкада және басқа елдерде сот процестері электрондық кітаптар мен цифрландырылған коллекцияларға баға белгілеуге байланысты соттар арқылы өтіп жатқанда, білімді беру және тарату мүмкіндіктері әлі де ашық қолжетімділік саясатымен және дамып келе жатқан технологияларға икемделіп, цифрлық несиелеуге арналған авторлық құқық туралы заңдармен қамтамасыз етіледі.

Авторское право и публикации в цифровом будущем: глобальный взгляд на законы, доступ и практику

Мэттью Фойгтс

Сотрудник по политике и исследованиям

ИФЛА, Нидерланды

АБСТРАКТ

В статье освещаются актуальные проблемы и возможности, связанные с авторским правом и лицензированием, а также цифровым доступом, на примерах из разных стран мира. Пандемия COVID-19 выдвинула на первый план давние проблемы с цифровым доступом, которые, помимо факторов инфраструктуры, включают законы об авторском праве и лицензионные договоры, применимые к физическим носителям, частному использованию и очному обучению. Это усугубило проблемы, с которыми библиотеки столкнулись при предоставлении доступа к своим коллекциям, даже если они ранее изучали инновационные решения для выдачи цифровых материалов и обмена информацией. По мере того, как мы смотрим в будущее, а судебные дела, связанные с ценообразованием электронных книг и оцифрованными коллекциями, рассматриваются в Америке и других странах, способность предоставлять и распространять знания по-прежнему поддерживается политикой открытого доступа и законами об авторском праве, разработанными для цифровой выдачи и гибкими в отношении развивающихся технологий.

Open Access Data Research Repositories: From Data and Research Ecosystems to Artificial Intelligence and New Discoveries

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ABSTRACT

Data research repositories allow sharing and archiving of research data for global research. Libraries open this sharing of data to modern metadata and interoperability for search, retrieval, and larger possibilities of global scholarly research ecosystems. Data research repositories are being leveraged to accelerate global research, promote international collaboration, and innovate on levels previously thought impossible. They link data to further content from online publications to multimedia digital communication and aggregation tools.

This article pragmatically overviews a data and content-centered ecosystem and then discusses the ecosystem's next level of possibilities. This involves questions of big data and AI infrastructures for enabling researchers towards Deep Learning (Neural Net) possibilities. These new areas show large promise in making good use of online open data repositories, digital library ecosystems, and online datasets. Recent AI research also highlights the utility of several available online open-source digital library data repository and ecosystem components. An online data-centered research ecosystem accelerates open science, research and discovery on global levels. This open-source ecosystem and software infrastructure may be easily replicated by research institutions and universities globally.

Keywords: Research Libraries, Artificial Intelligence, Neural Nets, Academic Libraries, Big Data, Data Research Repositories, Open Source Research Ecosystems

Introduction

This research overviews the necessary infrastructures for an online research data repository and digital scholarly ecosystem. Current possibilities of online data allow discovery within Artificial Intelligence, particularly Deep Learning and Neural Nets. New potential for open science is enabled by global networks, Artificial Intelligence, online data research repositories and increasing computing processing power and storage. Online data research repositories and scholarly research ecosystem are overviewed. Examples are then utilized to show how these new infrastructures may be used to enable new potential for AI for scientific discovery in the 21st century.

What is an online data research repository?

An online data research repository allows one to share, publish, and archive a researcher's data. It is a platform to manage a researcher's and their institution's data and metadata, a permalinking strategy for Data Citation, a way to manage grant compliance, and a data archiving and sharing strategy.

The Texas Data Repository (https://dataverse.tdl.org) is a good example of a consortia data repository. It utilizes Harvard's open source Dataverse software customized towards a consortia multi-university strategy[2]. The Texas Data Repository aggregates individual university's data for search and retrieval. It can be configured as a single instance for searching or to search across an entire group of institutions.

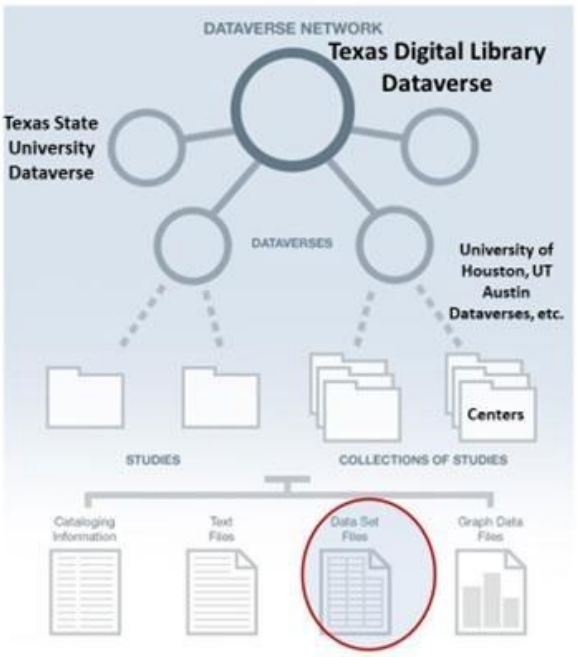

Figure 1. Texas Data Repository consortial architecture

Digital scholarship ecosystems

A Digital Repository may also be placed in a larger digital scholarship ecosystem which enables a wide horizon of content and global network communication.

The Texas State Digital Scholarship ecosystem utilizes the well-known open-source repository software, Dspace, for the university's digital collections repository. Four other tertiary components are also utilized by researchers to better enable global communication and network possibilities. These four applications are: an online electronic theses and dissertation management system, ETD System (VIREO), identity

[2] See Uzwyshyn, Online Data Repositories (2016). https://www.researchgate.net/publication/304780954_Online_Research_Data_Repositories_the_What_When_Why_and_How

management system (ORCID), open academic journal system software (OJS3), and user interface content management software (OMEKA). Together, these function as a digital scholarship ecosystem[3].

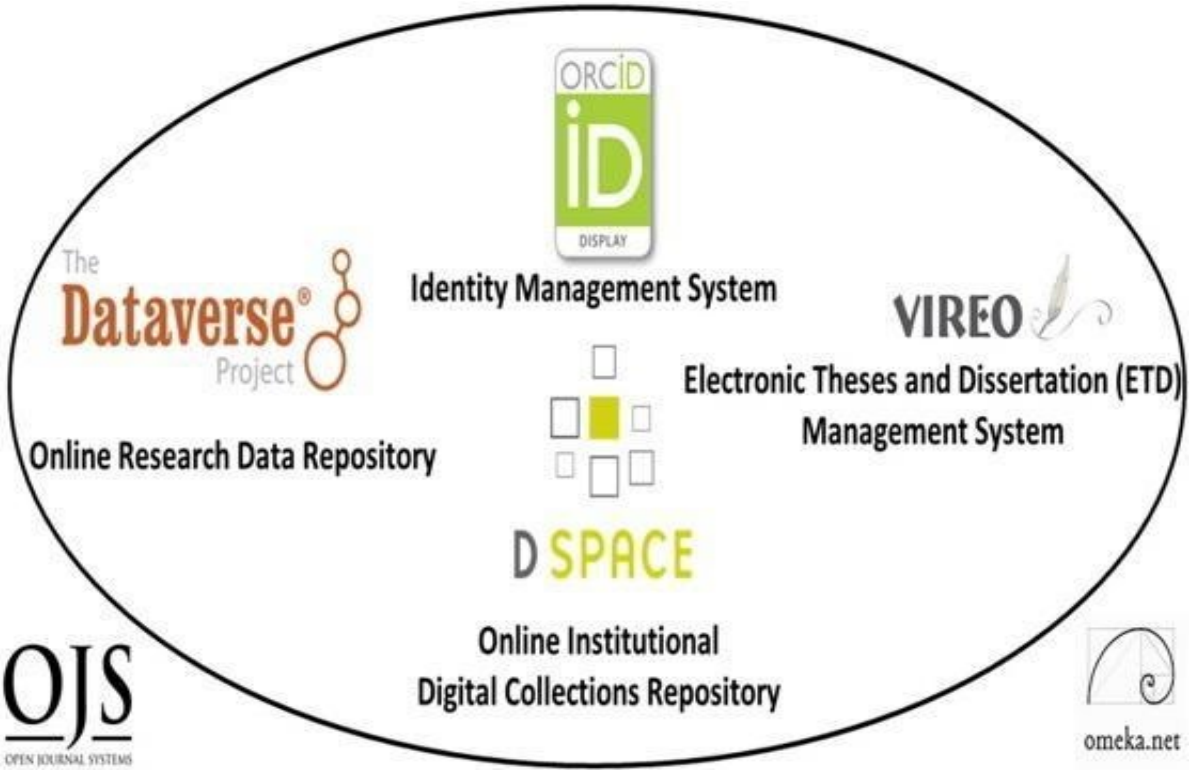

Figure 2. The Texas State digital scholarship research ecosystem consists of six components

This ecosystem allows for facility in enabling data-centered methodologies. It builds strong foundations and provides foundational training data for later needed AI pathways.

The general characteristics for such a digital system are open-source software, active developer communities, communication and content repository components. The open-source software allows customizability and connection between components. Active developer communities enable a lively exchange of new possibilities with regards to innovation. Open-source code allows bridges among systems. The sum of the system's capabilities exceeds separate parts. Collocating open-source digital components in a networked research ecosystem enables connections, network effects and untapped possibilities.

[3] See Uzwyshyn, 2020. Available at: https://www.researchgate.net/publication/336923249_Developing_an_Open_Source_Digital_Scholarship_Ecosystem

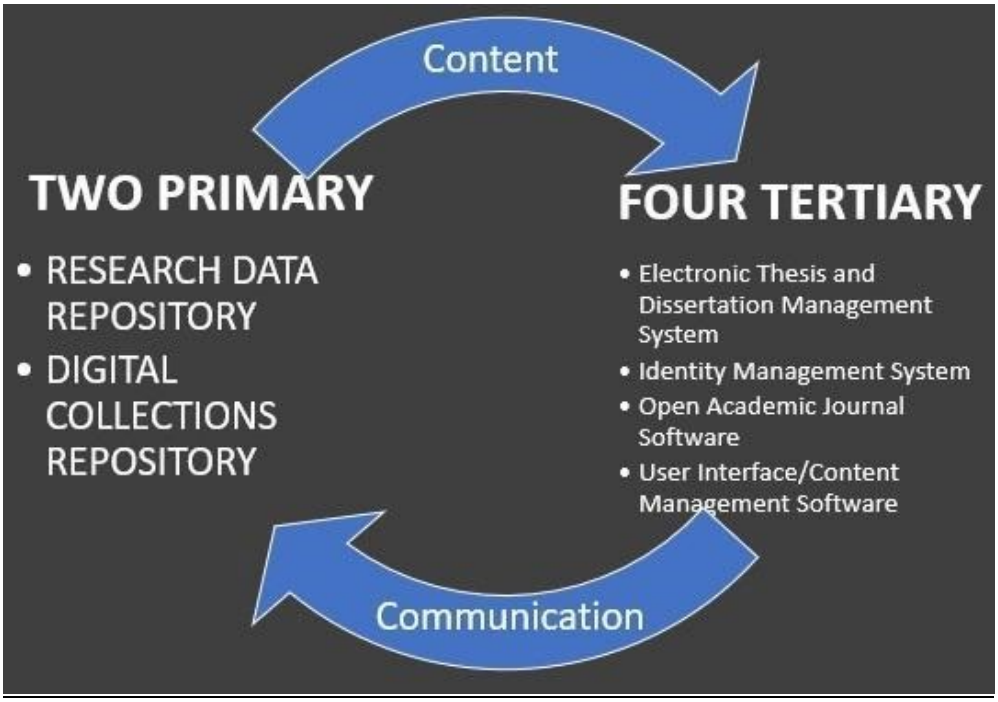

Figure 3. A digital scholarship research ecosystem is enabled by both content and communication components

Together, these digital ecosystem components enable the academic research cycle. This cycle moves from original search and retrieval of data and content to gathering and analysis, to later writing, publishing, and sharing online.

Data, datasets, big data

Data comes in a variety of file types, formats, media, and sizes. For AI and particularly recent Deep Learning, labeled and unlabelled data sets become important for machine training. Within information science, metadata is key. One size also does not fit all for various data research repository project needs. There are many types of sizes for data projects and repositories. The Texas Data Repository utilizing Dataverse can upload currently up to 4GB data for individual files and 10GB Datasets. This may not seem large but serve the needs of most academic researchers and have served researchers well for the last five years (2017-2022) and present but will need to expand accordingly.

Most researchers' collected datasets for upload are presently in the 1<<1000 MB range. Currently, there is the growing recognition by researchers that "bigger" data repositories are needed. These begin in the GB/TB ranges. For larger datasets, these may be placed with university research computing data centers or the local area supercomputing center for custom data storage should these needs arise. This type of storage is usually worked out by researchers in preliminary grant applications expecting this level of data storage needed for research work.

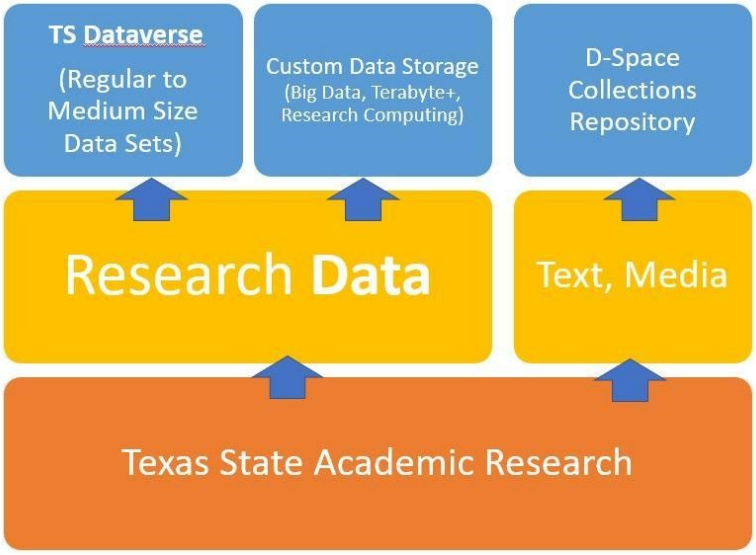

Figure 4. Texas State Universities big data storage model

Beyond isolated custom big data storage needs, the requests for very "big data" (Terabytes, Exabyte storage) are few but requests are increasing. Bigger data options and beta prototypes for these models may be currently explored. This ranges from 20GB expansions (Amazon Web Services S3 storage) and Advanced Supercomputing centers with separated metadata/storage pointer systems to more fee-based institutional models up to 300GB/dataset (Data Dryad).

Figure 5. Beta prototyping big data Texas Data Repository architectures, 2020-2022. Source: TACC, https://www.tacc.utexas.edu/, Data Dryad https://datadryad.org/stash

Data research repositories, digital ecosystems and AI

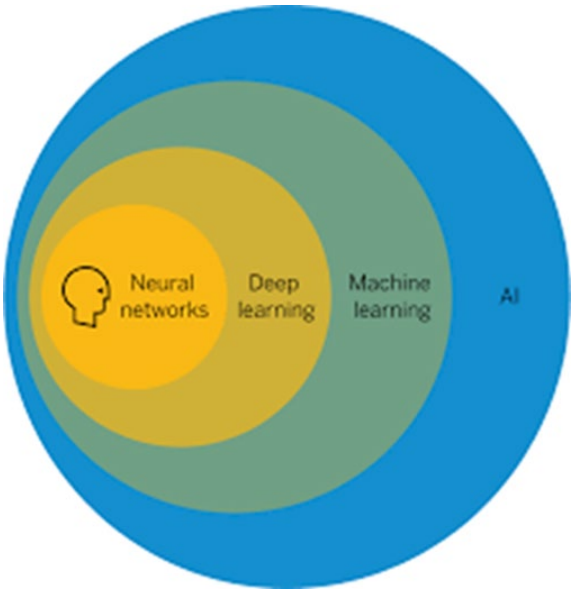

Figure 6. Relationships among AI and subdomains of machine learning, deep learning and neural nets

The last five years (2017-2022) have shown incredible progress and gains in analytic computation tools and discovery, particularly those methodologies associated with new domains of Artificial Intelligence. Machine learning, deep learning and neural net scientific research has shown incredible potential for scientific breakthrough. This ranges from Computer Vision (Facial/Object Recognition), Natural Language Processing (speech recognition, translation), Cybersecurity (Fraud Detection) Conversational Chatbots and Strategic Reasoning (Game Theory). Breakthroughs have been enabled through a fortuitous combination of better algorithms, greater computing processing, metadata enabled online datasets and, open-source digital libraries, specifically research data repositories and ecosystems.

Digital libraries image data repositories & AI

In 2017, an innovative new cancer detection methodology was published in Nature by a Stanford University group proposing the use of Neural Nets (Esteva, Nature, 2017). The AI neural network was trained on big data and a dataset of 129,460 images of 2,032 diseases and larger dataset of AI training images (1.41 million) to classify skin cancer lesions with deep neural networks. After comparison, the neural net machine learning AI performed equal to or better than 30 board certified dermatologists with decades of experience.

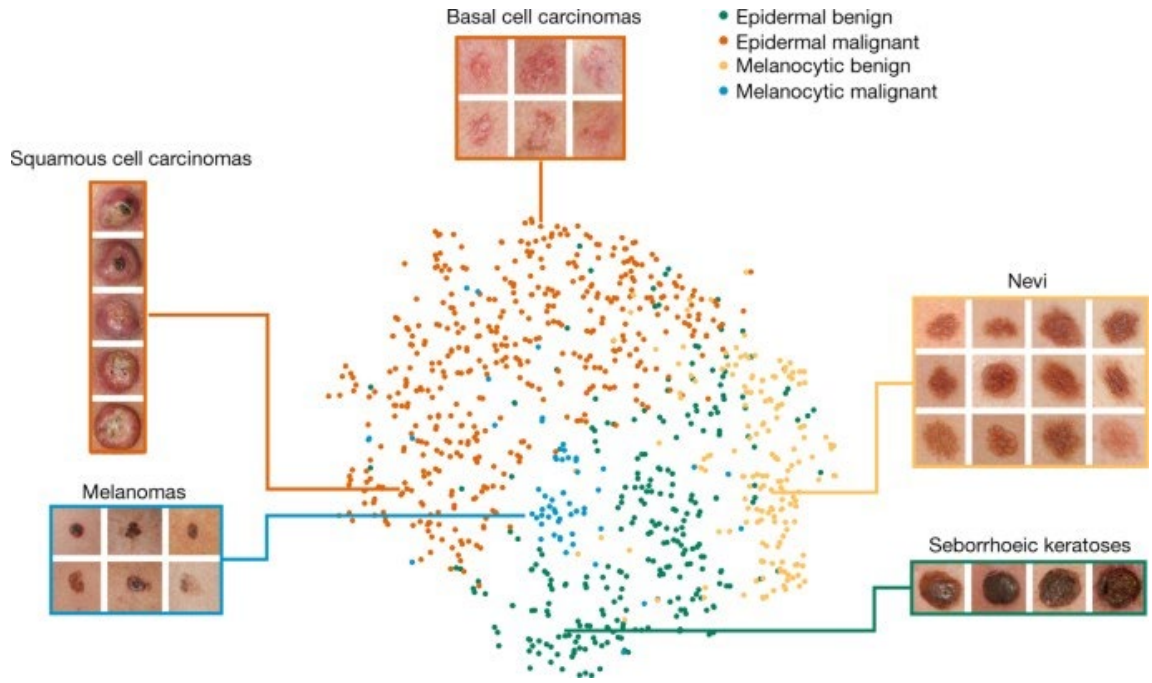

Figure 7. Image from dermatologist level classification of skin cancer with deep neural nets (Esteva et al, 2017)[4]

The neural net here was able to classify epidermal lesions for early cancer detection into benign and cancerous (malignant) lesions better than 30-year board certified dermatologists. This method involved pixel-level differentiation and training through a multi-level neural net AI model. The large relevance of the digital image data repositories and digital libraries for initial training and metadata labeling should not be underestimated for researchers. In a recent article on Deep Learning in Cancer Pathology Surrounding a New Generation of Clinical Biomarkers (Echle, 2020), the authors emphasize the primary need for well-organized digital libraries, data repositories, dataset preparation and metadata preprocessing for fundamental accuracy in training, testing, and external neural net AI validation.

Open Science, AI and data-centered ecosystems

Harvard's open source Dataverse software allows for the uploading of datasets from other universities globally. Appropriate research datasets may be uploaded for sharing or use by researchers anywhere. A university can also mount its own instance of Dataverse, and make use of the software to share academic research data. As mentioned, Dataverse is open source software and any research level libraries, institution, and university should be encouraged to set up their own instances of data repository and digital ecosystems.

[4] See also, the original article from Nature. Esteva, A, Thrun, S. et al. Dermatologist-level Classification of Skin Cancer with Deep Neural Networks. Nature, Volume 542 (February 2, 2017). pp. 115-119. doi:10.1038/nature21056 and Eschle, 2020.

To trace an example of how this is used, the HAM10000 image dataset below is a large collection of multi-source dermatoscopic images of cancerous skin lesions. This dataset was uploaded to Dataverse by Viennesse Dermatologist Dr. Philip Tschandl in 2018, a year after the Stanford Nature Neural Net algorithmic methodology article appeared.

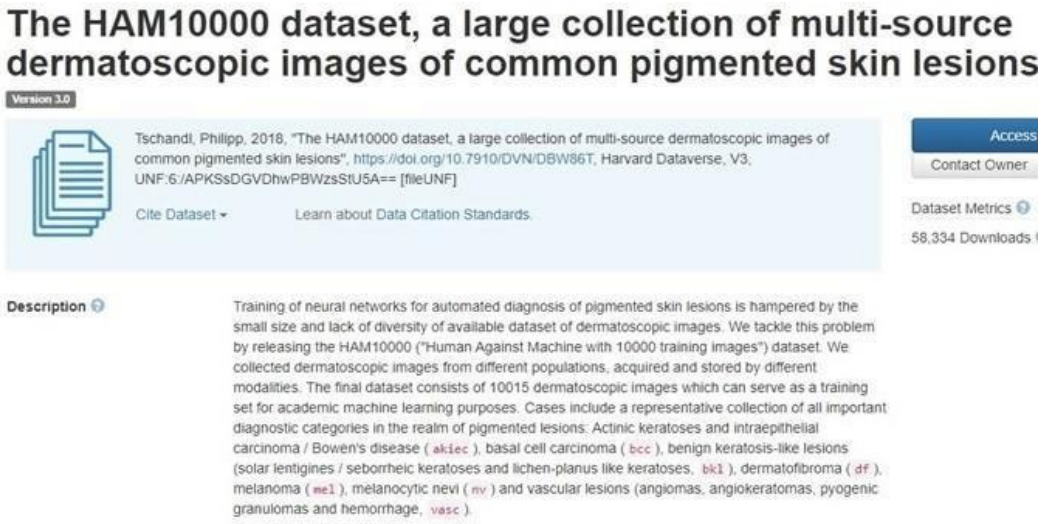

Figure 8. HAM10000 Dataset in Dataverse data research repository. Source: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/DBW86T

As can be seen in the figures (HAM10000 Dataset and Images), the images, data, and metadata can be easily downloaded, unzipped, and used by other researchers globally for neural net training purposes.

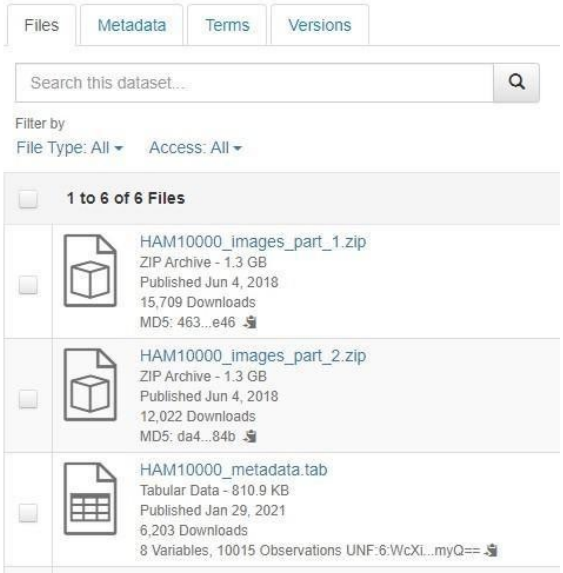

Figure 9. HAM10000 Dermascopic cancer images, Harvard Dataverse Repository. Source: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/DBW86T

Below is a cover page from BRAC University from Dhaka Bangladesh that uses DSpace as an institutional repository to house theses and dissertations from the School of Data and Sciences, Department of Computer Science and Engineering. Here, the computer science and engineering students had earlier downloaded Dr. Tschandl's uploaded dermatological cancer training images, metadata, and datasets. They utilized the labeled image metadata as training material to train a deep learning neural net algorithm. The model was able to recognize cancer growths with efficiency greater than, or equal to the 2017 board certified dermatologists for mobile devices. The example is very interesting for possibilities of telemedicine and the progress of open science in global populations and universities which may not have as quick access to trained specialists as those in the West.

This is a particularly good example of open science and AI possibilities operating on global institutional levels. This is occurring through the enabling power of digital scholarship ecosystems, digital libraries, and data repositories. Content and specialized image data sets, with highly specialized labeled metadata that otherwise would be unavailable, are brought together with new machine learning algorithmic techniques. New research and an exceptionally good thesis have been produced. Globally dispersed content and data, from three different continents, is aggregated instantly to advance the pursuit of knowledge and science with a speed and utility that would be unimaginable in other eras or centuries.

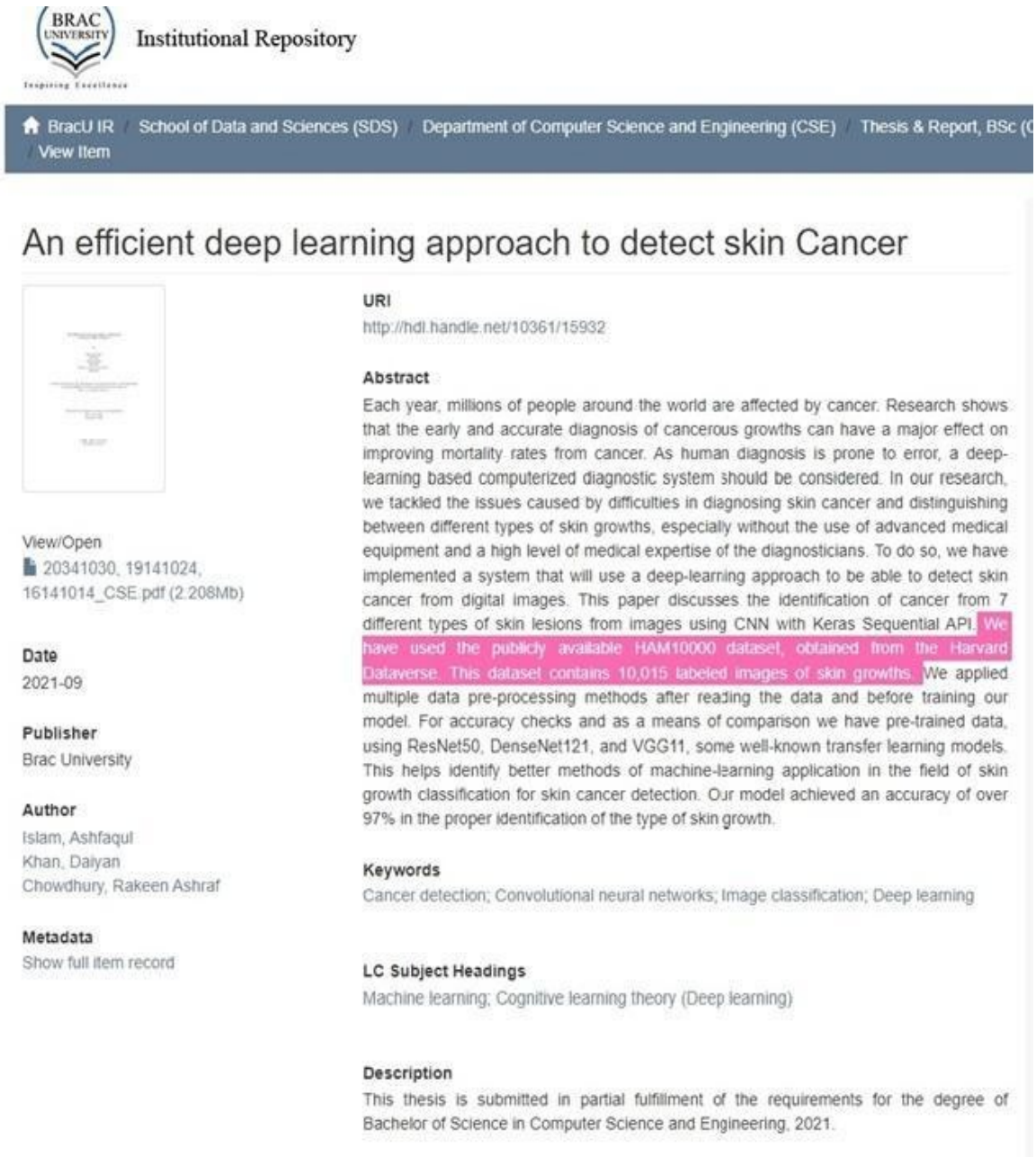

Figure 10. BRAC University Dspace repository 2021 deep learning/AI thesis. Source: http://dspace.bracu.ac.bd/xmlui/handle/10361/15932

Conclusion – AI, data and the academic research cycle

New data repository, digital library, and digital scholarly ecosystem possibilities are enabling the academic research cycle and progress of knowledge and discovery in our new millennia in amazing ways. Research libraries stand at the center of this new revolution. Open science possibilities empower a new global networked generation towards incredible new open science and knowledge discovery and creation. This can all occur through the enabling power of data, data research repositories, open access and digital scholarly ecosystems now possible for research library ecosystems.

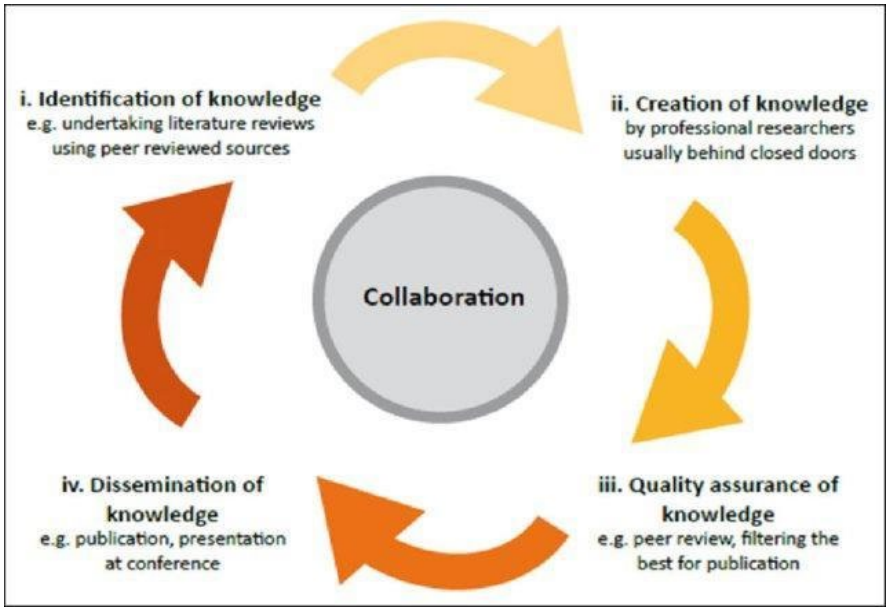

Figure 11. The academic research cycle (Cann, Dimitrious, & Hooley, 2011)

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Ашық қолжетімді деректер репозиторийлері: деректерден зерттеу экожүйелері мен жасанды интеллектіге дейін

Рэймонд Узвишин

Топтамалар және цифрлық қызметтер жөніндегі директор,

Техас мемлекеттік университетінің кітапханасы, АҚШ

АБСТРАКТ

Зерттеу деректерінің репозиторийлері жаһандық зерттеулер үшін зерттеу деректерін бөлісуге және мұрағаттауға мүмкіндік береді. Кітапханалар бұл деректермен алмасуды ғылыми зерттеулердің жаһандық экожүйелерін іздеу, алу және кеңейту үшін заманауи метадеректер мен интероперабельділікке ашады. Зерттеу деректерінің репозиторийлері жаһандық зерттеулерді жеделдету, халықаралық ынтымақтастықты және бұрын мүмкін емес деп саналған деңгейлердегі инновацияларды ілгерілету үшін пайдаланылады. Олар деректерді онлайн-жарияланымдардан мультимедиялық цифрлық коммуникация мен жинақтау құралдарына дейінгі контентпен байланыстырады. Мақалада деректер мен контентке бағытталған экожүйе прагматикалық түрде қарастырылады, содан кейін экожүйе мүмкіндіктерінің келесі деңгейі талқыланады. Бұл зерттеушілерге терең оқыту (нейрондық желі) мүмкіндіктеріне көшуге мүмкіндік беретін үлкен деректер мен жасанды интеллект инфрақұрылымдары туралы сөз болып отыр. Бұл жаңа салалар ашық онлайн деректер репозиторийлерін, электрондық кітапхана экожүйелерін және онлайн деректер жиындарын пайдаланудың үлкен перспективаларын көрсетеді. Соңғы жасанды интеллект зерттеулері сонымен қатар бірнеше қолжетімді онлайн деректер репозиторийлерінің ашық бастапқы электрондық кітапханалардың және экожүйе компоненттерінің пайдалылығын көрсетеді. Деректерге бағытталған онлайн зерттеу экожүйесі жаһандық деңгейде ашық ғылымды, зерттеулерді және жаңалықтарды жеделдетеді. Бұл ашық бастапқы экожүйені және бағдарламалық қамтамасыз ету инфрақұрылымын бүкіл әлем бойынша ғылыми зерттеу институттары мен университеттер оңай қайталай алады.

Исследовательские репозитории данных с открытым доступом: от данных к исследовательским экосистемам и искусственному интеллекту

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АБСТРАКТ

Репозитории позволяют обмениваться и архивировать научные данные для глобальных исследований. Библиотеки открывают этот обмен данными для современных метаданных и взаимодействия при поиске, извлечении и других более широких возможностях глобальных экосистем научных исследований. Репозитории исследовательских данных используются для ускорения глобальных исследований, содействия международному сотрудничеству и инноваций на уровнях, которые ранее считались невозможными. Они связывают данные с дальнейшим контентом от онлайн-публикаций до мультимедийных цифровых средств связи и инструментов агрегирования.

В этой статье прагматично рассматривается экосистема, ориентированная на данные и контент, а затем обсуждается следующий уровень возможностей экосистемы. Это включает в себя вопросы больших данных и инфраструктуры искусственного интеллекта (ИИ), которые позволяют исследователям использовать возможности глубокого обучения (нейронной сети). Эти новые области демонстрируют большие перспективы в эффективном использовании онлайн-репозиториев открытых данных, экосистем цифровых библиотек и онлайн-наборов данных.

Недавние исследования ИИ также подчеркивают полезность множества онлайн цифровых библиотек с репозиториями данных с открытым исходным кодом и компонентов экосистемы. Онлайновая исследовательская экосистема, ориентированная на данные, ускоряет открытую науку, исследования и открытия на глобальном уровне. Эта экосистема с открытым исходным кодом и программная инфраструктура могут быть легко воспроизведены исследовательскими институтами и университетами по всему миру.

Reflections and Directions on Scholarly Communications: A Library Leadership Perspective

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ABSTRACT

Scholarly communications is far from being a new discipline, yet its rise as a defined specialization for librarians has taken off dramatically over the course of just the past decade. This rapid and fairly recent expansion of scholarly communications as a strategic area of focus has introduced both fresh opportunities and new challenges for academic library leaders. The purpose of this paper is to provide a broad overview of the past, current, and future scholarly communications landscape from the distinctive perspective of an academic research library director.

Topics covered include (1) a broad review of the development of scholarly communications as a library specialization in recent years and the associated efforts that library leaders have undertaken during this period to initially educate themselves, (2) how to foster enhanced understanding across library faculty, library staff, and the broader institution as to its purpose, strategic role, and place alongside more traditional and readily recognized library services, and (3) to effectively integrate scholarly communications within an existing library organizational structure. As an adherent of the New Librarianship Framework, this library leader also briefly considers how scholarly communications directly contributes to the user's understanding of libraries as community platforms for improving society by facilitating knowledge creation.

The paper then addresses (1) the challenges of justifying dedicated scholarly communications roles in modestly sized academic libraries, (2) attracting, managing, and retaining new scholarly communications talent, (3) scaling scholarly communications services over time, (4) establishing and managing campus expectations, and (5) successfully advocating for a gradual expansion of scholarly communications teams to ensure that services remain successful and not strained beyond a team's capacity to effectively deliver them.

New and ongoing opportunities for academic library leaders include a broad reinvigoration of library strategic goals; a fresh institutional understanding of the library mission; cultivation of the growing recognition of librarians as fully integrated academic partners in the teaching and learning enterprise and across the entire research

lifecycle; and powerful opportunities to contribute to the accessibility of higher education for all students. Looking ahead, this library leader then anticipates emerging trends with implications for library leadership, such as the growing need to interweave aspects of scholarly communications across all library operations.

Introduction

Scholarly communications is of course not a new term or discipline. Depending upon how far back one wishes to reach, its origins can be traced to the rise of the first scholarly journals in the 17th century (Regazzi, 2015, p. 2). Modern conceptions and common use of the phrase "scholarly communications" came about in the 1970s with a growing discussion of the challenges of the traditional scholarly publishing model. The Association of College & Research Libraries (ACRL) first formally defined scholarly communications in 2003, spurred by developments of the digital age (https://acrl.libguides.com/scholcomm/toolkit). As a defined specialization in librarianship, though — as a job title — scholarly communications has really come into its own over just the past decade.

For all but the most recently trained librarians, each of us possesses our own individual origin story as to when and where we first became professionally aware of scholarly communications. Each of us can probably still recall our personal pathway as we developed an initial working knowledge followed by a gradual, deeper proficiency of the many aspects of scholarly communications as a disciplinary specialization. For academic library deans and directors, who typically bring many years of library experience to their leadership roles, there are likely particular points in their career when they first actively engaged with scholarly communications at the leadership level, first intentionally integrated scholarly communications into their strategic "toolkit", and first addressed the fresh leadership opportunities and new challenges that accompanied this growing field.

I first became a librarian in 2006 and assumed my first academic library leadership role in 2012, exactly ten years ago. My first position as a library director was at Adams State University, a small, rural public college with a limited library staff. While I recall learning about scholarly communications via conference presentations during that time, I didn't encounter it directly until I changed positions in 2016 to become University Librarian at the Colorado School of Mines ("Mines"), a world-class STEM research institution. The Arthur Lakes Library at Mines had just hired its very first Scholarly Communications Librarian earlier in 2016. As a newly created position, that librarian had much to learn herself, much to share with me, much to communicate to the rest of the library faculty and staff, and much to impart to the greater campus community. In the busy six years since then, scholarly communications has expanded to arguably

become our library's most important strategic initiative, with a deep and lasting impact on the library's strategic goals, resource needs, and future directions.

The purpose of this paper is to provide a conversational overview of the past, current, and future scholarly communications landscape from the distinctive, firsthand perspective of an academic research library director. Doing so can provide scholarly communications librarians with a better understanding of how their daily work influences and informs the efforts of their academic library deans and directors. This can also encourage library deans and directors to pause and take reflective stock of how scholarly communications has shaped and continues to guide the broader direction of academic libraries. As a library director myself, considering how

scholarly communications has impacted and continues to influence my library leadership is a valuable and timely personal exercise, and one that I highly recommend for others who serve in administrative roles.

Development of Scholarly Communications: The Early Days (2016-2019)

In August 2016, the Arthur Lakes Library hired its first Scholarly Communications Librarian. The position was created opportunistically when a librarian candidate who interviewed for an entirely different librarian position impressed the provost with her passion for and articulate knowledge of scholarly communications. With little to no advance notice, preparation, or extensive prior experience in the area, the library suddenly found itself with a new specialist creating and carving out a scholarly communications role from scratch.

Just three months later, in November 2016, I began as University Librarian. I spent my first few months in an intensive learning period with the Scholarly Communications Librarian. She had already developed several in-depth position papers to facilitate making introductions across campus and launching early initiatives. She shared those papers with me, and we discussed them enthusiastically and in depth over the course of several months. She had also already assembled an ad hoc committee of key administrators and faculty across campus to build broad support for a Research Information Management System (RIMS), one of her earliest strategic efforts. Joining this group also proved instrumental to my rapid professional development. This early period was crucial, quickly advancing my ability to effectively champion scholarly communications initiatives in my first meetings with university leaders across campus.

Soon after, I organized and scheduled several campus bring-your-own-lunch sessions to gather broad input for a library strategic planning process. We dedicated multiple sessions to communicating the fundamental concepts and goals of scholarly communications with faculty and staff across campus, gathering feedback on what services resonated most with them. These stakeholder interactions helped solidify

scholarly communications as a central focus for the three-year strategic plan we developed over the course of Summer 2017. Scholarly communications became one of just six high-level goals in the library's 2017-2020 strategic plan:

> GOAL 5: BECOME THE CAMPUS NEXUS FOR SCHOLARLY COMMUNICATION:
>
> STRATEGY 5-1. RESEARCH IMPACT — Enhance the visibility and impact of research and scholarship created at Mines or by members of the Mines community.
>
> STRATEGY 5-2. OPEN SCHOLARSHIP — Provide leadership, resources, and services to foster open access publishing, research data management and sharing, reproducible research, open educational resources, and best practices in digital workflow across the research lifecycle.
>
> STRATEGY 5-3. INSTITUTIONAL REPOSITORY — Expand the Mines institutional repository and connect it to the broader research information ecosystem with the goal of enabling new forms of academic inquiry and discovery through the creative and dynamic use and reuse of the digital assets of the university. The repository will preserve and disseminate the intellectual output of the university's faculty, staff, and students as well as the digitized versions of the library's special collections, archives, and the collection of Mines Geology Museum.

While we made great headway with establishing basic scholarly communications services and goals during that first year, we recognized that our own library faculty and staff have not yet developed a full understanding of the breadth of the scholarly communications field. They expressed a desire and need to be able to integrate it more effectively into their regular library advocacy conversations across campus, and to better understand how scholarly communications intersected with their own roles within the library. Accordingly, the scholarly communications librarian led periodic in-service sessions to keep the team up to speed on her foundational efforts and to further their knowledge of the many ways scholarly communications supports curricular endeavors and the research lifecycle.

To accomplish the library's identified strategic scholarly communications goals, I recognized that the library needed to first undergo substantial organizational and physical restructuring. These changes were implemented between 2017-2019. To rapidly grow the library's fledgling institutional repository, for example, I transitioned a staff member who possessed the requisite background and interest into an entirely new position as a dedicated Digital Initiatives Specialist. A well-equipped digitization

lab was built to facilitate the work of this new position. A series of carefully planned and sequenced office renovations and relocations were executed over several years to be able to create a new and highly visible space to centrally house scholarly communications and other public-facing library initiatives, and to fully leverage the power of service colocation (Smith, 2021). Funding to accomplish these many library space projects had to be raised from both campus and external donor sources.

The resulting Scholars Hub center debuted in Fall 2019 and serves as a pivotal moment in the library's rapidly developing suite of scholarly communications services. These services now include copyright consultations, authors rights advising, scholarly identity support, research data management plan consultations, Open Access publishing initiatives, Open Educational Resource initiatives, research workflow and citation management tools, educational workshops, and more (https://library.mines.edu/research/scholarly-publishing-research-data/). In just a few short years, our scholarly communications services quickly expanded into a maturing collection of offerings. Faculty awareness, appreciation and use of these services were steadily growing as well, thanks to intentional branding, intensive marketing, and authentic faculty relationship building. It is important to state that the credit for these many and substantive accomplishments should be wholly accorded to the Scholarly Communications Librarian and the library faculty and staff who contributed directly to these initiatives. A library leader is first and foremost a champion for the efforts of their team; the resulting accomplishments are fully theirs to claim. A substantial amount of my leadership time and effort from 2017-2019 was devoted to initiatives to help realize our scholarly communications ambitions. My contributions as University

Librarian centered on formally articulating and communicating our strategic goals for scholarly communications, identifying the resources needed to accomplish those goals, and then advocating for, acquiring, organizing, and successfully deploying those resources. It was also very much a collective effort across the entire library team. We all worked at every opportunity to spread the word and raise awareness of our new scholarly communication services.

Maturation of Scholarly Communications: Recent Years (2020-2022)

The COVID-19 pandemic, of course, introduced unexpected disruptions to all of higher education, including our library's scholarly communications initiatives. On the whole though, I believe the pandemic ultimately only accelerated our progress. Thanks to our many ongoing initiatives, our library was able to readily pivot to a digital learning environment. Many faculty encountered our scholarly communications services for the very first time as they had to rapidly adapt their courses to remote instruction and a distance education model. Scholarly communications efforts that expanded during the pandemic years include Open Educational Resources (OER), institutional repository

adoption, electronic course reserves integrated within the campus learning management system ("Course Readings"), initiatives to share best practices for classroom accessibility, and more.

By 2022, just six short years after hiring our first ever dedicated Scholarly Communications Librarian, it is fair to state that the Arthur Lakes Library accomplished our initial high level strategic goals. We established a recognized campus center for scholarly communications services and are increasingly recognized as academic partners across most aspects of the research lifecycle. We fostered deep and impactful relationships with key faculty that we can now leverage to further widen the campus audience for scholarly communications services. We are recognized as campus leaders in promoting equitable access to information via our Open Educational Resources grants, Open Access publication incentives, and electronic reserves ("Course Readings") initiatives. Our institutional repository (https://repository.mines.edu/) now contains over 15,000 items and is growing by 50-100 items weekly. We offer a robust suite of both undergraduate instruction and graduate workshops to educate our students about scholarly identity, research workflow tools, and other key aspects of scholarly communications.

Challenges Along the Way

This recounting of our library team's many and significant accomplishments over the past six years is not to suggest that, as a leader, I did not encounter obstacles along the way. Shepherding our scholarly communications initiatives was not all easy and smooth sailing. A steady stream of challenges arose along the way, each of which I needed to address to ensure the library still moved steadily toward our strategic goals.

One major challenge involved our ability to retain a librarian in the scholarly communications role. As a newly emerging specialization in high demand, scholarly communications librarians are faced with many employment opportunities. For a variety of reasons, over the course of a few short years (2018-2021), a couple of librarians assumed the position and subsequently left. We are currently on our third Scholarly Communications Librarian in as many years. Primary leadership challenges associated with rapid turnover in this position include ensuring continuity of core initiatives and addressing the need to rebuild essential faculty relationships with each new hire. Although frequent position turnover can be disruptive, we have also found it to be energizing and ultimately beneficial. Each of the three librarians in the role has brought particular strengths, inclinations, and perspectives to the role, and always at the perfect time for our state of service maturity.

As a library leader, I would of course prefer to retain the talent we've worked to recruit and cultivate for longer periods of time. This can only be accomplished if the library

faculty serving in this role is appropriately compensated, given sufficient resources to accomplish their mission, and appropriately acknowledged for their high-profile achievements. Accordingly, much of my recent time as a library leader has shifted to raising awareness of their accomplishments, nominating individuals for campus recognition awards, advocating for competitive salaries, and making the case for growing the size of the scholarly communications team as our ability to sustain existing services reaches and increasingly exceeds our capacity to fully deliver. As I continue to work on these campus advocacy efforts, I also had to counsel the existing team to appropriately temper their expectations for additional resources at a medium-sized institution to avoid unnecessary frustration or burnout. It is no easy task for a library leader to effectively manage and scale growing scholarly communications services, led by highly talented and ambitious librarians, in the face of perennial competition for scarce campus resources.

Additional leadership challenges have included the need to balance a strongly branded scholarly communications center and busy scholarly communications librarians with the need to also cultivate overall library team cohesiveness. To some extent, scholarly communications efforts have disconnected from other ongoing library efforts in recent years. The global pandemic and increasing demand for scholarly communications services without a corresponding increase in library faculty are factors that have understandably contributed to this trend. As a library leader, one of my current goals as we emerge from the pandemic years is to reinforce bridges between scholarly communications and related library initiatives. As with all things, it's about striking the right balance, and a library leader is responsible for maintaining that balance.

We have also had our share of unsuccessful initiatives. After several years of carefully building campus support for a Research Information Management System (RIMS) and issuing a formal request for vendor proposals, the initiative was retired without action due to prohibitive costs. We still believe a RIMS to be an essential component of the library's growing suite of scholarly identity and scholarly impact services, and we plan to revisit it at an appropriate time in the future. It is sometimes the case that a worthy proposal needs to be introduced more than once before it meets with success. Perseverance in reaching lofty goals is also the responsibility of a library leader, and many resource-intensive scholarly communications initiatives will require years of ongoing commitment to bring them to full realization.

Opportunities Abound

Our many scholarly communications initiatives have introduced powerful and sometimes unanticipated benefits and opportunities. From a leadership perspective, scholarly communications has generated a justifiable degree of library pride and a greater campus awareness of new and emerging roles of academic libraries.

Overcoming traditional library stereotypes is a perennial challenge for all library leaders, and the future-forward orientation of scholarly communications has had a positive spillover effect, opening up campus perspectives on what a library is and can be. As we all know, it is no longer sufficient to position the library as the "heart of the campus". Scholarly communications has rapidly repositioned librarians as full-fledged academic partners in the teaching and learning enterprise and across the entire research lifecycle.

While we still have much work to do, scholarly communications has contributed significantly to a fresh and renewed understanding of the eternal library mission. I am an adherent of the New Librarianship Framework, which holds that "The mission of librarians is to improve society through facilitating knowledge creation in their communities" (Lankes, 2011, p. 31). Scholarly communications, by directly contributing to scholarly impact and identity across research endeavors, has been instrumental in shaping this campus understanding of the role of their library.

Our scholarly communications accomplishments to dramatically reduce the cost of curricular materials via our OER, OA, and Course Readings initiatives are particularly recognized by the campus as a significant contribution to the accessibility of higher education for our students. Recognition of these and other accomplishments is opening doors for the library to participate in other areas of curricular and co-curricular life of our faculty and students. Put succinctly, our success in scholarly communications has fostered greater success in more traditional areas of library work. Scholarly communications has proven instrumental for cultivating a virtuous cycle across all library operations.

Looking Ahead: 2023 and Beyond

Taking leadership stock of the state of scholarly communications, I can clearly identify several areas of focus that will occupy my time in the coming few years. As previously mentioned, I need to ensure that our existing scholarly communications initiatives integrate as effectively as possible with our broader library team efforts. I can see paths forward for this, as an emerging trend is for scholarly communications to become increasingly diffused and interwoven throughout most library services and operations. While many of our disciplinary faculty are now actively engaging with the library's scholarly communications services, there are others we still need to reach. As a leader, I therefore need to continue to cultivate new partnerships and raise awareness across campus of the impactful work of the library team. Raising administrative support for an expanded scholarly communications team is also essential if we are to further scale our existing services as well as move into entirely new areas such as data services. Library leaders should continuously strive to increase campus awareness of and support for scholarly communications. Fortunately for the state of Colorado, we have a

governor who already champions scholarly communications via his Zero Textbook Cost (ZTC) Challenge (http://masterplan.highered.colorado.gov/governor-polis-ztc-challenge/) and other efforts. I and other library leaders in the state can look to his good example as we strive to further advance scholarly communications in the years to come.

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Ғылыми коммуникация туралы ойлар және оның бағыттары: кітапхана көшбасшылығының болашағы

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АБСТРАКТ

Ғылыми коммуникация – бұл жаңа пән емес, бірақ оның кітапханашылар үшін белгілі бір мамандық ретінде қалыптасуы соңғы онжылдықта ғана күрт өсті. Бұл стратегиялық бағыт саласы ретінде, сол сияқты академиялық кітапхана басшыларына жаңа мүмкіндіктер мен жаңа мәселелері ретінде ғылыми коммуникацияның тез және жуық арада кеңеюі. Бұл мақаланың мақсаты – академиялық ғылыми кітапхана директоры ретінде ғылыми коммуникациялардың өткен, ағымдағы және болашақ ахуалына кеңінен шолу жасау.

Размышления о научной коммуникации и ее направления: перспективы библиотечного лидерства

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АБСТРАКТ

Научные коммуникации - далеко не новая дисциплина, но ее становление как определенной специализации для библиотекарей резко возросло за последнее десятилетие. Это быстрое и относительно недавнее развитие научных коммуникаций как стратегического направления открыло как новые возможности, так и новые задачи для руководителей академических библиотек. Цель данной статьи - дать широкий обзор прошлого, текущего и будущего контекста для научных коммуникаций с точки зрения директора академической научной библиотеки.

Trial, Error, Revamp, Success: Implementation of Course Readings at the Colorado School of Mines

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ABSTRACT

In the spring of 2018, the Arthur Lakes Library at the Colorado School of Mines in Golden, Colorado, USA, purchased the Leganto platform that according to its developers, Ex Libris, was a "course resource list solution [that helps] foster meaningful learning and enhance student success in online, on-campus, and hybrid learning environments" (Ex Libris 2020). The intent of the purchase was to consolidate the Library's physical course reserves with electronic library resources, and make those items available through the campus' Learning Management System (LMS), Canvas. By the fall of 2022, the Course Readings service (formerly called Leganto) is considered a success, becoming deeply ingrained with learning and teaching at Mines. But the success of this program was very much in doubt two years earlier. This paper will discuss the implementation, initial lack of acceptance, outside influences affecting the eventual success of the service, and the revamping and reintroduction of Course Readings on the Colorado School of Mines campus.

Introduction

Despite considerable efforts by the staff at the Arthur Lakes Library (Library) and other stakeholders at the Colorado School of Mines in Golden, Colorado, USA (Mines), by February 2020, the Ex Libris Leganto platform, an online tool that enables the creation, maintenance, and sharing of course readings lists for librarians, instructors, and students, was regarded by many within the Library as a failure. Doubts were expressed regarding the investment of time and money. Usage numbers for the spring 2020 semester, which began in early January, were very small (four courses by two professors in two departments). Promotion and outreach efforts, both direct and broadly based, yielded little interest or results.

Library staff were convinced from the beginning that Leganto would be utilized and become an integral part of learning and teaching at Mines. The Library had a small but successful physical course reserve. This program had a long record of serving students with physical books they needed for classes, as well as being an avenue of communication between the library staff and professors regarding materials needed for instruction. It was believed that a service such as Leganto would provide better institutional awareness of the Library's role within teaching and learning.

The Library dedicated both staff time and physical resources over the previous five years to better and more prominently direct outreach to the faculty on campus. A large portion of one librarian's time was devoted to direct engagement of faculty. Coupled with an increase in library instructional support, library staff involvement in campus committees at all levels, and enhanced marketing, the staff believed that the Library was in a stronger place than ever to convey information about new services and resources. Lastly, there were strong and deep ties between the Library and the Mines Teaching and Learning Center, the Trefny Innovative Instruction Center. The Trefny Center, since its founding in the mid-2010s, had become an integral part of teaching at Mines.

Leganto Implementation

Implementation of Ex Libris' Leganto was expected to go smoothly by staff members in the Library. A team of Library and campus-wide stakeholders was formed and included the following positions:

- Library Participation
    - Academic Outreach Librarian
    - Circulation/Course Reserves Technician
    - Scholarly Communications Librarian
    - Systems Discovery Librarian
    - Teaching and Learning Librarian
- Trefny Center Participation
    - CSM Canvas Administrator
    - Manager of Instructional Design
    - Online Educational Designer (OLED)

The group worked well together as it established goals and objectives in spring of 2019. For the most part, the technical side went well. The Library already used two Ex Libris systems: Alma and Primo. Alma is the Ex Libris library services platform (LSP) which allows the organization and management of the Library's physical and electronic materials. Primo is the Ex Libris discovery service front-end interface for the Library's physical and electronic collections. Thus, Leganto fit seamlessly with those two other products as well as being integrated into the Mines' Learning Management System

(LMS), Canvas. The system allowed faculty to directly access and use Leganto within Canvas. At the time, Canvas was intended to be used by all professors for each class they taught.

During implementation, there was adequate ability to test Leganto within Canvas by creating test Course Readings lists. Furthermore, Ex Libris connected Mines with other institutions that have already successfully implemented Leganto. Lastly, the library staff believed its close ties with prominent faculty members would allow Leganto to be championed on campus, thus paving the way for wider adoption across Mines. All combined, there was a level of comfort moving forward with implementation and the project itself.

Unrealistic Expectations

Beyond the technical aspects, the library staff assumed that the mere fact that Leganto was acquired would be enough to garner serious and sustained attention, and use by the Mines faculty. "If we build it, they will come" was a line of thinking. Buoyed by Leganto success stories at other universities, our staff were confident that the work would go easily, and Leganto would be accepted and utilized. Information including handouts, webpages, training guides, and presentations from other institutions were heavily used to create promotional materials for Leganto at Mines. With great fanfare and wide marketing campaigns, the Mines library staff believed that timely information and training sessions, and several campus-wide announcements would ensure Leganto's widespread adoption and success. The Leganto service was unveiled to the Mines community in the fall of 2019 for its initial trial semester.

Success was difficult to find. Few people attended the sessions or responded to the announcements, and even fewer tried to use Leganto. The return on investment of time and money was poor. Only through the lens of time was the staff able to understand what went wrong and why Leganto was failing to thrive. Even though the Mines Library had a long-running physical course reserves program, its success masqueraded the fact that the program was only used by a small number of courses and professors. There was not a course reserve or reading list culture at Mines. Although there was some interest in Leganto from faculty, it came almost exclusively from Mines' Humanities, Arts, and Social Sciences (HASS) Department, a small, non-degree granting unit within the wider Mines campus, and Economics and Business Department which at the time only offered a graduate degree program. Mines is an exclusive STEM (Science, Technology, Engineering, Math) campus. In 2019, there was no organic demand for digital course reserves from the Mines faculty or students.

Canvas had been launched on the Mines campus in 2017 and many of the Mines professors resisted "learning a new system" as Leganto was introduced in 2019.

Professors expressed their frustrations at the probability of a steep Leganto learning curve to use a new system that had little to no tangible returns on time invested.

Finally, all the examples of successful Leganto implementations were at universities that did not have a STEM focus. In fact, very few institutions had any examples of STEM departments using Leganto. Despite the seemingly smooth launch of Leganto, the lack of understanding of the above-mentioned failed assumptions led the library staff to seriously underestimate how much time would be needed to make Leganto a success.

COVID-19 Pandemic

This feeling of failure coincided with the start of the COVID-19 pandemic. Mines had its last day of in-person classes on Friday, March 13, 2020, due to the emerging pandemic. The campus was closed on Wednesday, March 18, 2020. All workers were required to work from home for what was thought to be a two week period. It became evident quickly that this estimate was horribly wrong. It would not be until the fall of 2022 that all classes would return fully in-person. In the meantime, classes were taught exclusively online at first, followed by a mix of online and in-person, and lastly by a full return to the classroom. In March 2020, there was a mad scramble to ensure that Mines' courses could be successfully delivered online. An anecdote circulating at Mines on March 16, 2020 was that more than 60% of the faculty had not used Canvas for anything other than posting a syllabus. Similarly, the library staff was unprepared to offer various services, including remotely setting up classes for, and working with, professors on Leganto. But some members of the staff, particularly those who had worked with Leganto, remained optimistic. Given that all classes were suddenly being delivered online, it was believed that Leganto could play an important and useful role in teaching and learning at Mines. Alas, Leganto remained underperforming as the fall 2020 semester began. Mines faculty were still overwhelmed with the duties of shifting their entire course load to an online environment. Very few faculty believed they had any extra time for learning and using another new system.

OER Initiatives in Colorado

Other external factors impacted the eventual success of the Course Readings service. Particularly important was the growth of support of Open Educational Resources (OER) within Colorado. Passed on May 3, 2017, Colorado's first OER statute entitled Using Open Educational Resources in Higher Education (SB17-258) (Colorado General Assembly 2017), slowly increased pressure in higher education. OERs are copyright-free replacements for textbooks used in classrooms. The concept was that high-quality OERs could replace expensive books thus driving down the cost of a college education. This statute created the Colorado OER Council (Council) within the

Colorado Department of Higher Education (CDHE) and requested the Council to present a report containing the current usage of OERs in Colorado public higher education, along with their recommendations, to the Colorado state government by November 20, 2017. The success inspired a second statute to be passed the next year. The Higher Education Open Educational Resources (SB18-1331) (Colorado General Assembly 2018), further expanded the use of OER at Colorado public institutions of higher education by creating a grant program for the creation and use of OERs within those Colorado institutions. Since the passing of SB18-1331, the Council and the CDHE have supported institutions throughout Colorado in their pursuit of innovation and equity through Open Education by providing OER grants to universities and colleges (from individual faculty initiatives to institutional and inter-institutional projects). In addition, training has been offered for academic librarians and educators including the creation of a program to offer OER Librarian Certificates and Creative Commons Certificates. The Council has sponsored annual conferences that have been widely attended including appearances by government leaders such as the Colorado Governor. Inspired by initial success of the Council, the Colorado General Assembly passed an additional law in 2021, Use of Open Educational Resources In Higher Education (SB21-215) (Colorado General Assembly 2021), extending the state Council and the grant program for an additional five years as well as embedding these initiatives into the Colorado state government by moving the preparation of the OER Grant Annual Report from the Council to the higher level department of CDHE. Colorado state government appropriated $1,108,200 for the 2021-22 higher education academic year for OER initiatives. Finally, this law also mandated informing Colorado public higher education students before registration of which courses use OERs.

These state level statutes had a direct impact at Mines and at the Library in particular. Mines' Scholarly Communications Librarian played an important role in the Colorado OER Council. Her active participation heightened the topic of OERs on campus. She and other librarians were able to encourage Mines' faculty to create and use open resources, which was further helped by securing $140,000 in grant money from 2019 to 2022 (Vuletich, S. and Buljung, B. 2022) from CDHE. This money was distributed to Mines' faculty who used it to receive training to adopt or create OERs for their courses. The grant money funded OERs in 17 disciplines in 56 courses. Mines' professors used the grant money to adopt 22 OERs into their classes and create 34 new OERs. Since 2019, OERs have saved Mines' students approximately $815,000. The OERs exist only in a digital space, and thus were easy to utilize in Leganto. As OERs became understood by more Mines faculty and administrators, relieving the students' financial burden of textbooks became increasingly important on the Mines campus. When promoting Leganto, the library staff could lead with the fact that in addition to

OERs, using resources that the Library already owns and/or requesting new library resources for classes would ease the students' financial load.

Revamp of Leganto

Recognizing the past Leganto failures, the Mines Library staff decided to rethink, reorganize, and revamp their work with the platform starting in the summer of 2020. Most notably, it was realized that the approach the Library had taken to get professors to use the product was not persuasive and the Library's internal workflows were too concentrated on a few individuals.

Through the fall of 2020, Leganto continued to be underutilized at Mines. A series of staff meetings at this time helped identify many of the assumptions, previously listed, surrounding the project. They continued to see the potential of Leganto, but new strategies were needed. The largest perceived barrier to success was the name itself, "Leganto." The word meant nothing to people and needed explanation. After much debate, the service was renamed "Course Readings." This new term needed no explanation and was easy to comprehend. All the Library's web pages, literature, and the Leganto platform were updated with the name change.

Library procedures regarding the Course Readings service were streamlined, and work was distributed more widely. Other procedures became more standardized. Examples of improved workflows and procedures included the following:

- Improved automated ingesting of courses into Alma
- Creation of automated emails to individual professors regarding their Course Reading lists
- Design of Course Readings' calendar to specify when service-related events occur during the year
- Enhanced understanding of Course Readings work between several Library areas

The library staff's interactions with faculty changed dramatically. Before, much of the burden for initiating this service was placed on the professors. This was one of the benefits that Leganto offered, as some of the workload would be taken off the Library's small staff. It was enticing for the Library, but not realized as the majority of the Mines faculty did not want to add this to their professorial duties. Consequently, professors associated Course Readings with a technical barrier that needed to be overcome, or as another piece of work that needed to be completed. Believing that the service would not be effective or useful, most professors would not attempt to use the platform. Because of the sincere belief that Course Readings could be a powerful and helpful tool, it became incumbent upon the Library to find ways to ensure the service would succeed. The staff recognized the professors' legitimate concerns and frustrations, and

thus sought to break down barriers to making it successful for both the Mines professors and the Library.

As part of a multipronged approach, the Library staff began to proactively create and populate the Course Readings lists within the platform. While relatively easy and not time consuming, it did require a degree of familiarization with the service. That lack of knowledge remained an impediment to the use of the service. The staff took away that barrier by eliminating this step for the professors; the library staff would perform most of the work. While there are faculty members who want to create their own Course Readings lists, the number remains small.

In late 2020, librarians began to communicate directly with professors who were teaching the spring 2021 classes, which began in early January. The staff focused on classes that fell into four large categories: core introductory STEM classes including Chemistry, Physics, and Mathematics, honors programs classes, classes in the Engineering, Design, and Society (EDnS) Department, and all classes in the Humanities, Arts, and Social Sciences (HASS) Department. In addition, targeted communications were sent to the small number of professors who had previously used Course Readings and any professor who attended any of the training sessions. The communications required careful consideration as to the best way to word emails to the professors. A minor barrier to the Library was sending out hundreds of individual emails a few weeks before the spring 2021 semester began. The library staff also offered some new training sessions at this same time. While there were few participants, the number of professors attending was up from previous similar efforts. The University Librarian spread the word within her meetings with other Mines Department Heads as well as the Mines upper administration.

These efforts were amplified and built upon for the summer 2021 and fall 2021 semesters. The direct communications required a high level of effort on the part of staff. But these efforts paid off, and by the end of the fall 2021 semester, the Course Readings service had become entrenched in the lifeline of course management at Mines.

Besides this direct communication, the tone and approach used to inform professors has shifted dramatically. In the beginning, library staff took an “if we tell them, they will use it” attitude. The staff were convinced that the mere existence of the service would spark use by faculty, and that any technical barriers would be minor. In one-on-one interactions with professors, the library staff shifted focus to discuss the ease of use of the Course Readings service. In the times before the COVID-19 pandemic, as mentioned previously, the overall familiarity with Canvas was limited. But the pandemic forced Mines faculty to use Canvas extensively, and thus increased the level of comfort with the system. Hence, the library staff began to explain how the service was merely a widget within Canvas that only had to be enabled. Replacing an emphasis

on technical terms and organizational aspects of Course Readings, they shifted to talking about the ease of use with a particular focus on the platform's ability to drag and drop articles and books from the Library's Catalog (Primo). Overall, the staff's goal was to remove all barriers to using the service and excuses professors had.

Three previously used paths to the success of Course Readings were deepened. First, the Library staff worked more closely with Mines' Teaching and Learning Center (the Trefny Center). Although ties with the Trefny Center were strong, librarians realized that the Center had more clout with professors on campus. Thus, rather than having the Library host meetings and training sessions regarding Course Readings, the Trefny Center hosted the meetings and training sessions. This led to a dramatic increase in attendance. Furthermore, the Library led specific Course Readings sessions at in-person faculty information sessions sponsored by the Trefny Center.

As the pandemic wore on, the Library implemented the second path to Course Readings' success: the shift to e-preferred book purchasing. Prior to the COVID-19 pandemic, electronic

copies of physical books were only purchased sporadically. Due to the shift to remote learning, the Mines librarians realized that e-books should become the primary method of acquisition. E-books had been met with, at best, a tepid level of reception. But the pandemic made professors and students alike more open to e-book use. The Library's book purchasing policy was re-centered upon e-books first, and physical books as a secondary choice. Mines librarians had purchased many e-book packages prior to 2020, but now focused on e-preferred purchasing for all material whether it was in a package or not. From 2020 to 2022, the number of e-books available through the Library increased from 600,000 to over 1,000,000.

Third, library staff developed a greater integration of the campus bookstore's textbook list and the Library's collection development efforts. In the preceding five years, the Library had, every semester, been able to acquire a copy of the campus bookstore's textbook list. This list contained all books that professors were requiring students to purchase. Using the list, the staff was able to determine which books were owned by the Library. If owned, the books were added to the semester's physical Course Reserves shelves. If the books were unowned, they were purchased by librarians and placed on Course Reserves. Coupling this policy with the emphasis on e-books, the librarians acquired not only new titles in electronic format from the bookstore textbook list, but oftentimes also acquired e-versions of titles that the Library already owned in paper format. This eased access and increased the likelihood of a title being used by a professor in their Course Readings list.

Course Readings Statistics

The success of Course Readings is borne out by the numbers. For the fall 2022 semester, 164 faculty members across 23 departments are using Course Readings. The total enrollment of students impacted by this program for the fall 2022 semester is 11,793.

While word of mouth has contributed to this success, targeted outreach and marketing efforts have had a greater impact. In addition, the library staff streamlined the process to ensure materials requested are brought quickly into Course Readings, and that course lists were easily and seamlessly rolled over from one semester to another. Lastly, in recognition of the success and importance of the service, librarians have dedicated $20,000 for fiscal year 2022 to purchase e-books that will be used in Course Readings. This support will continue in the future with $10,000 annually for the service.

Continued Challenges

Yet challenges remain regarding greater success with the Course Readings service. Although the number of courses that use the service has increased steadily, these still represent a minority of classes taught. It is naive to believe that all classes on campus will use this service, but continuous growth remains a goal.

Core classes such as Calculus, Chemistry, and Physics rely heavily on textbooks that generate huge profits for the publishers. These publishers are unwilling to forgo those profits to allow students greater, easier, and free access to digital versions of those books. Working closely with professors, librarians are exploring OER options for those classes. This process will take years. Once the OERs are in place, those can be easily integrated into Course Readings.

Technical issues have often hampered this service. Legitimate campus computing security concerns often present roadblocks or challenges to keeping the Course Readings service operating smoothly. Changes to Canvas have caused major problems. These communication avenues have been surprisingly difficult to maintain across campus and have sometimes broken down. Recently, the campus decided to change the course codes they used without much warning to the Library. While this change worked more seamlessly for other parts of the Mines campus, it caused great disruption for Course Readings. The library staff eventually came up with a solution, but it took time to remedy. Unfortunately, this disruption of the service prevented the student population from getting timely help when enquiring about Course Readings. If the library staff continues to be informed about upcoming changes occurring in this space and remains flexible, they will be better able to manage and inform their constituencies about the upcoming modifications to the service.

Course Readings also suffers from needing to be enabled before it can be seen within Canvas. This is the default setup within Canvas. Even if there is an active Course Readings list, it will remain invisible to the students taking the course unless this step is taken. This is a barrier to a service which has had significant growth over the last 2 years. Fixing this is not as simple as it seems because the Library is one among many other Mines entities who also want to have their software or service enabled in Canvas. However, this is an area that the Library will keep pressing as in addition to the service's success, significant Library funds are being spent on Course Readings.

Lastly, there remains a sizable number of current faculty who are unaware of Course Readings, and a small number of professors who are very hesitant or outright hostile toward the service. The yearly influx of new students and faculty means the library staff will never be lacking people to be taught about the benefits and how to use this service.

Conclusion

The Mines library staff remains thoroughly convinced as to the usefulness and importance of Course Readings. They are optimistic regarding further growth of the service. The culture is shifting. There are new opportunities within the Library that will aid in the growth of the service, including the upcoming hiring of a new staff member and the ability to use yet untapped skills of existing staff members. Furthermore, the Library expects to strengthen its ties with both the Mines Bookstore and the Teaching and Learning Center.

The Course Readings service at the Colorado School of Mines is a success story, but this was not always the case. Overly optimistic levels of expectations, and a misunderstood level of barriers to the project's success almost doomed Course Readings. While circumstances allowed the program to become more relevant, it was the efforts of the staff that played the most important role. Through self-reflection, the ability to become more flexible, and belief in the importance of the project, the Course Readings service has become an integral piece of day-to-day teaching and learning at Mines.

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Сынақтар, қателіктер, трансформация, сәттілік: Колорадо тау-кен университетінде оқу курстарын енгізу

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АБСТРАКТ

2018 жылдың көктемінде АҚШ-тың Колорадо штаты, Голден қаласындағы Колорадо тау-кен мектебінің Артур Лейкс кітапханасы, Leganto платформасын алды, ол оның әзірлеушілерінің, Ex Libris компаниясының айтуынша, «мағыналы оқуды ынталандыруға және студенттердің онлайн, кампус және гибридті оқу жетістіктерін арттыруға [көмектесетін] курстың ресурстар тізімдерін жасау шешімі» болып табылады (Ex Libris 2020). Сатып алудың мақсаты – Электрондық кітапхана ресурстарымен курстарға арналған кітапхананың физикалық резервтерін біріктіру және бұл ресурстарды кампустың оқытуды басқару жүйесі (LMS), Canvas арқылы қолжетімді ету болды. 2022 жылдың күзіне қарай Course Readings сервисі (бұрын Legato деп аталған) табысты болып саналады, ол Mines-те оқыту және білім беру процесіне терең бой жайған. Алайда, екі жыл бұрын бұл бағдарламаның сәттілігі үлкен мәселе болды. Бұл мақалада біз Колорадо тау-кен мектебінің кампусында Course Readings бағдарламасының қайта құрылуымен және қайта енгізілуімен қатар, сервистің енгізілуін, бастапқы танылуының жоқтығын, түпкілікті табысына әсер еткен сыртқы факторларды талқылаймыз.

Пробы, ошибки, трансформация, успех: внедрение программы для домашнего чтения в Горном университете Колорадо

Кристофер Джей Джей Тири

Библиотекарь по картам и ГИС

Лиза Никум

Библиотекарь по системам дискавери

Ребекка Шнайдер

Менеджер по обращению и обслуживанию пользователей

Библиотека Артура Лэйкса, Горный университет Колорадо, США

АБСТРАКТ

Весной 2018 года библиотека Артура Лейкса при Горном университете Колорадо в городе Голден (штат Колорадо, США) приобрела платформу Leganto, которая, по словам ее разработчиков, компании Ex Libris, представляет собой "решение для составления списков ресурсов курса [которое помогает] стимулировать осмысленное обучение и повышать успеваемость студентов в онлайновой, кампусной и гибридной среде обучения" (Ex Libris 2020). Цель приобретения заключалась в том, чтобы объединить физические материалы для курсов с электронными и сделать эти ресурсы доступными через систему управления обучением (LMS) кампуса (Canvas). К осени 2022 года сервис Course Readings (ранее называвшийся Leganto) считается успешным, он глубоко укоренился в процессе обучения и преподавания. Однако двумя годами ранее успех этой программы был под большим вопросом. В статье мы обсудим внедрение, первоначальное отсутствие интереса, внешние факторы, повлиявшие на конечный успех сервиса, а также перестройку и повторное внедрение программы Course Readings на кампусе Горного университета Колорадо.

Research Data Support at University of Wisconsin-Madison: a Case Study

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ABSTRACT

This brief case study will introduce the research data sharing and compliance landscape in the United States (US) and the ways in which the University of Wisconsin-Madison Libraries are responding to it through their local research data support services. This study provides a brief introduction to the federal policy and data sharing context in the US, describes structure and services provided by the UW-Madison Libraries' Research Data Services, discusses the ways the libraries are facilitating compliance with data sharing requirements through supported research data repositories, and concludes with recommendations based on lessons learned from the development and ongoing support of these services.

Introduction

Research data support at the University of Wisconsin-Madison (UW-Madison) has been greatly shaped by the federal research data policy in the United States (US). As a large institution with a high amount of federal funding, many of our researchers are subject to policies that require data management plans and public access to research data at time of publication or the close of their projects. These requirements are continuing to evolve, new policies are emerging, and the culture around data sharing continues to shift in higher education. Given this complex and frequently changing environment, the UW-Madison Libraries have aimed to be responsive to the pressures researchers are under and create an ecosystem of services that can support the campus in being compliant with funding agency policy as well as promoting the use of best practices throughout the research data lifecycle.

Federal Research Data Policy in the United States

The current state of UW-Madison’s research data support and data repository options has been shaped by a memorandum released in 2013 from the White House's Office of Science and Technology Policy (OSTP) and its subsequent impact on the campus community. The memorandum required that the publications and underlying research data funded by a specific subset of federal funding agencies must be publicly accessible, meaning available to the public in digital formats and online for free, within a year of

publication and each agency was directed to develop individual policy in support of this aim[5]. When those agencies created and implemented their policies in response to this memorandum, many of them began to require data management plans as part of the proposal process. These data management plans were to detail how data would be appropriately managed and organized as well as where data would be made publicly available. As a very large research-intensive institution federal grants make up a significant portion of the yearly budgets and these changes directly affected many of the campus' researchers. This created a new and pressing impetus for managing and sharing digital data on the campus which Research Data Services, discussed in more depth later, responded to by offering free guidance, training, and consultations to support these new needs.

In recent years, publishers in the United States have also begun to support the global cultural shift towards sharing research data. Many journals now require that research data underlying accepted publications must be made publicly available prior to the publication of the article. In turn, there has been a noticeable anecdotal increase in requests from campus researchers to help share their data specifically for publication. Between the federal agency policies and publisher requirements, there has been recent increased buy-in and interest in Research Data Services from our campus partners.

Researchers on the UW-Madison campus will undergo another wave of change in data sharing expectations in 2023 and beyond, as new policy from a funding agency comes into effect and the details resulting from a new White House OSTP memorandum are revealed. In January of 2023, a new data management and sharing policy is going into effect from the National Institutes of Health (NIH). This new NIH policy now applies to all NIH researchers with scientific data, as opposed to the former iteration that applied only to researchers with large awards. It is more stringent and affects a large portion of campus researchers across many schools and colleges. This significant policy change is drawing renewed attention for data management support and has increased demand for training and outreach from Research Data Services in preparation for the shift. Alongside this, the White House's Office of Science and Technology Policy released a new memorandum in August of 2022 that will change expectations for public access to research publications and data moving forward. This new memo expands the requirements to all federal funding agencies and requires that publications and data be immediately available upon publication without embargo[6]. This is a big change for researchers, agencies, libraries, and publishers in the United States. The memo details a number of other requests for agencies to consider in their policies as well as charges

[5] "Increasing Access to the Results of Federally Funded Scientific Research," President Obama White House Archives, February 22, 2013,
https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf.
[6] "Ensuring Free, Immediate, and Equitable Access to Federally Funded Research," White House, August 25, 2022, https://www.whitehouse.gov/wp-content/uploads/2022/08/08-2022-OSTP-Public-Access-Memo.pdf

a subcommittee to work on a number of related items to facilitate these new requirements. Until the affected agencies release their specific policies, it is hard to anticipate how to adjust research data support services appropriately. However, Research Data Services and the campus libraries are staying abreast of updates, conducting outreach across campus to raise awareness, and are prepared for this to shape strategies and near term goals for the next few years. This entire policy landscape positions UW-Madison libraries research data support in an interesting confluence of a rapid shift toward open access and open data with the challenging realities of how to support a large, decentralized campus as these policies go into effect. Research Data Services have been a low-cost way to support researchers locally through focusing on developing cross-campus relationships and relying on collaborative expertise to provide lightweight services. The Libraries and Research Data Services are also engaged in identifying an array of data repository options that will help researchers across a spectrum of data needs to share their data appropriately now and into the future.

Research Data Services - An Overview

Research Data Services (RDS) is a completely free resource to anyone in the UW-Madison community. It is open to all faculty, staff, and students that support data management and sharing needs. The service aims to help "researchers as they gather, manage, and share their research data to make their data citable, reproducible, and publicly accessible."[7] RDS advertises three main services to campus researchers: data management plan review, consultations, and education and training. However, the RDS team also spends a large amount of effort behind the scenes to provide informational resources and best practices, conduct outreach to the campus community, maintain and grow a network of campus partners, and advocate for known needs or gaps in research data support on campus.

RDS is a collaborative effort, led by the Libraries, and the team is an interdisciplinary group of experts from across the UW-Madison campus. This interdisciplinary focus allows RDS to leverage the expertise of colleagues and partners to help researchers across the life cycle of their projects. Members of the team include librarians with expertise in data management, outreach, instruction, and subject area expertise in data curation, the humanities, science and engineering, the health sciences, social sciences, and geospatial data. RDS also has a fundamental partnership with the Research Cyberinfrastructure initiative within the campus' Division of Information Technology (DoIT). The Research Cyberinfrastructure team has expertise in research information technology and infrastructure, research computing — including cloud computing, and solutions for storage, backup, and internal data sharing. This team provides critical expertise, supports the RDS website, and partners with RDS on special projects. RDS

[7] "Vision & History," Research Data Services, n.d., https://researchdata.wisc.edu/our-services-2/vision-history/

also has relationships with the University's Data Science Hub, which provides support for training in computer science and data science. They provide expertise in data science facilitation, instruction, project support, and help with machine learning.

As mentioned, RDS provides consultations, both one-on-one with researchers and in group settings with labs. These consultations seek to assess data management needs and offer recommendations while also guiding researchers to useful campus resources where appropriate. Developing a robust network of campus partners has been extremely beneficial to being able to make referrals to campus resources for a wide array of needs during these consultations.

The education and training that RDS provides takes a number of different forms. Currently, a large amount of effort is going into education for the upcoming NIH policy changes and is trying to reach beyond researchers to research administrators, assistant deans for research, departmental IT services, the institutional review boards, and more. RDS can provide training for labs and for classrooms in best practices for data management, data sharing, and reproducibility. It also offers on demand, self-guided training modules on data management basics on the RDS website.

Finally, RDS offers assistance with data management plan review. Creating data management plans is a good practice for researchers in general, but as mentioned, many funders require researchers to write detailed data management plans to assure that their data will be protected and properly cared for at all stages of the research project. RDS offers to review those plans before they are submitted to the funding agency with the grant application to help ensure that the plan meets the agency's requirements, any legal and university requirements, and generally uses good data management practices. This has been especially helpful for researchers as it is often difficult for them to keep up with the changing funding agency requirements and to know which resources at the university will help them meet those requirements.

In terms of reviewing data management plans, RDS leverages a free tool called DMPTool (https://dmptool.org/plans). This tool is extremely similar to DMPonline, but has a United States funding agency focus. It has templates available for many of the most common funding agencies, which makes it easier for researchers to write plans that will meet requirements they need for that specific grant. It also has the option for researchers to create a data management plan with a general template. Once researchers write the draft of their plan, they can request feedback directly within DMPTool. A notification goes to the team that there is a new plan to review and a consultant from RDS is able to review the draft and provide feedback on the plan through the tool. DMPTool enables the data management plan review service to be quick, efficient, and easy for researchers.

As noted earlier, behind the services advertised to researchers, RDS takes on a number of other activities to enable robust research data support. The RDS group meets regularly to share knowledge, build community, and keep each other informed of updates in each consultant's area. Building and maintaining community is key to having a referral network that can be leveraged to direct researchers' questions to the person who will be able to provide them with the best support. This also spreads the burden of knowledge among the group, relying on everyone's individual expertise across the lifecycle to make up a collective knowledge that is more robust.

RDS also collaborates on outreach — an important part of the services' efforts. It is critical to get information about RDS services, resources, and updates in funding agency requirements to researchers at the point of need so that researchers can be proactive with data management and sharing practices from the beginning and have what they need to be compliant with their requirements. Outreach to students is also important so that they know about data management practices early in their careers and can develop skills they need to be successful in their research projects later on. Outreach methods include tabling at student events, presenting at campus events and conferences, creating fliers about services, maintaining a special topics and news blog on the website, a regular email digest with information on workshops and news items, social media presence on Twitter, and organizing workshops and events.

As mentioned, RDS relies deeply on collaborative partnerships to provide support. Through such collaborations, RDS is able to take on special projects that fill known needs on campus. A few examples of these include the Data Storage Finder (https://storage.researchdata.wisc.edu/), the Researcher Toolkit (https://researchertoolkit.wisc.edu/), and a membership with Dryad, discussed later. The Data Storage Finder is a tool that RDS created with the Research Cyberinfrastructure team. It is modeled after a finder tool by Cornell University and leverages the Drupal module provided by the same institution. The UW-Madison campus has a large number of data storage services available to researchers and researchers often found it hard to navigate information related to those services. This tool aims to improve this and make it easier for researchers to parse through the storage options available to them and find the best solution for them. The tool asks researchers to answer a series of questions about their project needs, their research data, and any regulatory or compliance needs. Based on their answers, the tool recommends data storage solutions available on campus that may fit their needs. Another example is the Researcher Toolkit which was built in collaboration with the Data Science Hub, the Wisconsin Institute for Discovery, and Research Cyberinfrastructure. The toolkit is a guide for UW-Madison faculty, staff, and student researchers that points to helpful resources for each phase of their research project. This tool also aims to make finding

research resources easier for researchers by collecting it all in one place and presenting it in a way that makes it easier for researchers to navigate.

Data Repositories at UW-Madison

While RDS always recommends that researchers use appropriate disciplinary repositories first, the Libraries recognize that not all disciplines have repositories and many repositories have limits that may prohibit a researcher from using them. Given this, the Libraries are seeking to create an ecosystem of solutions for data sharing that can supplement disciplinary options and provide support for an array of needs.

The first repository provided to the UW-Madison campus was the open access institutional repository, MINDS@UW. This repository predated the aforementioned policies and was built around 2008. MINDS@UW uses DSpace, which is an open source software and a ready-to-go software for repositories. While there are companies who do provide hosting and support for DSpace, the UW-Madison libraries host it locally. This repository allows all scholarly outputs to be deposited including research data, publications, pre-prints, conference proceedings, posters, and other objects. The structure of DSpace allows researchers to have a community - essentially a landing page - for their department or their lab, and then allows for multiple collections of individual objects within that community.

A number of UW-Madison researchers are producing very large quantities of research data but due to this are limited in their data repository options as they exceed most repositories' data deposit limits. Given this local need, the libraries are partnering with the Research Cyberinfrastructure team to conduct a pilot project. The libraries leverage their data storage infrastructure and a tool called Globus (https://www.globus.org/). The item record and the metadata remain discoverable through MINDS@UW, but the record links out to the data via Globus where it is then accessible for download and use. Currently, the pilot is offering researchers to deposit up to 1 terabyte of data. Progress on this work has been a little slower than anticipated due to the COVID-19 pandemic and limited resources, but its goal is to conclude within two years and to see if supporting this need is useful for campus researchers as well as if it is feasible as a long-term service. MINDS@UW is also currently undergoing some strategic evaluation and some road-mapping is being done for the next few years of the repository to ensure it remains a valuable solution for the campus. The evaluation and roadmap seeks to identify areas of immediate need for viability long term, areas of growth for features, and to identify opportunities for further improvements that can be completed with the Research Cyberinfrastructure team during the pilot project.

RDS and the libraries wanted to provide another, more robust option for a large portion of the campus that has scientific data. The data repository, Dryad

(https://datadryad.org/stash), is a third-party open access generalist repository that RDS has been recommending to researchers for a long time. Dryad recently released a new membership model that allowed for an affordable way for the libraries to scale data sharing support more sustainably and provide more robust infrastructure. Through the membership, campus researchers have unlimited deposits of up to 300 gigabytes per deposit. Dryad provides a number of valuable features including, robust storage and preservation infrastructure, minimum curation of deposited data sets, integrations with certain publishers, and the ability for deposited software and scripts to get automatically pushed to another repository called Zenodo, that specializes in that work. Researchers are able to make use of this on-demand without contacting RDS, though RDS is able to provide support and training for it. This makes it very easy and fast for researchers to deposit their data to comply with requirements while campus can be reassured that data is being deposited into a libraries-vetted repository.

While Dryad and MINDS@UW provide data sharing options for many at our campus there are still gaps in data sharing support. Due to this, RDS provides consultations and education to help researchers identify other repositories that suit their data needs. One example that RDS is conducting significant outreach on currently, is a repository called ICPSR (https://www.icpsr.umich.edu/web/pages/). This repository will be a key resource for local NIH-funded researchers that have social science data or social science methodologies, especially those with human subjects data or other sensitive data as the repository provides different restriction options. Given its potential future value for the campus community, RDS is dedicating significant effort to plant the seed with researchers now that they will need to consider data sharing costs early on as they write their data management plans and request curation cost estimates from ICPSR in advance to be included in the budgets of their funding proposals.

Recommendations

There have been many lessons learned as RDS and data sharing at UW-Madison has matured.

For those institutions that are just starting with research data support, there are a few recommendations to share based on local experiences though it is encouraged to use what is useful for the reader's applications.

Research Data Services

First, data management needs can vary widely across disciplines and even throughout the stages of a project. One data librarian can't possibly know everything or be an expert in all aspects. Due to this, RDS strongly encourages connecting with others on campus who have different areas of expertise. In this same vein, a collaborative approach has given UW-Madison the best results. In building a referral network with colleagues

across campus, RDS has been able to become a useful first point of contact for researchers looking for support.

Keeping track of researcher needs that surfaced during consultations and discussing them at the regular RDS meetings has allowed RDS to see where it would be valuable to expand services and where there might be significant gaps that campus could help fill.

RDS has also developed strategies for keeping costs low while having high impact. Where possible, RDS relies on free or nominal cost services and tools. By leveraging partnerships with other campus units, RDS has also been able to share costs for support and infrastructure for services that are developed. This is more sustainable long term for all partners involved.

Collaborating on projects with other campus units has helped RDS make sure that the time and effort invested in creating resources will be of the greatest benefit to the largest number of people on campus.

Data sharing support

A first and critical recommendation for those starting with data sharing support is to be responsive to the pressures and environment of your researchers and campus. Local UW-Madison solutions have been reactive—having to adjust services or pilot new options based on the needs as they have been encountered. In line with this, it is recommended to use the repository model that makes the most sense for each institution's needs. UW-Madison has used a couple of different options to help meet capacity and different use cases.

Similar to the research data services recommendation, working with other campus groups to address gaps for data sharing on campus is beneficial. Unless an institution has a lot of funding, people, and resources available for a data repository, partnering with other campus services is a great way to share infrastructure and share staff time for your services. It also enables each partner to do what they do best, rather than one unit trying to solve everything on their own. It is also recommended to plan for the growth of the repository at the outset of it. If an institution were to get a lot of demand from the campus, would the storage or service model scale well?

Finally, one area that UW-Madison would like to be able to put more resources and effort into, is robust outreach to our campus researchers. The local repositories could have more impact on supporting data management plans and research proposals, as well as more strategically collect research data if the service was able to conduct more consistent and targeted outreach. Unfortunately, good outreach requires a lot of sustained effort and staff time which is difficult to do with limited resources. If possible,

it is recommended that outreach be a strategic priority and that it is considered for outreach to be included in the job responsibilities for a position.

Conclusion

Providing research data support is a challenging and fast-paced effort. However, there are many ways to provide cost-effective and helpful services to researchers. Through an examination of data services and repository options available through the UW-Madison libraries, we can share that some of the approaches that have led to successful outcomes have included being responsive to local needs and contexts, collaborating with campus partners to share infrastructure, and building a community of partners with unique expertise to help develop services that are valuable to the institution as a whole.

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АБСТРАКТ

Бұл қысқа баяндамада АҚШ-тағы зерттеу деректерімен алмасу және талаптарды сақтау ережелері, сондай-ақ Висконсин-Мэдисон университетінің кітапханалары оған жергілікті деректерді қолдау қызметтері арқылы ден қоятын тәсілдер көрсетіледі. UW-Madison кітапханасының зерттеу деректері қызметі және

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Поддержка исследовательских данных в Университете Висконсин-Мэдисон

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АБСТРАКТ

В этом кратком докладе представлены перспективы обмена и соответствия исследовательских данных в США, а также способы библиотеки университета Висконсин-Мэдисон отвечать этим перспективам через свои местные службы поддержки данных. Рассказывается о службе исследовательских данных библиотеки университета Висконсин-Мэдисон и предоставляемых репозиториях данных, а также об уроках, извлеченных из развития и текущей поддержки указанных служб.

Open Access: The Key Driver to Address the Grand Challenges

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ABSTRACT

Open Science plays an essential role to tackle the grand challenges that we face today. Open Access to scientific output has tremendously increased the R&D process during the COVID-19 pandemic, where we have witnessed the fastest development of a vaccine against any health menace in the history of the world. The main theme of this year is, International Open Access Week: Open for Climate Justice, which aims to stimulate cooperation and collaboration in the climate change research community so that the consequences of the looming climate crisis can be prevented before it is too late. In this paper, I summarize the recent developments in the Open Access domain and underline the current issues that the Library and Information Science (LIS) community is facing nowadays. More specifically, I will address the issue of transformative agreements and point out some of the open questions such as the widening equity gap regarding access to scientific information across the globe.

The main theme of the International Open Access Week this year is Open for Climate Justice. Last year's theme was also related to justice, which was, It Matters How We Open Knowledge: Building Structural Equity. Justice, equity and equality have drawn attention in recent years in terms of gaining access to knowledge. The equity of access to COVID-19 vaccination is also a major issue. More than two thirds of the population of high-income countries have been fully vaccinated thus far, whereas less than 5% of low-income countries have been vaccinated. Similarly, there is a rift of climate justice (or rather injustice) between rich and poor, women and men, and older and younger people.

Openness can help reduce this gap considerably. I am going to discuss how open access and open science can help tackle the grand challenges such as COVID-19 and the climate crisis. More specifically, I am going to go over how open access accelerated the process of developing vaccines against the COVID-19 pandemic and finding a cure thereto.

The publisher Oxford University Press chose the word "vax" as the word of the year for 2021. It was an "unprecedented year" in which scientists developed vaccines (yes, more than one vaccine!) for an infectious disease in less than a year for the first time in history. Thanks to publishers' opening up their COVID-19 related papers and the data

on the use of all scientists, it took less than a year to develop the vaccine. Over 90% of all COVID-related papers were accessible. This was unprecedented because open access rates for papers on other diseases were much lower, which prolonged the process of finding a cure for those diseases.

Immediate and full sharing of new scientific evidence could play a decisive role in contrasting outbreaks of infectious diseases (Centers for Disease Control and Prevention, 2003; King et al., 2012). The case in point is the vaccine against the Ebola virus, as "…the Ebola virus outbreak in Liberia in 1982 remained hidden to some public health institutions because the paper reporting this information was published in a subscription-only journal (Knobloch et al., 1982). A timelier dissemination of this study would likely have led to faster and more effective actions to reduce the scale of the epidemics that occurred later in 2014 (Smith et al., 2017). This brings us to the fact that scientific knowledge should be considered a "commons". Elinor Ostrom, who was the first Nobel prize winning women economist, did pioneering work on how to manage the "commons". Up until Ostrom's work, commons such as pastures, water resources, fishing rights, etc., can easily be exhausted because everybody wants to benefit most from common resources. She showed that this was not the case and that commons can be governed effectively as well. She later wrote a book on knowledge as commons.

Ostrom defined knowledge as common according to whether its value is diminished when used (subtractability) and whether its use can be restricted to a certain person or a group (excludability). For example, my benefit from useful knowledge (i.e., learning Kazakh language) will not diminish the value of somebody else's learning Kazakh language. Ostrom classified resources based on these two axes. For instance, foreign language learning is low in subtractability, and it is difficult to exclude others from learning foreign languages.

Contrary to physical resources, my using a digital resource will not diminish its value for others. However, it is easy to exclude others because of the licensing mechanisms that are in place today. This must be changed if we wish to accelerate the process of finding vaccines against infectious diseases or find solutions to grand challenges such as climate crises. Louis Pasteur was the first to acknowledge the crucial importance of knowledge as being a "commons", although he didn't use the word "commons", which is open to everyone. He said, "The reason why science is not open to everyone is because scientific output such as papers, data, etc., became a lucrative industry, especially within the last 30 years."

Scientific publishers make more than 25 billion dollars annually off of scientific papers, which they neither funded nor paid for the salaries of researchers who carry out research or for the quality usually done by the very same researchers free of charge. However, they put these publications behind the paywalls or impose embargoes, which prevent

the very same researchers from accessing them. This slows down the whole scientific process. If you are further interested in this topic, please take a look at the documentary film called “Paywall: The Business of Scholarship", readily available at paywallthemovie.com.

Several studies have shown that the existing intellectual property rights are detrimental to the process of scientific developments and innovations. Due, in large part, to existing intellectual property rights, we are in what is called a vicious circle. Many scientists and institutions cannot afford to provide all scientific resources because of their high licensing costs. This is called the affordability crisis.

The publishing industry is also slow to incorporate digital developments. For instance, the publishing process can be accelerated by opening up the reviewing process (e.g., open reviewing or post print reviewing), data and reuse. This is called a functionality crisis. Moreover, paywalled access also created what is called a replication crisis, as it is difficult to replicate the findings when the publications, data, and methods are not open to everyone. As it was noted:

“Recently, an intense debate has arisen about the feasibility of increasing access to scientific literature through transformative agreements; contracts negotiated between publishers and institutions that combine subscription access to journals with the possibility of open access publishing, shifting costs from authors to institutions.” (Borrego et al., 2021; Farley et al., 2021)

“It is worth noting that the green road has three fundamental advantages over the transformative agreements: first, it does not risk increasing the costs that should be paid by institutions to publishers, which is a concern for countries with limited financial research support (European Research Council, 2020); second, it does not suffer from the uncertainties and latency of negotiation processes; third, the green road poses no equity problem, whereas transformative agreements can be more or less advantageous, depending on the negotiating strength of institutions or their consortia with the publishers.”

Getting back to the role of open access helping tackle grand challenges, in 2019, two years before “vax” was selected as the word of the year by the OUP, the word of the year was “climate emergency”. According to the World Economic Forum’s Global Risks Report of 2022, people identify climate-related issues and biodiversity losses due to climate crises as the most severe risks over the next 10 years. In fact, they see the climate crisis as the most severe risk in the next zero to two years, and two to five years. However, we did almost nothing within the last three years to confront the climate emergency problem.

Climate emergency is one of the “wicked problems”. Wicked problems are those challenges that are complex to define, let alone to solve. I am aware of the economic and political pressures regarding reducing temperatures. I am aware of the “right” to pollute air and its trading over the years, i.e., less polluting countries selling their polluting rights to more polluting ones. However, despite the existing inequities in obtaining access to the vaccine, if we were able to find a vaccine against the COVID-19 virus in less than a year, we can also take immediate measures against the looming climate crisis.

I think one of the things we can do relatively easily is to embrace the need for radical change. We can embrace open science consisting of open access, open data, open source software, open infrastructure, open reviewing, open licensing, etc., before it is too late.

Ашық қолжетімділік: үлкен міндеттерді шешудің негізгі қозғаушы күші

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АБСТРАКТ

Ашық ғылым бүгінде кездесетін үлкен мәселелерді шешуде маңызды рөл атқарады. Ғылыми өнімдерге ашық қолжетімділік ковид 19 пандемиясы кезінде ҒЗТКЖ процесін айтарлықтай жеделдетті, біз әлем тарихындағы денсаулыққа төнетін кез келген қауіпке қарсы вакцинаның ең жылдам әзірленгеніне куә болдық. Биылғы жылы Халықаралық ашық қолжетімділік апталығының басты тақырыбы – «Климаттық әділеттілікке ашықтық» - жақындап келе жатқан климаттық дағдарыстың салдарын кеш болмай тұрып алдын алу үшін климаттың өзгеруін зерттеушілер қоғамдастығындағы ынтымақтастық пен өзара іс-қимылды ынталандыруға бағытталған. Бұл мақаламен ашық қолжетімділік саласындағы соңғы оқиғаларды қорытындылаймын және қазіргі уақытта кітапхана және ақпараттық ғылымдар (КАҒ) қоғамдастығы алдында тұрған өзекті мәселелерді атап өтемін. Атап айтқанда, мен трансформациялық келісімдер мәселесін қарастырамын және бүкіл әлем бойынша ғылыми ақпаратқа қол жеткізуге қатысты теңдіктегі алшақтық сияқты, кейбір ашық мәселелерді атап өтемін.

Открытый доступ: ключевая движущая сила для решения грандиозных задач

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АБСТРАКТ

Открытая наука играет важную роль в решении грандиозных проблем, с которыми мы сталкиваемся сегодня. Открытый доступ к результатам научной деятельности значительно ускорил процесс НИОКР во время пандемии COVID-19, когда мы стали свидетелями самой быстрой разработки вакцины против угрозы здоровью, чем когда -либо в мировой истории. Главная тема Международной недели открытого доступа этого года - "Открытость для климатической справедливости" - направлена на стимулирование сотрудничества и взаимодействия в сообществе исследователей изменения климата, чтобы последствия надвигающегося климатического кризиса можно было предотвратить, пока не стало слишком поздно. В статье я подведу итоги последних событий в области открытого доступа и подчеркну текущие проблемы, с которыми сталкивается сообщество библиотечных и информационных наук (БИС) в настоящее время. В частности, я затрону проблему трансформационных соглашений и укажу на некоторые открытые вопросы, включая увеличивающийся разрыв в равенстве доступа к научной информации во всем мире.

Act Local, Think Global: The Scaling up of Open Science and the Role of Repositories

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ABSTRACT

COAR is an international association that brings together individual repositories and repository networks in order to build capacity, align policies and practices, and act as a global voice for the repository community. Open science promises to usher in a new paradigm for research; one in which all researchers have unprecedented access to the full corpus of research for text and data mining and other novel research methods; a trusted, transparent and open system built on community governed infrastructure. A prerequisite for this vision is an interoperable, sustainable and functional network of repositories. Repositories are essential for ensuring equity in open science because there are no fees to access or to deposit articles (or other items) into a repository; they are trusted, because there are managed by universities and research centres; and the highly distributed nature of the repository network makes it extremely resilient, protecting against any single point of failure, and safeguarding it from commercial buy-out.

Жергілікті жерде әрекет етіңіз, жаһандық ойлаңыз: ашық ғылымды масштабтау және репозиторийлердің рөлі

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АБСТРАКТ

COAR (Confederation of Open Access Repositories) – бұл әлеуетті арттыру, саясат пен тәжірибені үйлестіру, сондай-ақ репозиторийлер қоғамдастығы үшін жаһандық дауыс ретінде жекелеген репозиторийлер мен репозиторий желілерін біріктіретін халықаралық қауымдастық. Ашық түрде зерттеу барлық зерттеушілердің мәтіндер мен деректерді талдау және басқа да жаңа зерттеу әдістері үшін толық зерттеу корпусына бұрын-соңды болмаған қолжетімділікке ие болатынына жаңа зерттеу парадигмасының бастамасы; қоғамдастық басқаратын инфрақұрылымға негізделген сенімді, шынайы және ашық жүйе болуға бағытталған. Бұл пайымдауды іске асырудың қажетті шарты репозиторийлердің өзара әрекеттесетін, тұрақты және функционалды желісі болып табылады. Репозиторийлер ашық зерттеулерде әділдікті қамтамасыз ету

үшін өте маңызды, өйткені мақалаларға (немесе басқа объектілерге) қол жеткізу немесе оларды репозиторийде сақтау ақы төлеуді қажет етпейді; оларға сенуге болады, өйткені оларды университеттер мен ғылыми орталықтар басқарады; және репозиторийлер желісінің жоғары таратылған табиғаты оны өте тұрақты етеді, кез келген бас тарту нүктесінен қорғайды және коммерциялық сатып алудан сақтайды.

Действуй локально, думай глобально: масштабирование открытой науки и роль репозиториев

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АБСТРАКТ

COAR (Confederation of Open Access Repositories, Конфедерация репозиториев открытого доступа) - это международная ассоциация, объединяющая отдельные репозитории и сети репозиториев с целью наращивания потенциала, согласования политики и практики, а также в качестве глобального голоса для сообщества репозиториев. Открытая наука обещает стать началом новой парадигмы исследований, в которой все исследователи будут иметь беспрецедентный доступ к полному корпусу исследований для анализа текстов и данных, а также других новых методов исследования; и быть надежной, прозрачной и открытой системой, построенной на инфраструктуре, управляемой сообществом. Необходимым условием реализации этого видения является взаимодействующая, устойчивая и функциональная сеть репозиториев. Репозитории необходимы для обеспечения справедливости в открытой науке, поскольку доступ к статьям (или другим объектам) или их депонирование в репозитории не требует платы; им можно доверять, поскольку они управляются университетами и исследовательскими центрами; а высокораспределенная природа сети репозиториев делает ее чрезвычайно устойчивой, защищая от любой единой точки отказа и предохраняя от коммерческой скупки.

On Open Access, Institutional Repositories, Reproducibility, and Plagiarism: Librarians and Information Professionals' Perspectives and Roles on Open Science

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ABSTRACT

Digital libraries and institutional repositories (IR) were identified to be important and primary tools in the open access movement. Libraries and information centers were at the forefront of providing and advocating free access as well as addressing the permission barrier, taking the role of designers, promoters, and maintainers of IR. Librarians and information professionals must address the challenges between journal subscriptions, pricing crises, article processing charges for authors, predatory publishing, plagiarism, reproducibility, ethics, and scholarly communication with the open access (OA) movement. This paper will share some insights into issues we encountered as we advocate this movement. A review of the literature and news articles related to OA, IR, and reproducibility was conducted. A particular case study of a library advocating OA through establishing an IR and its use of the Request Copy Button will be presented. How it provided access to publicly funded research will be highlighted. Lastly, the perceived roles of librarians and information professionals in open science will be discussed.

Keywords: Open Access, Institutional Repositories, Reproducibility, Plagiarism, Open Science, Role of Librarians

Ашық ғылымдағы ақпараттық кәсіпқойлар мен кітапханашылардың рөлі мен болашағы

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АБСТРАКТ

Сандық кітапханалар мен ұйымдардың ақпаратты сақтау бөлімшелері ақпаратты баршаға қол жетімді ету қозғалысына аса қажетті, алдыңғы лекті құралдар ретінде танылды. Кітапханалар мен ақпараттық орталықтар мәліметті қолжетімді етіп қана қоймай, дизайнерлер, промоутерлер мен қолданушылар роліне еніп,

тұтынушылармен арада пайда болатын кедергілерді жоюға да атсалысты. Кітапханашылар мен ақпарат мамандары журналжарға жазылу, баға орнатудағы дағдарыстар, авторлардың мақалаларын өңдеу, жыртқыш басылымдар, плагиат, өнімділік, этика мен ғылыми қарым-қатынаспен ашық қолжетімділік арқылы күресе алады. Осы қозғалысты қолдау барысында біз тапкелген кейбір мәселелермен аталмыш мақала аясында бөлісетін боламыз. Ашық қолжетімділік, ұйымдардың ақпаратты сақтау бөлімшелері және өнімділікпен байланысты ғылыми әдебиет пен мақалалар зерттелді. Ақпаратты сақтау бөлімшелеріне «Көшірмеге тапсырыс беру» батырмасын пайдалану арқылы тапсырыс беретін, сол арқылы ашық қолжетімділікті насихаттайтын кітапхананың нақты мысалы ұсынылады. Бұл мемлекет тарапынан қаржыландырылатын зерттеулерге қалай қол жеткізілетіндігін де сипаттайды. Сол секілді ақпаратты ұсынудағы кітапханашылар мен ақпарат мамандарының ролі талқыланады.

Роль и перспективы информационных профессионалов и библиотекарей в открытой науке

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АБСТРАКТ

Электронные библиотеки и институциональные репозитории (ИР) признаны важными и первостепенными инструментами движения открытого доступа. Библиотеки и информационные центры стали первыми в представлении и продвижении свободного доступа, равно как и в постановке вопросов об ограничении разрешений, принятии роли дизайнеров, маркетологов и обслуживании ИР. Библиотекари и информационные профессионалы вынуждены решать такие задачи, связанные с движением открытого доступа, как подписки на журналы, ценовые кризисы, авторские взносы при публикации, плагиат, воспроизводимость, этика и научная коммуникация. В статье изложены взгляды на проблемы, с которыми мы сталкиваемся при поддержке этого движения. Проведен обзор литературы и новых публикаций, посвященных открытому доступу, ИР, и проблемам воспроизведения. Представлен особый случай продвижения библиотекой открытого доступа посредством ИР и использования услуги Заказа копии, а также особенности предоставления доступа к грантовым исследованиям. Также, рассмотрена роль библиотекарей и информационных профессионалов в открытой науке.

Research Activity at the State Scientific Research Institute of the SPSTL SB RAS: Traditions and Modern Directions of Development

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ABSTRACT

The article is devoted to the research activity of State Public Science and Technology Library of the Siberian Branch of Russian Academy of Sciences (SPSTL SB RAS) - the experience of its creation: the State Scientific Library (SSL), in 1918 in Moscow, the formation of resources, management, transformation into the State Public Science and Technology Library of the Siberian Branch (SPSTL SB) of the USSR Academy of Sciences, the change of tasks. It is said that at present, the library continues to diversify the forms and methods of work, generates their own resources, actively engaged in automation and computerization of library and information processes, develops the existing traditions of scientific and practical work, such as holding scientific events (seminars, conferences, readings, forums, congresses), publication of scientific collections, proceedings, monographs, periodicals, and expansion and improvement of subjects of research projects in library science and bibliography. Over 105 years of activity, the SPSTL SB RAS has become a unique scientific and cultural Siberian phenomenon, combining the features of a universal public library while being the center of scientific and technical information, aimed at information support and popularization of science and research in library science and bibliography, book science, and applied computer science.

One of the largest libraries in Russia on the Eurasian continent, the State Public Scientific and Technical Library of the Siberian Branch of the Russian Academy of Sciences (SPSTL SB RAS) recently celebrated its centennial anniversary. The century-long history of the library — its creation, its accretion, the movement of much of the literature to the east of the country, and, practically, the new birth of the library in Siberia, is truly unique. Having originated by order of the Supreme Soviet of National Economy of the RSFSR on June 17, 1918, the State Scientific, Technical and Economic Library was initially one of many of its kind. Nevertheless, already in the first years of its activity, it was able to increase its initially small holdings. Moreover, it added many famous book collections of the time.

In addition to the growth of the book repository, the rapid development of the library was facilitated by the active and extraordinary leadership of organizers, scientists, unique personalities, creators of science and culture, politicians, and statesmen on a different scale of activity. Energy of N. P. Gorbunov, V. N. Ipatiev, A. I. Yakovlev and others, the first in the list of directors, made it possible to withdraw the library from among others, at first turning it into a large one, then into the central library of Soviet industry, and eventually into an effective lever for reforming librarianship in the country. The first period of activity became a time for the library to increase resources: library, personnel, research, management, educational, a stage of strength testing, concentration of forces, means, and information capabilities.

The period of industrial and social rise of the second half of the twentieth century coupled with scientific and technological progress demanded the creation of a powerful scientific center beyond the Urals: the Siberian Branch of the USSR Academy of Sciences. And that, in turn, necessitated the founding of a major information unit of a powerful functional library, which necessitated the founding of a functional library, which is a major information unit. The founders of the SB RAS are academicians M. A. Lavrentiev and S. A. Khristianovich, addressing the Chairman of the Council of Ministers of the USSR N. S. Khrushchev, insisted on moving the already formed fund of scientific literature to the east of the country. They saw such radical measures to improve the information situation in the Siberian Branch of the Academy of Sciences as one of the main conditions for successful development (Alexandrov, 2003).

Such is the reason why in 1958, on the level of the country leaders, it was decided to create two State public scientific and technical libraries on the basis of the State scientific library of the Ministry of higher education: GPNTB of the USSR in Moscow (as part of the State scientific and technical committee under the USSR Council of Ministers) and SPSTL SB RAS in Novosibirsk (under the Siberian branch of the USSR Academy of Sciences). According to the decision of the Council of Ministers of the USSR from October 17 1958 it was prescribed to transfer to Novosibirsk two thirds of book funds of the State public scientific and technical library that was more than three million volumes of literature. Moving such book treasures across the country was in itself a unique phenomenon in world library practice. Thousands upon thousands of books began to arrive in Siberia by rail; free required copies of the Book Chamber were also forwarded here, and new foreign literature was also sent.

At the same time, nine floors of the largest library building in the east of the country were being built in Novosibirsk, which was opened to readers on October 17 1966. The library began the Siberian era of its historical path, year after year increasing the scale of its activities, including research.

Over six and a half decades of Siberian existence, the Library has become a major research, information, educational, cultural and educational center. It regularly hosts lectures, presentations, tours, seminars, workshops, fairs, festivals,

and concerts. Creative scientific and popular science events have become familiar to contemporaries: vernissages, microforums, workshops, flash mobs, webinars, and panel discussions.

As a research institute by statute, SPSTL SB RAS continues to expand its research and scientific organizational work in the history and current state of the book, book culture, bibliography, publishing, mediology, study of book collections, storage problems, identifying the needs and preferences of readers/users/media consumers, development of library and information technology, search for innovative forms of libraries, and determining their role in the digital transformation of society.

The first scientific conference on the development of librarianship in Siberia and the Far East was held in the library 55 years ago in October 1966. Since then, the tradition of large scientific forums has not been interrupted: the annual large-scale scientific event on current issues of library science, bibliography and book science has become a hallmark of SPSTL SB RAS. The traditional international scientific-practical conference, Libway-2022, held in March this year opened a series of jubilee events, including the 65th anniversary of the Siberian Branch of the Russian Academy of Sciences, which included other significant scientific events: the exhibition-presentation of books published by the institutes of SB RAS (May 2022), and the international scientific-practical conference, Personal Book Collections and Archives in the Libraries (for the 80th anniversary since the birth of B.S. Elepov in September 2022).

In the 21st century, SPSTL SB RAS holds the position of one of the largest information and library centers of the country, realizing its mission: the preservation and development of a universal fund of knowledge for future generations, providing free and equal access to the most important information resources for users of scientific and educational complex of Siberia, and the creation and operation of an effective regional system of library and information support for scientists, researchers, universities of Siberia and society.

Currently, researchers are working on six research projects, each one specific in its own way. One of the topics, Transformation of Book Culture in Social Communications in the XIX-XXI Centuries, is implemented by the Laboratory of Book Science. The aim of the project is to identify and analyze the patterns of transformation of book culture in social communications of the 19th to 21st centuries. Another scientific subdivision of SPSTL SB RAS is the laboratory of information-system analysis. SPSTL SB RAS is engaged in the development of a terminological range, metrics and criteria of effectiveness of interaction between research institutions and society, assessment of the

attitude of science to communication activities and the public to science, the dynamics of its change under the influence of various events, development of theoretical and methodological justification of the directions of library and bibliographic activities as a channel of interaction between science and society.

A research project on the topic, development of a model for the functioning of a scientific library in the information ecosystem of open science, is being implemented by the Department of Scientific Research of Open Science. The ultimate goal of this research project is to build a model for the functioning of a scientific library, to promote the creation of an effective information and communication infrastructure to support open science.

SPSTL SB RAS continues to develop international ties, actively interacting with foreign information and library institutions back in the late 1960s. Over the past decade, the SPSTL SB RAS has signed agreements on cooperation in the field of information and library activities, culture, and science with scientific and scientific-technical institutions from 32 countries around the world.

Cooperation with foreign scientific and cultural institutions opens up many opportunities for mutual exchange and mutual enrichment in our professional activities, encourages new achievements and discoveries in scientific research.

The publication of scientific collections and proceedings, monographs and scientific journals such as Bibliosphere (since 2005) and the Proceedings of SPSTL SB RAS (since 2019) inherits another tradition of the institution's research activities: to acquaint contemporaries with the widest range of tasks solved by the Library in the interests of a comprehensive expansion of library and communication, historical and book studies research and information support of science; supporting SPSTL SB RAS status as a research institution, the largest information, methodological, educational center beyond the Urals.

The Library carefully preserves its traditions, changing along with technology and remaining true to itself at the same time. At present, the modern directions of SPSTL SB RAS activities continue to develop a comprehensive expansion of research and information and analytical support of science in the region, supporting the status of the library as one of the main research centers of the country in the field of library science, book science, bibliography, bibliometrics, mediology, information science, and the leading cultural center of Siberia and the Far East.

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Ресей ғылым академиясының Сібір бөлімінің мемлекеттік қоғамдық ғылыми-техникалық кітапханасындағы ғылыми-зерттеу қызметі: тәжірибе және қазіргі даму бағыттары

Ирина Лизунова

Директор

Ресей ғылым академиясының Сібір бөлімінің мемлекеттік қоғамдық ғылыми-техникалық кітапханасы, Ресей

АБСТРАКТ

Мақала алдымен 1918 жылы Мәскеуде құрылған мемлекеттік ғылыми кітапхана (GNB), содан кейін КСРО Ғылым академиясының Сібір филиалының мемлекеттік қоғамдық ғылыми-техникалық кітапханасы (GPNTB so) болып қайта құрылған Ресей Ғылым академиясының Сібір филиалының мемлекеттік ғылыми-техникалық кітапханасының қызметіне арналған. 1961-1966 жылдары кітапхана Новосибирск қаласына көшірілді. КСРО Ғылым академиясының МТНТБ негізгі міндеті - ғылыми зерттеулерді ақпараттық қамтамасыз ету.

Қазіргі уақытта кітапхана жұмыс нысандары мен әдістерін жетілдіреді, өз ресурстарын қалыптастырады, кітапхана-ақпараттық процестерді автоматтандырумен және ақпараттандырумен белсенді айналысады; Кітапханатану, библиография, кітаптану және Қолданбалы информатика саласындағы ғылыми-зерттеу жобаларын әзірлейді.

105 жыл ішінде мемлекеттік қоғамдық ғылыми кітапхана Сібірдің бірегей ғылыми және мәдени құбылысына айналды, ол әмбебап көпшілік кітапхананың, ғылыми-техникалық ақпарат орталығының ерекшеліктерін біріктіріп, ғылымды,

кітапханатану, библиографтану, кітаптану және Қолданбалы информатика саласындағы зерттеулерді ақпараттық қолдау мен ілгерілетуге бағытталған.

Научно-исследовательская деятельность в Государственной публичной научно-технической библиотеке Сибирского отделения Российской академии наук: опыт и современные направления развития

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АБСТРАКТ

Статья посвящена деятельности Государственной научно-технической библиотеки Сибирского отделения Российской академии наук. В настоящее время библиотека совершенствует формы и методы работы, генерирует собственные ресурсы, активно занимается автоматизацией и информатизацией библиотечно-информационных процессов; разрабатывает научно-исследовательские проекты в области библиотековедения, библиографии, книговедения и прикладной информатики.

За 105 лет своей деятельности Государственная публичная научная библиотека стала уникальным научным и культурным сибирским явлением, сочетающим в себе черты универсальной публичной библиотеки, центра научно-технической информации, нацеленного на информационную поддержку и продвижение науки, исследований в области библиотековедения, библиографоведения, книговедения и прикладной информатики.

Knowledge is No Longer Shelved: "OPENNESS" of the Oriental Institute of the Academy of Sciences in the Czech Republic

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ABSTRACT

Scientists and scholars, as a tradition of scholarship, publish their research free of charge for the main reason of sharing the output of their scholarly endeavors. This paper summarizes the current open access initiatives at the Oriental Institute of the Academy of Sciences in the Czech Republic. It describes the recent projects which have been made freely available in virtual space as evidence of the Institute's commitment to open access. As libraries' emerging role is to support their institutions' research, this presentation will further answer how and where the library and librarians fit in the framework of promoting open access.

Keywords: Open access, open science, oriental studies, research libraries

Introduction

The Oriental Institute, founded in 1922, is one of Europe's oldest institutions dedicated to studying politics, societies, and cultures of "the Orient" (Oriental Institute, 2014). Originally established by an act of the Czechoslovak Parliament, the Oriental Institute operates under the auspices of the Czech Academy of Sciences (the former Czechoslovak Academy of Sciences) and is tasked with promoting cutting-edge and interdisciplinary research that seeks to advance scientific knowledge at the international and national levels. The Czech Academy of Sciences of the Czech Republic (CAS), is a network of research institutions similar in function to its counterparts in continental Europe. The primary mission of the CAS and its 54 member institutes is to conduct basic research in a broad spectrum of the natural, technical and social sciences and the humanities (Center of Administration and Operations of CAS, 2022). This research, whether highly specialized or interdisciplinary in nature, aims to advance developments in scientific knowledge at the international level, while also taking into account the specific needs of both Czech society and national culture. In the present organizational structure, the Oriental Institute is divided into three departments (Middle East, South Asia, East Asia), and employs scholars specializing in the study of the Arab world, the ancient Near East, India, Central Asia, Southeast Asia, China, and Japan.

The Library

The Oriental Institute Library is composed of the General library, the Lu Xun Library, The John King Fairbank Library, Tibetan Collections, Korean Library, and the Taiwan Resource Center for Sinological Studies, with almost 300,000 volumes (including periodicals and manuscripts) in more than 140 languages. The OI Library is one of the largest libraries within the Academy of Sciences. Librarians are hired as specialists of specific languages like Tibetan, Chinese, Arabic, Hebrew, Korean, etc. There is only one practicing librarian who is part of the team. Although the major part of the work is geared towards organizing the collection in physical and virtual spaces, the library also works with OI scholars to support research. Their knowledge on information retrieval, information curation and open knowledge practices can also be an asset to fulfill the purpose of research. Being a research institute, the value of openness is indispensable. The more people that can access and build upon the latest research, the more valuable that research becomes, and the more likely we are to benefit as a society (SPARC Europe, 2022). There are thousands of open access resources and tools that only a few people are cognizant of. While some of these are intended for specialized studies, it is not intended to reach merely a limited group. For this reason, I am presenting about the project we have at the Oriental Institute. My objectives are to: (1) provide an overview of the open access agenda in the Czech Academy of Sciences, (2) describe the projects at the Oriental Institute where output, resources, methods and/or tools are publicly accessible in digital format with no or minimal restriction, and (3) deduce implications on how the library and librarians can shape the future of open access activities at the Oriental Institute.

I. Open Access Agenda

The concept of open access is connected to the realm of movements in the global research community. This beehive (Fig. 1) represents the facets of open science. Open science involves various movements aiming to remove the barriers to sharing any kind of output, resources, methods or tools, at any stage of the research process (FOSTER, [2020]). As such, open access to publications, open research data, open source software, open collaboration, open peer review, open notebooks, open educational resources, open monographs, citizen science, or research crowdfunding, fall into the boundaries of open science, even though, especially for the library and information domain, the focus is usually placed on two of these movements: open research data and open access to scientific publications.

In the Czech Republic, specifically at the Academy of Sciences, the practice primarily works within these three concepts: open access, open data and the European infrastructure (OpenAire). Open access is permanent and provides free online access to documents (particularly full texts) for all users. This status includes free and unlimited reading, downloading, copying, sharing, saving, printing, searching and hypertext

connection. On the 14th of September 2010, the Academic Council of the Czech Academy of Sciences adopted the Open Access Policy of the CAS.

II. Open Access Projects at the Oriental Institute of CAS

Here I will expound the idea from each of our projects which provides free online access to information from publication to the base structures where the publications were derived.

The Monuments of Mosul in Danger

This project was created in response to the serious threat to Mosul's architecture by the terrorist organization Islamic State (ISIS, Daesh), which controlled the city from June 2014 to July 2017. During these years, the Islamic State severely damaged or completely razed more than 40 historical monuments, among them mosques, churches, shrines, tombs and cemeteries. This initiative immortalizes a significant part of cultural heritage in the digital space.

The framework developed by experts in the field is a good baseline data for possible legitimate replication working within the following areas (Fig. 1):

1. Tracking the Destruction in Mosul Through Satellite Imagery Analysis
2. Creation of an interactive map of destroyed monuments
3. Architectural and historical analysis of the destroyed monuments through extant pictorial (photographs, documentaries) and plan documentation, as well as recent descriptions published by both Iraqi and Western researchers
4. Creation of 3D virtual models of monuments for which we have preserved sufficient quality documentation
5. Analysis of the ideological background of the destruction (religious propaganda of the Islamic State, historical precedents).

Fig. 1. The User interface of monuments of mosul

The project team published a database of the most important results of their research, containing:

- a complete catalog of Mosul's destroyed monuments
- satellite image analysis
- an extensive map application with an interactive map of the destroyed historical core of Mosul in the GIS system
- virtual 3D models of selected Mosul monuments
- project documentary and downloadable brochures.

The database and a complete list of other outputs are available on the project website www.monumentsofmosul.com. Taiwan Biographical Database (TBIO) The OI's Taiwan Biographical Ontology (TBIO) provides an array of biographical data related to Taiwan intellectual elites to pursue studies in prosopography. It currently contains information about 27,488 people, 45,858 organizations, and 2,740 various positions within the organizations which can be accessed in http://tbio.orient.cas.cz/

- TBIO is a graph database combining six datasets amounting to approximately 19,000 personal entries which is an open platform for researchers to use and contribute to with their own data sets, offering a number of analytical instruments which can be freely adapted to support investigations at the intersection of history, sociology, literary history, and digital humanities.
- TBIO is a tool that can be used to identify and relate a group of persons or characters to specific social groups in Taiwan. By allowing users to systematically correlate commonalities in the lives of individuals with each other, such as place of birth, education, occupation, marriage, family background, and social status, TBIO reveals sociologically relevant patterns with positional analyses of the authors' social involvements, which allowed us to treat them as proxies for various types of social, cultural, economic and political capital (Chen & Dluhošová 2022) which can also be useful in the developing related studies. Fig. 2 below illustrates the mapping.

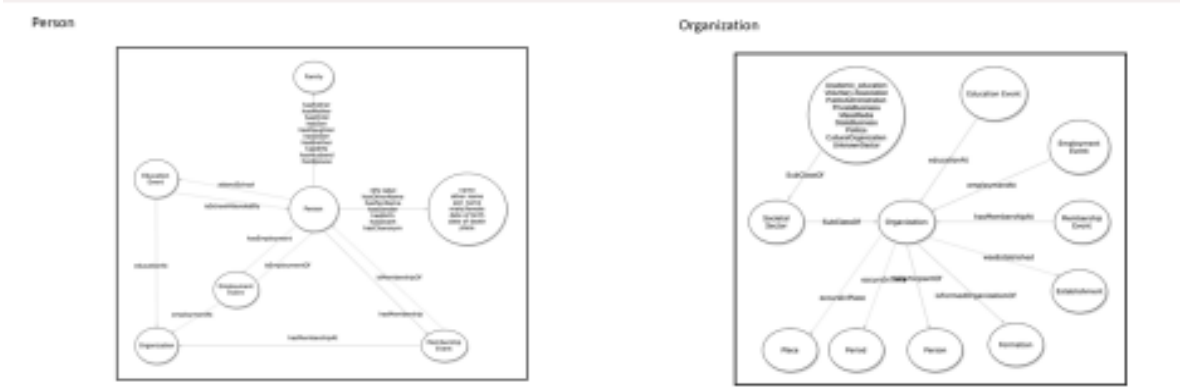

Fig. 2. TBIO mapping of semantic categories (Dluhošová & Wen-Hsin Cheng, 2022).

Persian Tadhkira Project The Persian Tadhkira Project is devoted to exploring trends in the production and circulation of Tadhkiras (biographical anthologies) of Persian poets produced across the Persianate world from 1200-1900. One of the main features assisting the development and construction of the transregional Tadhkira library over space and time was the manner by which texts served as a collection to be utilized for the crafting of new works (Schwartz, 2020a). Among the myriad features that are useful for further studies are citations and timeline. At its simplest form, this comprehensive information can be useful for scoping review or citation analysis on the topic. As Schwartz (2020b) explained, citations — as intertextual links connecting multiple Tadhkiras across space and time (Fig. 3). — may serve as an additional way to assess the constitution of the transregional library of Tadhkiras as a whole (p.128). For Timelines, it can be employed for different purposes: quantitatively, visualizing individual items in aggregation, and for sampled or curated groups, offering an overview or simplifying presentations (Fig. 4). Timeline visualization can also be used to express numerically by plotting or scaling data points (Vane, 2020) to see correlations. The project is accessible at https://ptp.daoyidh.com/

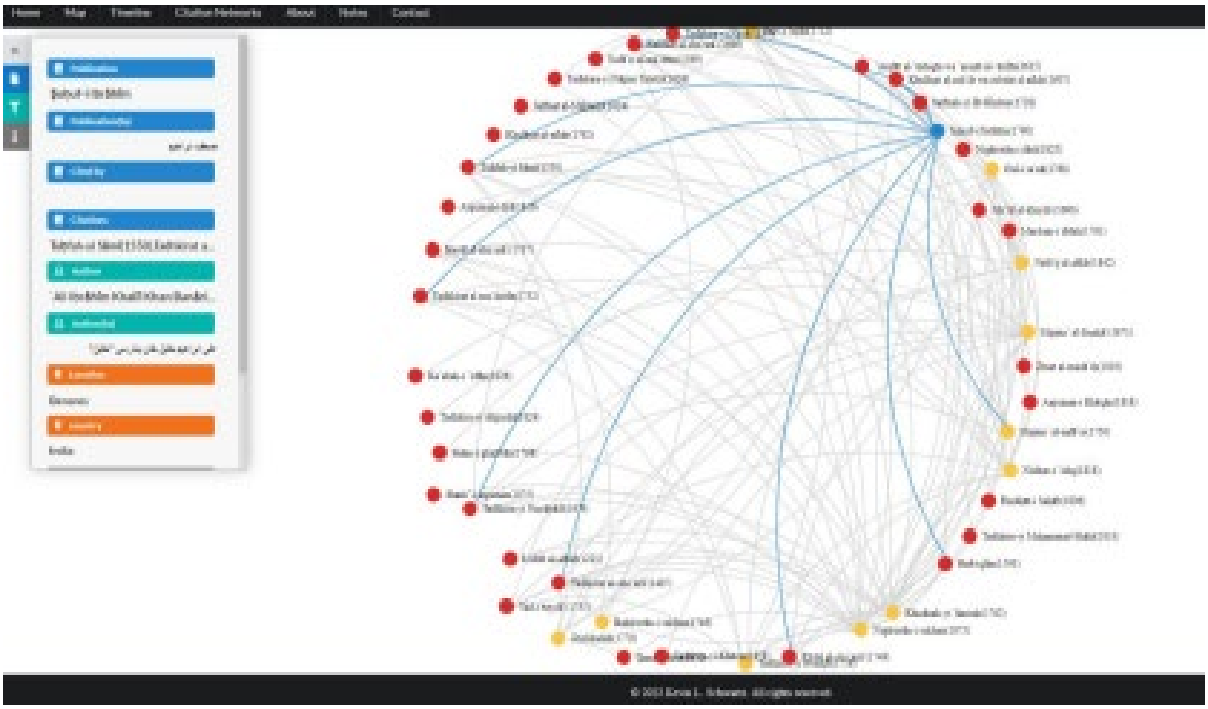

Figure 3. Illustration of Citation Network

The Tibetan-English-Czech Dictionary This trilingual online dictionary is a publicly accessible source for translation from Tibetan into English and Czech and vice versa. The dictionary allows searching in English, Czech, and the Tibetan script, as well as in the international Wylie transliteration (Fig. 4). Wylie transliteration is a method for transliterating Tibetan script using only the letters available on a typical English language typewriter.

Figure 4. Timeline Visualization

The contextual online dictionary started in 2017 as a collaborative project of the Oriental Institute of the Czech Academy of Sciences, Humboldt-Universität zu Berlin, and Linguatools Berlin. This database continues to be expanded but is ready to provide context based translations in these languages at https://linguatools.info/tibendicts/.

Fig 5. Illustration of simple query

Digitization of OI Publications Open access copies of the official publication of the Institute can be accessed through the Digital Library of the Czech Academy of Science. There are two publications of the Institute where the majority of the issues are digitized. One is Archiv Orientální, an international, peer-reviewed journal which is indexed in Scopus, AHCI (Thomson Reuters) and ERIH Plus. This publication started in 1929, and is considered to be one of the oldest academic journals dedicated to the area of Northern Africa, the Middle East, and Asia. Volumes 1 (1929) to 78 (2010) are openly accessible here: https://tinyurl.com/7ht56e4t. Another one is the Czech-language magazine Nový Orient which has been published by the Oriental Institute since 1945. During the socialist period, it used to provide the general public with well-founded and

interesting snapshots from, for the Czechoslovak reader, exotic countries outside of the Iron Curtain. Currently, it is a triannual peer-reviewed journal publishing fresh analyses from a vast region once perceived as "The Orient". Volumes 1 (1945) to 71 (2016) are available under Open Access through the digital library of the Czech Academy of Sciences at https://tinyurl.com/3m37jhc6

Digitization of Rare Books

One of the initiatives of the OI is to make accessible to the public some of the rare collections. The current collection includes Chinese manuscripts published in the mid-18th century and gazetteers dated as early as 1760. This is an ongoing project embarked upon by the Library which can be accessed at https://tinyurl.com/4dyxne9d.

III. Librarians in the Open Access Agenda

The most common way librarians participate in open access is through consortia, where schemes to pay less for open access publication are negotiated. OI Library participates in making OA a publishing option through Czech E-Lib. Negotiation is always a struggle for open access publication, but consortia can help as they have the power to coordinate and negotiate pricing. Libraries also promote self-archiving through institutional repositories and digital libraries to preserve research output and make it more accessible. A good example in this study is the digitization of rare materials and making these resources available through the Czech Academic of Sciences digital library.

After looking at the multifaceted and specialized framework in these projects developed at the institute, it can be seen that data come in many forms, in different languages, and in very specific fields of interest. It brings to the question, “How open is open?” Not all open access materials are equally visible and openly accessible due to language barriers. Can data in different languages be combined together? This is where the work of the librarians and IT experts should be combined. Optimization of digitization workflow can enhance the quality of digitized texts and can also create structures to make data reusable and interoperable.

Librarians are also at the forefront of enhancing retrieval of information which can enhance the visibility of research to the broadest possible audience. Their expertise in understanding how advanced search and ontology-based metadata work is also invaluable.

The value of open access does not always equate with a huge number of page visits or citations. Taking the case of the Oriental Institute, the field of study OI scholars are dealing with is highly specialized. A few may understand the socio-political, cultural or historic relevance of data, but it still cannot be neglected. Someone must deal with

the past and not leave evidence or traces of history to be forgotten. Creating digital spaces where all these resources are curated and preserved is an important role that libraries play in collaboration with scholars.

Future Direction

The potential of openness becomes more pervasive with the sharing of outputs at different stages of their maturation and combined with continually updating data, simulations, and visualizations, as well as commentary and interpretation. As Pinfield, Wakeling, Bawden, & Robinson (2020) projected, OA will become the default, at least for many disciplines, increasingly developing within a broader context of "open science" or "open research" where network-level content venues are likely to transform dissemination, and increasingly personalized retrieval agents will transform discovery. Other developments, such as the creation of a wide range of metrics and indicators of quality and impact; however, challenges such as long-term preservation of the scholarly record are likely to become more apparent. The trajectory of OA will always be evolving. Oriental studies, like other fields of humanities and social sciences, will continue to work within these transformations as knowledge is never meant to be merely shelved.

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Білім енді сөрелерде сақталмайды: Чехия ғылым академиясының Шығыс институтының «ашықтығы»

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АБСТРАКТ

Ғалымдар мен зерттеушілер ғылыми қызмет дәстүріне сәйкес өз зерттеулерін негізгі себебі болып табылатын ғылыми күш-жігерінің нәтижелерімен бөлісу арқылы тегін жариялайды. Бұл презентация Чехия ғылым академиясының Шығыс институтының ашық қолжетімділік саласындағы ағымдағы бастамаларын жинақтайды. Ол виртуалды кеңістікте еркін қолжетімді соңғы жобаларды сипаттайды, бұл институттың ашық қолжетімділікке деген міндеттемесін көрсетеді. Кітапханалардың өсіп келе жатқан рөлі өз мекемелерінің ғылыми зерттеулерін қолдау болғандықтан, бұл презентация кітапхана мен кітапханашылар осы құрылымға қалай және қай жерде сәйкес келеді деген сұраққа жауап беруге көмектеседі.

Знания вне полок: "открытость" Восточного института Академии наук Чешской Республики

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АБСТРАКТ

Ученые и исследователи, в соответствии с традицией научной деятельности, публикуют свои исследования бесплатно по основной причине - поделиться результатами своих научных проектов. Данная статья обобщает текущие инициативы Восточного института Академии наук Чешской Республики в области открытого доступа. Описываются недавние проекты, которые находятся в свободном доступе в виртуальном пространстве, что свидетельствует о приверженности института открытому доступу. Поскольку возрастающая роль библиотек заключается в поддержке научных исследований своих учреждений, данная презентация поможет ответить на вопрос, как и где библиотека и библиотекари вписываются в эту структуру.

New Opportunities for Research Libraries

Open Source & Open Access Software and Digital Scholarly Ecosystems

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ABSTRACT

Leading university research libraries and institutions around the globe have begun to place academic research online through open digital ecosystems. These open source and open access infrastructures are available to any university and college. They make research more readily discoverable, opening doors for collaboration and quickening further progress. This article overviews setting up these new possibilities for institutions globally wishing to enable researchers and university faculty and quickly connect them to the current state-of-the-art global network research possibilities.

Introduction: Online Digital Scholarly Research Ecosystems

An open access digital scholarly research ecosystem is an open source network of software components enabling faculty and student research, raising research profiles, accessibility and possibilities for global collaboration. This recent class of open-source software for library digital research ecosystems empowers research institutions and academic libraries globally. Open access means openly available globally. Open source means freely available. These systems are easily configurable by all university and college systems globally today.The larger idea is that collocating open source digital components in a networked research global ecosystem creates previously untrodden connections and larger network effects towards innovation and discovery globally.

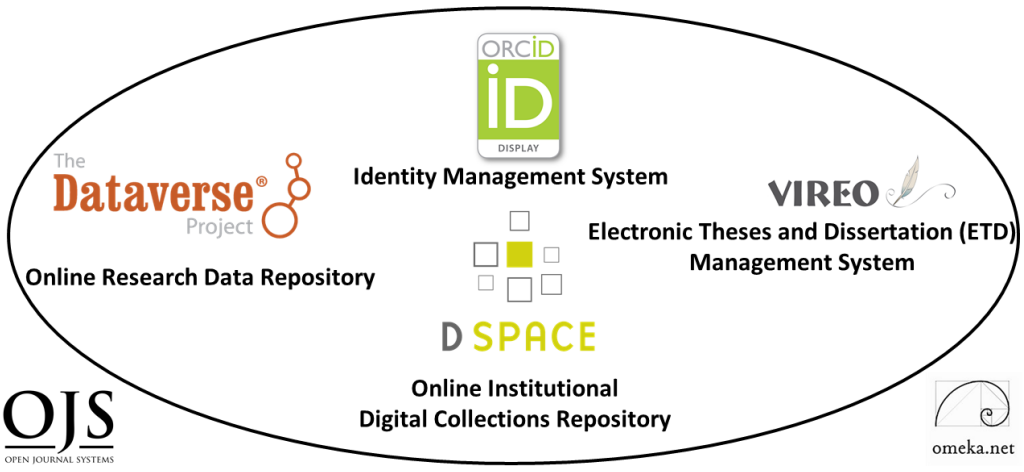


Figure 1. Texas State University Libraries digital scholarly research system

Characteristics of any digital scholarly research ecosystem include open source software, customizable components, and active technology developer communities to customize and link components locally and globally. The Texas State University Libraries digital research ecosystem consists of six main software components that are divided into content and communication.
Content: A Digital Collections Repository and a Research Data Repository; **Communication:** An Identity Management System, an Electronic Thesis and Dissertation Management System, User Interface Software and Open Source Journal Software.
By collocating these open source components within a networked ecosystem, the systemic value of compatible communicating components expands connecting researchers, systems and innovative possibilities.

The Big Picture: Global Possibilities

In a global networked environment like the Internet, network effects lead to large gains for researchers. This may be characterized in terms of ease of research retrieval, findability, and research visibility (SEO or search engine optimization) . Research that otherwise would be buried or not easily accessible behind database paywalls buried in long Google lists can be found more easily through library metadata applications. Digital ecosystem components together provide the means for speeding up the academic research cycle. This enables communication and collaboration for the 21st century. On pragmatic levels, digital ecosystem components empower the discovery of information: the gathering and analysis of data, online publication of research and sharing. All of these extend and give power to the impact of research.

Figure 2. The academic research cycle and enabling power of research software components

On abstract levels, digital ecosystem components enable quality assurance of our collective open science, and large data and knowledge production capacity through online peer review of data and experiments. The filtering that libraries empower through metadata application and placing on the open web's search engines allow the accurate retrieval of relevant information and research.

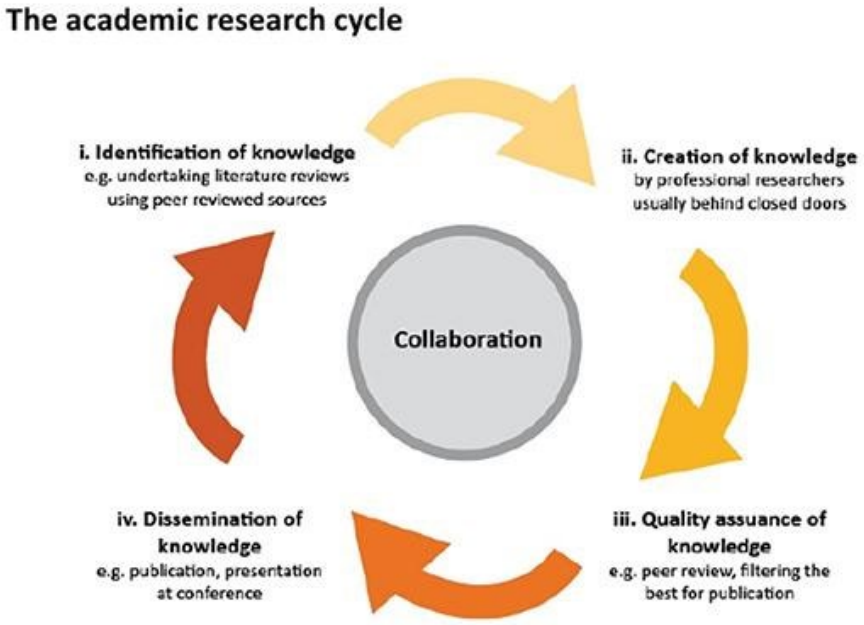


Figure 3. The academic research cycle: collaboration and knowledge management

These systems enable the dissemination of knowledge through online publication and the identification of knowledge. This occurs through the aggregation and curation of knowledge that online identity management systems, electronic theses and dissertation systems and data/collection repositories together allow.

Digital Research System Primary Components: Content and Communication

Preliminarily, it is important to have at least a general idea of what various digital library research ecosystem components do best. Where and why should they be used within a digital research ecosystem? This allows staff to customize and tailor ecosystem possibilities to specific institutional needs. Each digital research ecosystem component serves a specific purpose and need, enabling the larger online research system.

The Digital Collections Repository

An institutional digital collections repository organizes, centralizes, and makes accessible information, research, and knowledge generated by an institution's research community (faculty and graduate students). This material includes pre-prints, faculty publications white papers, conference presentations, field notes, graduate student theses

and dissertations. While a digital collections repository may be used for a spectra of media formats, it is best used for 'textual' content and depth structure linking. Depth structure linking is linking to a deeper set of documents that other researchers interested in diving deeper into a topic may wish to explore for further development, research and exploration.

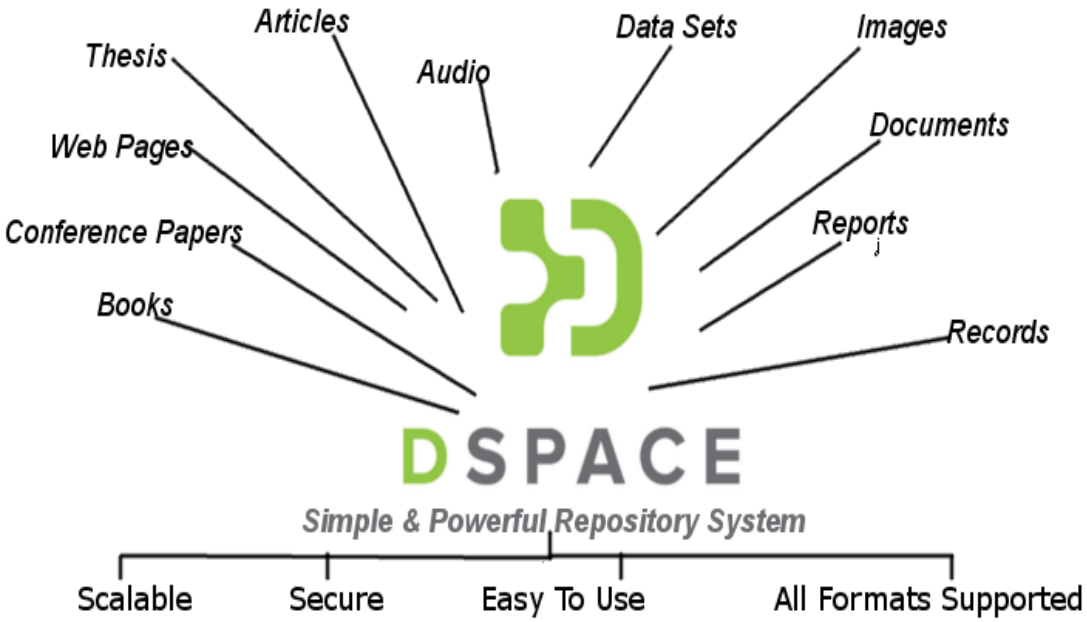


Figure 5. DSpace, Texas State University Libraries digital collections repository**.**
Source: https://digital.library.txstate.edu/

A primary use case value for an institutional collection repository is the application by library metadata catalogers or technicians of structured metadata schema for search engine optimization. This enables and heightens retrieval. Texas State Digital Collections repository utilizes the open source platform, DSpace for these purposes.

Contributor	dc.contributor.author	Donnelly, David W.	
Contributor	dc.contributor.author	Covington, B. C.	
Contributor	dc.contributor.author	Grun, J.	
Contributor	dc.contributor.author	Fischer, R.P.	
Contributor	dc.contributor.author	Peckerar, M.	
Contributor	dc.contributor.author	Felix, C. L.	
Contributor	txstate.contributor.author	Donnelly, David W., Southwest Texas State University, Dept. of Physics	
Contributor	txstate.contributor.author	Covington, B. C., Southwest Texas State University	
Contributor	txstate.contributor.author	Grun, J., Naval Research Laboratory, Washington, DC	
Contributor	txstate.contributor.author	Fischer, R.P., Naval Research Laboratory	
Contributor	txstate.contributor.author	Peckerar, M., Naval Research Laboratory	
Contributor	txstate.contributor.author	Felix, C. L., United Industries Inc.	
Date	dc.date.available	2013-07-19T16:20:49Z	
Date	dc.date.issued	2001-04-02	
Uri	dc.identifier.uri	https://digital.library.txstate.edu/handle/10877/4675	
Subject	dc.subject	"Athermal annealing", "baron implants", silicon	en_US
Title	dc.title	Athermal annealing of low-energy boron implants in silicon	en_US
Language	dc.language.iso	en_US	en_US

Dublin Core Metadata

Access Points

Findability

Search Engine Optimization (SEO)

Figure 6. Rich Dublin Core metadata in a digital collections repository elevates research for search engine optimization (SEO)

The application of structured metadata for textual academic research opens accessibility and multiple points of subject access. Later, these effects may translate to increased article citations through the more precise availability of relevant research through online search engines.

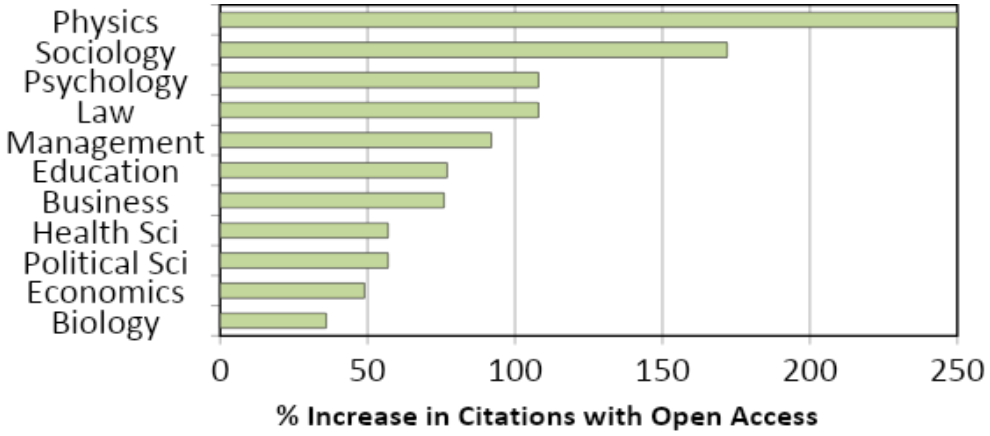


Figure 7. Percentage increase in citations with open access

Most publishers today also allow digital archiving in one form or another. In a recent Sherpa/Romeo Copyright Policies and Self Archiving Survey, at least 82% of 2562 global publishers allowed digital archiving whether pre or post prints, final drafts or works with formal peer support.

RoMEO colour	Archiving policy	Publishers	%
green	Can archive pre-print and post-print	1064	42
blue	Can archive post-print (ie final draft post-refereeing)	844	33
yellow	Can archive pre-print (ie pre-refereeing)	183	7
white	Archiving not formally supported	471	18

Summary: **82%** of publishers on this list formally **allow** some form of self-archiving.

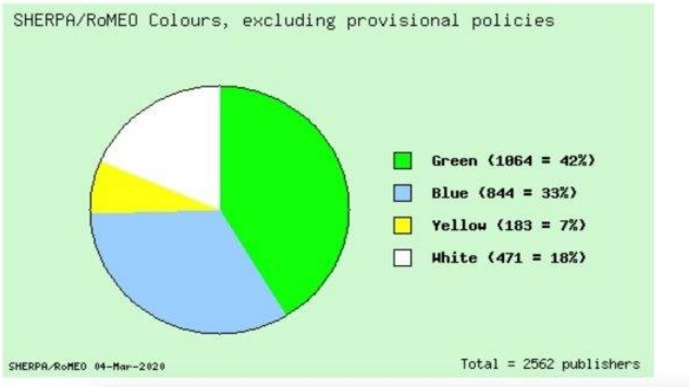


Figure 8. Sherpa/Romeo/copyright policies and self archiving, 2020. Source: www.sherpa.ac.uk/romeo/statistics.php?la=en&fIDnum=|&mode=simple

Research Data Repository

A research data repository is the data analogue of a text-centered collections repository. It is specifically suited for publishing and archiving research data. A data specific repository allows a researcher to capture, upload, assign metadata schema, retrieve, and download datasets.

Figure 10. Texas State University Dataverse

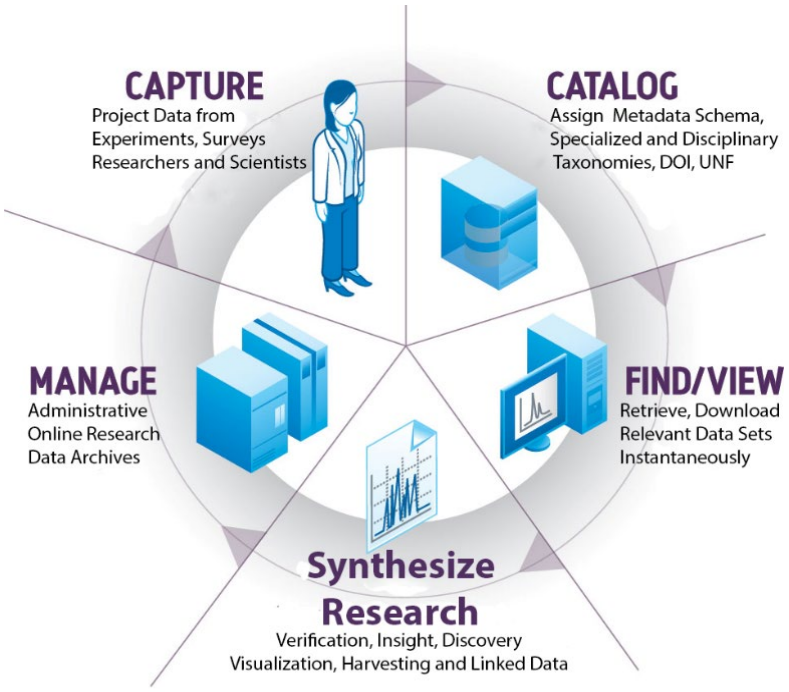


Figure 11. The data research cycle

A data repository may be configured as a single instance or as a consortia model for universities that may be located throughout a state, region, country, or set of countries. In the last 30 years, the rise in multi-university collaboration has increased exponentially in the sciences, engineering and social science disciplines. Texas State University Libraries is one of several state individual instances of the larger Texas Digital Library Dataverse. This state consortium allows researchers to share, publish and archive their data but also search across research for similar research from other consortium members. Opportunities for collaboration and comparison of research are enabled.

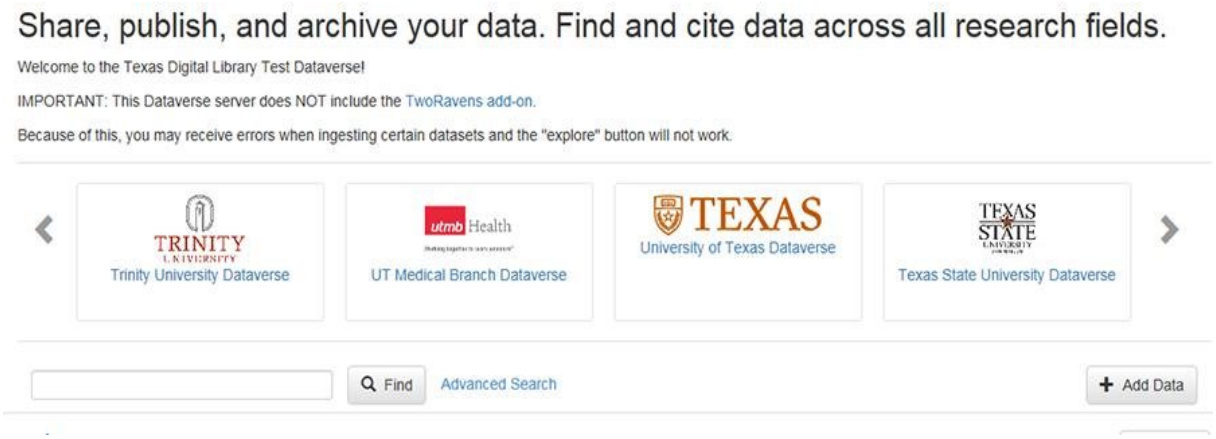


Figure 12. Texas State Digital Library consortia model searches across Texas Universities

Secondary Digital Research System Components

Secondary components of a digital research ecosystem include Electronic Thesis and Dissertation Management and Research Identity Management Systems, User Interface Software and Open Access Journal Software.

Vireo Open Source Electronic Thesis and Dissertation Management System

Source: https://www.gradcollege.txst.edu/docs/Thesis_Diss_Submission.pdf

The Vireo ETD management system addresses intermediary steps in the Electronic Thesis and Dissertation processes. This software bridges student thesis/dissertation submission with graduate school review, online publication and ETD preservation. The software connects graduate schools, honors colleges, the library, and library technology infrastructures. This includes the library collections repository and data repository. Students can publish and link theses and dissertations with data and other text-based research materials and workflows. Communication and workflow from deans to theses and dissertation advisors to library technologists and university copyright officers becomes seamless. Vireo is developed by the Texas Digital Library and Texas state universities libraries and is open source software freely available to all institutions.

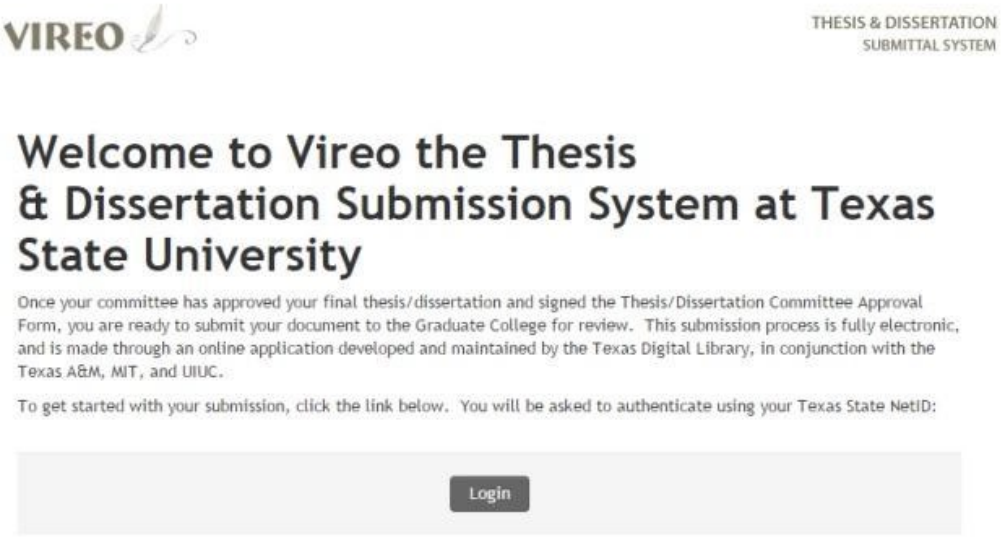


Figure 14. ORCID: online research identity management system

Figure 15. ORCID online identity management system. Source: https://orcid.org/

ORCID is a widely utilized Research Identity Management system which gives researchers a unique number: an ORCID ID to connect. This ID disambiguates scholar names globally and allows publications to be found, linked, and aggregated across multiple information systems. Papers in the collection repository and datasets in the data repository may be associated with ORCID IDs for aggregation of research profiles. ORCID itself may also act as a hub connecting the research landscape. This hub may act as a network in a network. This serves to aggregate from several sources and connect researchers on wider levels. It is very useful, especially to a region, country, or state as it is able to disambiguate common names in regions. For example, the biochemist Ang Lee may be differentiated from the mechanical engineer Ang Lee and their respective research may be easily obtained and aggregated.

OMEKA: Open Source User Interface Software

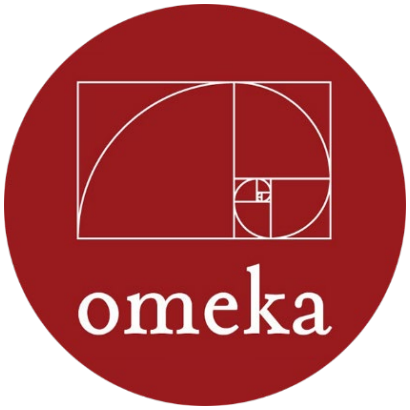


Figure 17. OMEKA: open source user interface software. Source: https://omeka.org/

Omeka open source User Interface Software is used in a digital research ecosystem to allow an elegant portal or gateway entrance for larger research projects, digital collections and data repositories. Texas State uses Omeka linking research, text, images, media and research datasets. Omeka acts as a front end elegant user interface to connect component networks. Omeka can be configured for both individual projects and as a sharable resource across multiple sites. This class of software provides a publishing platform for sharing digital research and creating multimedia rich front-end online exhibits linking to the previously described larger depth structure of backend data and deep collection digital library repositories, further research and online archives of source materials housed in the institutional repository of Dspace. A similar open source product that may also be noted here, Islandora.

OJS Open Journal Systems Academic Journal Software

Figure 18. OJS open journal systems academic journal software. Source: https://openjournalsystems.com/ojs3/

Open access Academic Journal Software is similarly used to its physical counterparts. This software is best used for refereed journal workflow for online publishing articles and linking experimental data sets with source research articles. In addition, online journal management software allows deeper connections to source data and background research to provide links and further depth of content to primary research sources

housed in collection and data repositories. In this way, it allows reproducibility, transparency, and integrity towards the larger research enterprise.

The Digitization Lab

As digital ecosystem software needs are met, a digitization lab and associated hardware can also expand possibilities for faculty and graduate student research projects from the digitization of books, manuscripts, and journals to audiovisual and visualization digitization technologies. Combining research ecosystem components opens amazing possibilities for digital scholarship and research collaboration opportunities on a number of levels (See Diagram).

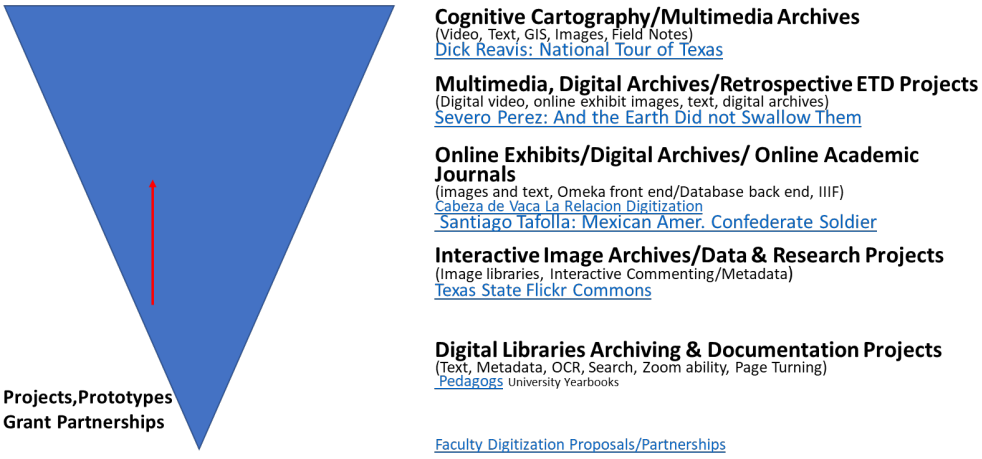
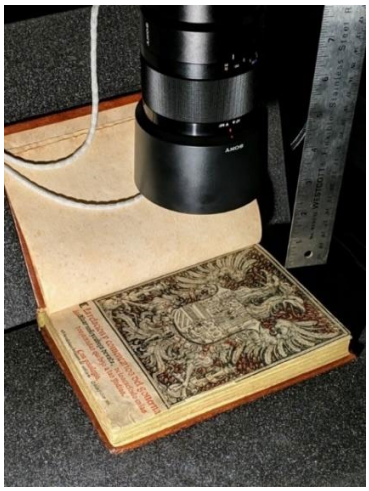


Figure 20. Digitization projects and Digital Research Ecosystems



Implementation Paths: Evolution of Library Infrastructures

While the list of software and projects may begin to sound daunting, a human resource infrastructure for a digital research ecosystem may be set up with as little as two staff.

A systems administrator will be needed for server infrastructures to handle basic maintenance and customization. A digital collections librarian/specialist will oversee the administrative side of the various softwares. This includes researcher support and marketing and instruction on chosen systems. Every institution or library will also have unique research needs and focus (i.e. textual content, data, multimedia, dissertation archiving, etc.).

Implementation and human resource infrastructures should be strongly tied to institutional directions and profiles. A research focused science and engineering university will have different needs from a liberal arts college. Software should be chosen accordingly. As the system and research faculty/student needs expand, a web developer, project manager, metadata librarian, digitization specialist, GIS specialist, and data specialist may be added. Basic systems with digitization labs can be set up and planned expansions managed in one to five year project timelines.

Assessment and Results

A central discussion of any digital ecosystem also surrounds assessment. Both qualitative and quantitative measures are needed to report out, track and improve results. Taking the example of annual Texas State Digital ecosystem statistics below, downloads from the libraries' digital collections repository and ETD's have grown five-fold in the past five years. The later implemented Data Repository is also on target to grow exponentially. Faculty and student perceptions can also be tracked through qualitative perceptions through biannual LibQual surveys. Analytics and comments will be essential to track results, see where needs are and where the system may yet be further improved.

System	2015	2016	2017	2018	2019
Downloads					
DSpace	318,742	385,163	341,224	972,359	1,010,349
ETDs	158,240	200,373	328,420	470,437	505,658
Dataverse	n/a	n/a	455	3,451	2,043
Items Added					
DSpace	1,437	1,546	1,660	2,135	2,720
ETDs	1,174	1,326	1,581	1,789	2,218
Dataverse	n/a	n/a	28	33	53
ORCID IDs					
ORCID	190	316	438	545	669
Hosted Journals					
OJS	1	2	2	3	4

Figure 22. Example annual digital ecosystem usage growth: downloads, number of items, ORCID ID's and hosted journals

Future Possibilities

It is not difficult to see that future possibilities for digital research ecosystems are rich. These ecosystems enable scholarly research on unprecedented network levels. They empower a global research community and connect universities, regions, countries and global areas. Prospective projects range from enabling easier international research collaborations to better aggregation, review, and tracking of data through stronger global research networks. Presently, there are 266 to 300 very high and high research activity institutions in the US and Canada (Carnegie Classification I & II). Beyond North American borders, there are approximately 1000 to 1250 research focused universities and institutions worldwide. Currently, less than the top 0.5% of global institutions possess all of these open source ecosystem components. Why not at least enable and empower the top 2-3% or 1000 research institutions globally with these exceptional possibilities?

Servers may be configured with open source scholarly research software components. Mirror sites around our global village may be set up with fractional server space models. Webinar training could take place over five continents and analytics can later be assessed. While such global research infrastructure initiatives do not yet exist, this would not be difficult for more forward thinking agencies or institutions looking for worthy new millennia far reaching developmental initiatives. This would not be overly prohibitive for even larger areas or zones such as North America, Europe, Eurasia, or Southeast Asia and the Middle East. The technology is available, open source, and open access for those with the desire, needs, and acumen.

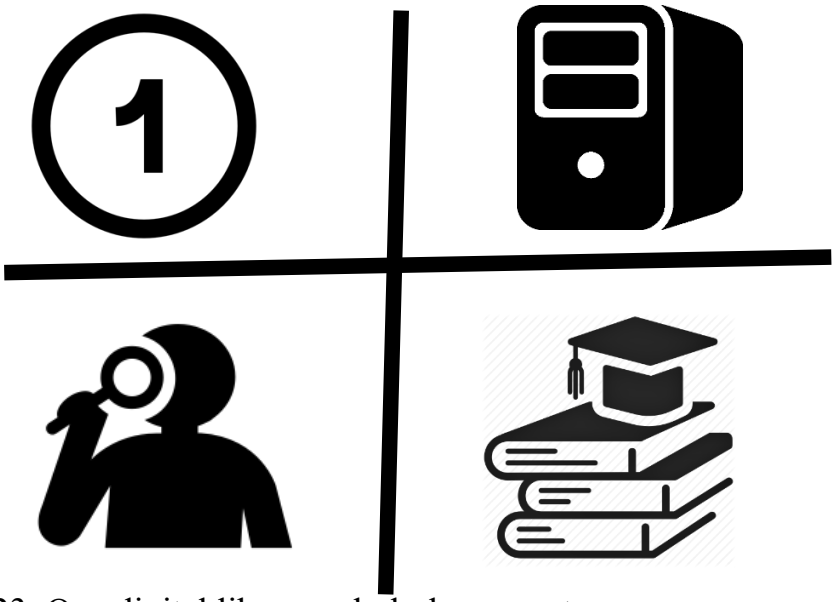


Figure 23. One digital library scholarly ecosystem server per research institution: 2022-2027 future possibilities

Conclusion

Digital scholarship research ecosystems are currently being set up increasingly in research library institutions in the US and Canada. The open source software overviewed here is mature. The network infrastructures are well worked out and are functioning. The associated library and university research communities necessary are also robust and in place around the globe. Placing digital scholarship components within an ecosystem paradigm also sets both a baseline and a roadmap for the further development of research scholarship. These new models enable a successfully tested core digital research paradigm for further evolutionary possibilities and development. These types of systems open a range of global possibilities including accelerating discovery for researchers and enabling future progress of knowledge in our new millennia.

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Further Background, Articles and Examples

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Ашық қолжетімділік, ашық бағдарламалық қамтамасыз ету және сандық ғылыми экожүйелер: кітапханалардың жаңа мүмкіндіктері

Рэймонд Узвишин

Коллекциялар және цифрлық қызметтер көрсету жөніндегі директор

Техас мемлекеттік университетінің кітапханасы, АҚШ

АБСТРАКТ

Дүние жүзіндегі жетекші университеттік ғылыми кітапханалар мен институттар ашық цифрлық экожүйелер арқылы академиялық зерттеулерді желіде орналастыра бастады. Бұл ашық бастапқы және ашық қолжетімді инфрақұрылымдар кез келген университет пен колледж үшін қолжетімді болды. Олар ынтымақтастыққа жол ашып, одан әрі ілгерілеуді жеделдету арқылы зерттеулерге қол жеткізуді жеңілдетеді. Бұл мақалада зерттеушілер мен университет оқытушыларына оларды жаһандық желілік зерттеулердің заманауи мүмкіндіктеріне жылдам қосуға мүмкіндік бергісі келетін бүкіл әлем бойынша мекемелер үшін осы жаңа мүмкіндіктерді жасау қарастырылады.

Открытый доступ, открытое программное обеспечение и цифровые научные экосистемы: новые возможности для библиотек

Рэймонд Узвишин

Директор по коллекциям и цифровым услугам

Библиотека Техасского государственного университета, США

АБСТРАКТ

Ведущие университетские исследовательские библиотеки и институты в мире начали размещать академические исследования онлайн через открытые цифровые экосистемы. Эти инфраструктуры с открытым доступом и открытым исходным кодом доступны для любого университета или колледжа. Они делают исследования легкодоступными, открывая двери для сотрудничества и ускоряя дальнейший прогресс. В данной статье рассматривается создание новых возможностей для учреждений по всему миру, желающих помочь исследователям и преподавателям университетов быстро подключиться к современным возможностям глобальных сетевых исследований.

Virtual Reality and Open Access: a Brief Overview

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Johnson City, Tennessee

ABSTRACT

This presentation provides an introduction to virtual reality (VR) programs and hardware that have been used in academic libraries. As VR equipment becomes more accessible, libraries are finding different ways to use it to better serve their patrons. While there are not currently many open access programs for academic use with VR hardware, this presentation discusses some materials that are currently available. Examples of the ways in which VR materials can be used in libraries include: to supplement learning, implement team building activities, and provide stress relief. As VR technology is quickly evolving, we may see more immersive ways to use the programming in the future, particularly within academic settings.

Introduction

I worked on this project relating to virtual reality and Open Access with my colleague, Nakia J Woodward, who is also a librarian here at the Quillen College of Medicine Library.

Types of virtual reality

The first thing we're going to discuss is the different types of virtual reality. When we're looking at different types of virtual reality, we generally split them into three different categories. The first of the categories would be non-immersive, then we have semi-immersive, and, finally, we have fully immersive virtual reality environments. Non-immersive is the least interactive type of virtual reality; therefore, non- immersive virtual reality would include things like traditional video games - games where the user is completely separate from the physical experience of the game. In a traditional video game, you're usually sitting and looking at a screen. There is a different environment or game on the screen that you are not personally involved in, you're separate from, and you're interacting with it from a separate environment. Therefore, it is not immersive

even though it is interactive. The second type, semi-immersive, includes hardware and software programs that allow the user to view and interact with 3D Graphics even though the viewer is not within the virtual reality environment themselves. This would include things like virtual anatomy dissection tables or videos where you are able to move a model around in a 3D environment. We see this a lot at our medical school, again, in terms of anatomy and dissection, but you also see this a lot in art environments where you can interact with different pieces of art. There are also some virtual reality type games that function in this way. Now, our final type of VR that I think most of us consider to be virtual reality nowadays would be fully immersive. These are hardware and software programs that are fully surrounding an individual within a virtual environment. This would be things like virtual reality headsets and the related software that goes along with these headsets. This is where the user can fully immerse him or herself within a virtual environment and interact with that environment.

Open access

Another important component of this presentation is open access as it relates to virtual reality. When we discuss open access in virtual reality, we are not discussing open source code. We are thinking more along the lines of open access publications. For example, we are going to look into free software rather than programs that one can edit in terms of open source code. I wanted to make a distinction regarding open access versus open source because there are open source materials within virtual reality, but today we're going to predominantly look at unpaid or free resources that can be used with virtual reality equipment.

Using VR in educational environments

You'll recall that we discussed the three different types of virtual reality in terms of different immersion levels. I did mention that we are going to be discussing mostly the full immersion of virtual reality programs and how you can use those with students and other users. We are also going to discuss the different ways that you can use fully immersive virtual reality environments. Those three different ways that I wanted to focus on today are instruction, immersive education, and games and relaxation. Of course, there are many different other ways that you can use virtual reality and educational environments; however, these are the three areas that we wanted to focus on today. First of all, in relation to instruction, our instructors specifically use our virtual reality programs to screen record lectures for their classes. They come into the library, utilize our virtual reality equipment, and record lectures which they embed into their courses. This allows the students to have both a visual representation of whatever material they're working with as well as their instructor's salient points relating to the class. We'll talk a bit more about this on further slides. Relating to immersive education, we use VR for students to reserve time with virtual reality headsets. We use the VR for

the students to fully immerse themselves within the equipment and the software. A specific example of this that we'll discuss later would be our virtual reality anatomy labs so students can work with anatomy labs in terms of actual dissection of cadavers and then they can also come over to the library and work with virtual dissection. The final way that we use virtual reality at our library is relating to games and relaxation. This sometimes can be overlooked in an educational environment because there are so many academic ways to use virtual reality, but we have found that our students also really enjoy using virtual reality for some specific games and relaxation apps that we have downloaded. I will discuss these specific games in further sections.

Implementation and examples

Here I will be discussing implementation of virtual reality activities within our Medical Library. Many of our examples will relate to medical software and medical audiences; however, other aspects such as gamification can be used with any type of audience. In order to discuss our first implemented example relating to instruction and virtual reality, I wanted to first mention our types of virtual reality equipment and how we utilize it here at the Quillen College of Medicine Library. We have access to virtual reality headsets that travel to different classrooms from the library. The first is an HTC Vive headset and the other is an Oculus Rift headset. We initially purchased two different types of headsets in order to understand which one we had a preference for. Most of our audiences seem to prefer the HTC Vive; however, this may vary depending on your institution and your faculty and student preferences. We also have an Alienware laptop with a high-level graphics card as well as portable sensors so that we may take our virtual reality equipment and environment into different classrooms from the library. Essentially, we have the virtual reality room setup at our library, but we also have the capability to transport it into the classroom should we need to do so.

Instruction

That being said, our first implemented example relating to instruction involves our anatomy faculty and the program 3D organon VR. 3D Organon VR is a paid program that we will discuss a bit more later in this presentation. Our anatomy faculty use that program (3D Organon VR) to come into the library, get set up with the virtual reality equipment, and record their screen, just as I'm speaking to you right now and recording my screen. They form specific lectures on specific parts of the body. For example, we've had lectures on parts of the brain, such as the Circle of Willis, parts of the spinal cord, and the pelvic floor. These parts have been targeted by our anatomy faculty because they are some areas that may be difficult for students to learn about and some areas that students may have historically struggled with on testing. This allows our faculty to specifically target our students and their needs in their instruction with models that the students can clearly see and understand. We have had a lot of feedback that the virtual

reality models are clearer than a lot of the dissection models that students have to work with. While it may be good for students to utilize cadavers as well in order to see actual real physical representations of organs, it is also good for the students to have a clear representation of the body where they can see different labeled features in real-time. 3D organon VR also allows students to take apart and put back together those aspects of the body.

Immersive education

Another way to use Virtual Reality with an educational environment is to use it to create an immersive experience for students. For example, on the previous slide we discussed instructors using the 3D Organon program in order to create lectures for their students. In this case we had the students come in after they have looked at the lectures created by their professors and actually use the VR equipment in order to interact with different models and parts of the anatomy that were discussed by their professors. Students usually reserved VR equipment in groups. This way you can have one student within the VR immersive environment pulling apart different aspects of anatomy, naming and understanding them, and other students watching this experience and, therefore, learning from the student who was working with the VR equipment. In order to facilitate this we do have a monitor attached to the VR equipment so you're able to see what the person who is in the VR headset sees. This enables that environment to be shown not only to the one with headset on, but also to other viewers in the room. Some paid examples of software to help facilitate this includes, of course, 3D organon VR, which we used. There are also options, such as Virtual Medicine and VR Human Anatomy Pro, which are other anatomy programs. There's also Amelia VR Psychology. Amelia VR Psychology simulates experiences like phobias with public speaking, phobias of tight spaces or fears of flying, and those sorts of things. It simulates a patient experience. Some other free examples include dementia simulations which allowed the provider to actually experience what a patient with dementia may be feeling. Macular degeneration simulations, which allow our students to view the world through the lens of one with macular degeneration, and the Brain AR app. I've noticed a lot of free Anatomy apps are focused on specific parts of the body rather than the body as a whole, so if you're interested in free VR Anatomy apps you may look for one's focused on specific parts of the body, for example the brain AR app, which, of course, is focused only on the brain and does not include VR for the rest of the body.

Games and relaxation

The final way that we have explored implementing virtual reality in our library relates to gaming and relaxation. There are a few different ways one can use gaming within the educational environment. One way that I really enjoyed was using gaming as a way to build collaboration and to increase better communication between students. For

example, we purchased a game called Keep Talking and Nobody Explodes. It requires students to defuse a virtual bomb by describing facets of the bomb to one another. Basically, one student can see the bomb and other students cannot see it, so in order to make sure that the bomb is defused, students have to be able to pull together the different bits of information that they have in order to create a full picture and to work collaboratively to diffuse this fake virtual bomb. It's a fun way to reinforce the importance of clear communication and working collaboratively with others.

Some other examples that we have are related to relaxation. Now, relaxation can be viewed in a few different ways. For example, we have games like Beat Saber which is literally a video game relating to music where you have to hit certain objects on the beat of the music. It's purely a fun game where students enjoy getting together and playing and interacting with each other casually. Some other examples are guided meditation virtual reality where, if an individual needs a break from the day, they can come in and use our virtual reality equipment and move into more of a meditative environment. There are some free examples that we have seen such as Shift Together, which simulates a driving experience where students can put on music and sit on a simulated highway and just watch the environment go by. Other things that students have used for relaxation or for fun would be Google Earth virtual reality where students can visit and view the architecture and environments in different parts of the world. This all relates to what works best for your individual environment in your individual library, but we wanted to give you a few examples of how gaming and relaxation can be used with virtual reality in libraries as well.

Виртуалды шындық және ашық қолжетімділік: қысқаша шолу

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АБСТРАКТ

Бұл мақала академиялық кітапханаларда қолданылатын виртуалды шындық (VR) бағдарламалары мен жабдықтарына кіріспе болып табылады. VR жабдықтары барған сайын қолжетімді болғандықтан, кітапханалар оқырмандарына жақсы қызмет көрсету үшін оны пайдаланудың әртүрлі жолдарын табады. Қазіргі уақытта VR жабдықтарын академиялық пайдалануға арналған бағдарламалар көп

болмаса да, бұл мақала қазіргі уақытта қолжетімді кейбір материалдарды талқылайды. Кітапханаларда VR материалдарын қалай қолдануға болатындығы туралы мысалдарға мыналар жатады: оқуды толықтыру, ұжымды біріктіру іс-шараларын өткізу және стрессті жеңілдету. VR технологиясы тез дамып келе жатқандықтан, болашақта біз бағдарламаларды, әсіресе академиялық ортада қолданудың иммерсивті тәсілдерін көре аламыз.

Виртуальная реальность и открытый доступ: краткий обзор

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АБСТРАКТ

Представлено введение в программы и оборудование виртуальной реальности (ВР), которые используются в академических библиотеках. Поскольку оборудование ВР становится все более доступным, библиотеки находят различные способы его использования для улучшения обслуживания своих читателей. Хотя в настоящее время существует не так много программ для академического использования оборудования ВР в открытом доступе, в данной статье обсуждаются некоторые из них. Примеры того, как материалы ВР могут быть использованы в библиотеках, включают: дополнение к обучению, проведение мероприятий по сплочению коллектива и снятию стресса. Поскольку технологии ВР быстро развиваются, в будущем мы можем увидеть более иммерсивные способы использования программ, особенно в академической среде.

Open Repositories of the Russian Federation: The way to the Top-25 of the Best Repositories of the world

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ABSTRACT

The report introduces basic definitions on the topic, provides information on the history and current state of the institutional repository of Ural Federal University (URFU), comments on some systemic issues, and analyzes statistics. An attempt has been made to show the connection between the work done and the position of the repository in the world

Part 1

Today we shall discuss the Ural Federal University, which is in Yekaterinburg (Russia), at the Department of information and analytical support. At URFU, we are responsible for the operation of the institutional repository and are not part of the library structure.

The report will be formally divided into several parts, beginning with an introduction of a few terms.

Institutional repository - an electronic archive for long-term storage, accumulation and provision of long-term and reliable open access to the results of scientific research carried out at the institution.

This definition is as general as possible and can be found in the Wikipedia article on institutional repositories. Still, it is important to reflect the "spirit" of the entity, not the "letter", and if a service so defined is called a Digital Library, a Digital Archive or otherwise, but is nevertheless used for long-term storage, accumulation, as well as providing access to the results of scientific and research activities of an organization, we will consider it an institutional repository.

As noted above, the institutional repository accomplishes the following tasks:

- Ensuring free access to the results of scientific research conducted at the university through self-archiving;
- Access to scientific research of the university for the world community;
- Concentration of materials in one place;
- Preservation of other electronic materials, including unpublished (so-called gray literature), such as dissertations and technical reports.

When talking about the quality, ranking, and evaluation of repositories, we usually turn to TRANSPARENT RANKING: Institutional Repositories by Google Scholar by CyberMetrics Lab.

The purpose of this ranking is to support open access initiatives and thus free access to scholarly publications in electronic form and other academic materials. Web indicators are used here to measure the global visibility and impact of scientific repositories.

The methodology used in the evaluation within this ranking is not uncontroversial, hardly repeatable, but nevertheless understandable. We should not treat this rating as a competition, but it is the best way to assess our own and the world's dynamics.

Part 2

When we are done with general information, we can move on to the essence. What is the Institutional Repository of the Ural Federal University today? In a nutshell:

- The project started in 2002
- The use of Dspace started in 2004
- Batch loading has been practiced since 2013
- The project is registered and indexed in the main industry aggregators (more details on the slide in the bottom right part)
- More than 20 years of "high availability"
- More than 100 thousand documents in the public domain

For a slightly fuller picture, as well as to answer the question about the scalability and portability of good practices, let's look at a couple more repositories from Yekaterinburg.

Electronic Archive of the Russian State Vocational Pedagogical University:

- The project started in 2014
- Batch loading has been practiced since 2014
- The project is registered and indexed in the main industry aggregators
- More than 40 thousand documents in the public domain

Electronic Archive of the Ural State Forest Engineering University:

- The project started in 2012
- Batch loading has been practiced since 2015
- The project is registered and indexed in the main industry aggregators
- More than 10 thousand documents in the public domain

It should be noted that colleagues with our support have adopted many of the practices used at URFU, which allowed us to achieve certain results regardless of the size of the university, the material base, etc. I thought about how to compare the three universities

brought above, and decided to compare them by year of foundation, to show the history and base of results of scientific activity, to compare the budget enrollment in the first year, to show the difference in the size of universities and compare repositories.

The smallest university with a budget enrollment of 600 places and a total volume of students of all forms and levels of study shows not a bad result. The other two universities are also great fellows.

Part 3

Speaking of dynamics, systematic work and other manifestations of work in the format, from 2004 to 2021 – these are the actual years of the Dspace repository. It shows the publication years of the materials. The materials published in the period from 1920 to 1989 are combined in one line.

The number of materials in the archive for a specific year of publication, the dynamics of uploading materials to the repository, and the number of materials published in the archive in the year of publication are also depicted. One table can give information about the speed of downloading actual data, the annual growth, and the dynamics and depth of retrovisioning, etc.

Many of you here who follow Webometrics are probably aware that the Lab publishes at least two rankings - Universities and Repositories. The latter ranking is divided into several more - institutional and aggregating, journal portals, CRIS systems. One of the results of our years of systematic work is the graph where the horizontal axis are edits of the rating from 4 to 14, and on the vertical axis is the position in the rating. It is to be noted that we have always been in the TOP50 of the world, and in the latest edition we are in the TOP25. In terms of dynamics, we can try to look for a connection between the rate of fund growth and place, to draw conclusions about the growth of the world and our growth, but these would be empirical conclusions. It will be an idea for discussion, not a technology that guarantees results when applied.

The second result is the demand for repository content. In the first three weeks of September, we saw 19.7 million impressions of our content in Google searches and 336,000 user clicks from Google searches to the repository. Here we can confidently talk about the absence of robots. Overall, September ended with the numbers reflected on the right side of the slide. In our opinion, it is quite worthy.

Conclusions

Finally, I have rather freely formulated conclusions:

The content is in demand. Not our content, but basically content typical of an institutional university repository.

The description and presentation are accurate. This follows from a good ranking in the search indexes of general and specific search engines.

The world is growing. This is probably the only indisputable statement.

We are growing at about the same rate. This conclusion can be made based on the data of analytical and webometric tools, as well as ratings. But this does not mean that an increase in the fund of 1000+ titles guarantees growth for everyone.

Ресей Федерациясының ашық репозиторийлері: әлемдегі ең жақсы 25 репозиторийге жол

Александр Ефимов

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АБСТРАКТ

Мақалада тақырыптың негізгі анықтамалары келтірілген, Орал федералды университетінің институционалдық репозиторийінің тарихы мен қазіргі жағдайы туралы ақпарат берілген, кейбір жүйелік мәселелерге түсініктеме берілген, статистикалық мәліметтер талданған. Орындалған жұмыс пен репозиторийдің әлемдегі орны арасындағы байланысты көрсетуге әрекет жасалды.

Открытые репозитории Российской Федерации: путь в топ-25 лучших репозиториев мира

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АБСТРАКТ

В статье приводятся основные определения темы, дается информация об истории и современном состоянии институционального репозитория Уральского федерального университета, комментируются некоторые системные вопросы, анализируются статистические данные. Предпринята попытка показать связь между проделанной работой и положением репозитория в мире.

Google it! Making Sense of Information Literacy and Evidence-based Practice

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ABSTRACT

When it comes to looking up information, many people turn to Google. It is, after all, the most popular search engine worldwide, and it houses an enormous amount of data. In this context, information literacy is crucial. Literacy in the information age means having access to and competence in evaluating information. It involves critical thinking skills and the ability to assess the reliability of sources or databases. Yet, it does not stop there because evidence-based practice is another key concept in information literacy. The process of basing one's choices on available data is what this term alludes to. Coming from the health sector, this is critical, as it impacts the consumers of healthcare services and, to some extent, the population's health. Bridging the gap entails collaboration between information scientists and health practitioners.

Making sense of information literacy and evidence-based practice

The capacity to locate, evaluate, and apply information effectively is information literacy (Loertscher et al., 2021). It requires recognizing the source of information, evaluating its veracity and significance, and using it ethically and responsibly. In the digital age, where information is continuously flowing in from all angles, information literacy is critical. It is more crucial than ever to be able to tell the difference between trustworthy and untrustworthy sources and to use information ethically and responsibly.

Meanwhile, evidence-based practice is a concept used by many professions, but what exactly does it mean? Evidence-based practice in healthcare refers to using information from research studies to make patient care decisions (Black et al., 2015; Colet et al., 2020). This means that healthcare practitioners use research findings to select the best course of therapy for their patients instead of relying on personal opinion or tradition. This might be challenging because it frequently contradicts healthcare practitioners' gut instincts. However, it is crucial to remember that not all treatments work for all patients and that we must always be open to challenge our preconceptions and try new things based on evidence.

To what extent are they connected? In nursing, evidence-based practice is linked to information literacy, in that both focus on utilizing information (Hicks et al., 2022). The ability to locate, analyze, and ethically apply information is what we mean when we talk about "information literacy." The term "evidence-based practice" refers to a healthcare decision-making method grounded in empirical data. Both of these ideas are

significant in today's world, where information is easily accessible but frequently unreliable due to the prevalence of the Internet. It is more important than ever to be able to evaluate information critically and make decisions based on solid evidence and information acquired.

However, it is important to note that library services have an impact on promoting information literacy and evidence-based practice (Järvinen et al., 2019). It requires the availability of state-of-the-art infrastructures. Also, students and staff must have access to quality journals and databases or services that the library has to offer. And its key functions should be user-friendly, similar to how Google works, and must be a go-to for many individuals. Meanwhile, Järvinen and colleagues (2019) noted a low subscription to international nursing databases in Kazakhstan. After all, when one cannot access the library, a quick remedy is to Google it!

In the digital age, information literacy is more vital than ever. There are various advantages to information literacy (Sun et al., 2022). It assists us in making better decisions and discerning between fact and fiction by allowing us to swiftly and efficiently find the information we require. Information literacy teaches us how to use data ethically and responsibly. Evidence-based practice, on the other hand, has numerous advantages (Black et al., 2015; Colet et al., 2020). First, it assures that we are making judgments based on the best evidence available. Second, it assists us in ensuring that our therapies are effective and that our patients receive the greatest potential outcome. Third, it promotes research and collaboration, which helps us continuously improve our care quality.

So, how can you begin incorporating information literacy and evidence-based practice into your work? Here are a few pointers:

1. Apply information literacy principles to your work by embodying an inquiring mind. Once you have a fundamental grasp of ideas, consider using them in your studies and work. See how gathering information from reputable sources and weighing the evidence can influence your judgment. One possible action is to utilize validated tools to evaluate information from a website (Allison et al., 2019; Ayani et al., 2020; Elling et al., 2007)

2. When you need assistance, ask for it. Collaborating with information scientists or librarians is a great way to begin too. Their role must be identified when working on literature reviews. Ask your colleagues for advice or look up resources online if you need assistance locating trustworthy sources or comprehending evidence-based practice. I had such an experience with this, seeking assistance from a colleague at Joanna Briggs Institute in Australia (Colet et al., 2020).

3. Educate yourself on the fundamentals of information literacy and evidence-based practice. However, it's hard to know where to start with so much information. Try reading some resources, such as guides developed by librarians and researchers. Another example is the collaboration between faculty and librarians in developing a program for students; success stories on this matter have already been published elsewhere (Anders, 2021).

Conclusion

Together with information scientists, we are constantly working to improve people's ability to understand and use the information available and to guide them to the most relevant and reliable sources. The ability to analyze sources and judge whether or not they are reputable is becoming increasingly vital in a world where information is so easily accessible online.

While Google is a fantastic resource, it is not the enemy. Instead, users should remember that not all information found online is true or accurate. Learning to assess a source's reliability before deciding to use it in your practice or research is crucial.

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Google-ге кіріңіз! Ақпараттық сауаттылық пен дәлелді тәжірибені түсіну

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АБСТРАКТ

Ақпаратты іздеу туралы сөз болғанда, көптеген адамдар Google-ге жүгінеді. Өйткені, Google-әлемдегі ең танымал іздеу жүйесі және ол көптеген деректерді сақтайды. Бұл тұрғыда ақпараттық сауаттылық өте маңызды. Ақпараттық дәуірдегі сауаттылық ақпаратқа қол жетімділікті және оны бағалай білуді білдіреді. Ол сыни тұрғыдан ойлау дағдыларын және дереккөздердің немесе дерекқорлардың сенімділігін бағалау қабілетін қамтиды. Алайда, іс мұнымен шектелмейді, өйткені дәлелді тәжірибе ақпараттық сауаттылықтағы тағы бір негізгі ұғым болып табылады. Бұл термин қолда бар деректер негізінде таңдауды негіздеу процесін білдіреді. Денсаулық сақтау саласы үшін бұл өте маңызды, өйткені бұл денсаулық сақтау тұтынушыларына және белгілі бір дәрежеде халықтың денсаулығына әсер етеді. Бұл алшақтықты жою дегеніміз – ақпарат ғалымдары мен денсаулық сақтау саласының тәжірибе таратушылары арасындағы ынтымақтастық.

Погуглите! Осмысление информационной грамотности и доказательной практики

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АБСТРАКТ

Когда речь заходит о поиске информации, многие обращаются к Google, ведь Google - самая популярная поисковая система во всем мире, и в ней хранится огромное количество данных. В этом контексте информационная грамотность имеет решающее значение. Грамотность в информационную эпоху означает наличие доступа к информации и умение ее оценивать. Она включает в себя навыки критического мышления и способность оценивать надежность источников или баз данных. Однако доказательная практика является еще одним ключевым понятием в информационной грамотности. Этот термин означает процесс обоснования своего выбора на основе имеющихся данных. Для сектора здравоохранения это очень важно, поскольку влияет на потребителей медицинских услуг и, в некоторой степени, на здоровье населения. Устранение разрыва видится в сотрудничестве между учеными в области информации и практиками здравоохранения.

Open Data, Open Repositories, Open Education: The Canadian Context

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ABSTRACT

I would like to discuss a little bit about open data, open repositories, and open education in the context of Canada. So what about CARL? We call it CARL — Canadian Association Research Libraries. It has a French language name as well. We are 29 academic libraries based in the most research intensive of Canada's universities, two national libraries, the vibrant archives, Canada and the national research channels/federal science libraries, both of which are federal institutions. We are located in all sorts of cities across the country. Canada's population is largely within 200 kilometers or so of the American border mainly because of geographic reality.

Carl's mission is to provide leadership on behalf of Canada's research libraries promoting effective sustainable knowledge, creation, dissemination, and preservation, enhancing capacity to invest research in higher education and advocating for public policy that enables broad access to scholarly information in our latest strategic directions. For 2022 to 2025, we set out some principles that we hope to infuse into everything that we do as well as some priority. So our principles, leadership, inclusion, influence and impact, and our priorities are advancing scholarship and enhancing access.

The planning framework has three areas. We have three federal funding research/funding organizations for separate organizations. We call them agencies, and that's partially, because for things like a policy direction towards open access they work together and they have a committee, and they try to strengthen their policy direction to make sure that what they find is increasingly available to everybody, into the world. They are the Canadian Institute for Health Research, the Social Sciences and Humanities Research Castle and the National Natural Sciences and Engineering Research Council. Institutions have in place an institutional strategy that basically documents their capacity for research data management at large.The library is often in the lead, not always, but there are discussions with other parts of the University which helped create this institutional strategy.

The second pillar is the research projects that are funded are expected to have video management plans. They are expected at the end of the research project to deposit the

data and any other outputs appropriate or related to publications specifically. There also is a second policy. It was launched for one of the agencies in China and that is the peer reviewed journal publications arising from federally funded research that must be freely available within 12 months, so we still have the embargo at this point.

That 12 month period is of course, not in play anymore. It needs to be without embargo periods so it will directly be open. We need a bit of catching up today. So, CARL realized that research data management was a rising tide of need. Libraries could play a very pivotal role within research data management on campus, and so we launched what we call the portage network.

It was a network of experts. It brought together data specialists within our institutions and then it was organized with a committee structure that reflected the data life cycle. We received extra funding from the Federal Government to begin providing some, what I would say, a low hanging fruit, infrastructure, tools, and then the whole thing.

By that time, we had 15 people. The whole thing was transferred to a new organization which we helped to found, the Digital Research Alliance of Canada. It is a federal coordinating body for Canada's research, infrastructure, including hyperformance computing and research software. The objectives of portage at the time was to develop a research data culture, foster community of practice, and build these services and infrastructure to begin to discuss how a national ecosystem with libraries playing in it would look like.

There are two repositories: the Federated Research Data Repository, and then the data verse repository, we call it Borealis. Primarily, the Federated Research Data Repository is for larger scale deposits from big research projects that do not have a domain deposit repository already. We also have a GMP planning tool, which is basically a generic bilingual planning tool which is open source as well. That one was built on some of the other mining tools that are available internationally, and it can be adopted for our members. It was branded to look like it is part of their university offering but it is all based on this generic tool that asks all the right questions in terms of how you manage this and that. We have a Zenoto community to bring together all the good papers that are produced within the research data management endeavor and training materials.

Lastly, we have Canada’s national, persistent, identifier strategy. So that is sort of generally what the Alliance now supports. This means that for CARL, we've now driven off this project to this other organization, and we still care about things, though in terms of data. So we want to ensure proper adoption and management of interoperable distributed repositories for data, and their intersection with publications is appropriate. So it's not as though everything is solved or at scale at this point. We're looking to make sure that we're tracking. We're implementing methods that track a wider range of research outputs that are, and that we ensure research libraries are positioned and

supported within Canada's research data management strategy and initiatives. In other words, we need to make sure that the alliance is doing the right things for research data management and for libraries' roles within.

I mentioned that we also have some consortia in Canada. It is governed loosely by an advisory committee of stakeholders, including national organizations. We have a data site, consortium, and an ORCID consortium. And both of those are our member organizations, most of our CARL members are members of this consortium as well, but they're also funded by the alliance.

So the idea is to get strength and to build uptake, to make sure that there is momentum for uptake and the integrations that are necessary across these different systems for research information management. If you follow what is happening, we're quite pleased with the development of that sister organization, the Canadian Research Knowledge Network, which hosts both of those and it's going very well.

CARL commitments are to develop a strategic vision for repositories in Canada to encourage national approaches. We always had repositories from the beginning of institutional repositories. We had a network and so the notion that a green OA deposit has been possible in Canada all along. But I think at this point we're looking to strengthen the repository network.

In terms of open repositories, we have a working group. That has been quite affected, and we are beginning a new project on them, on shared repositories, on the shared repository platform. I would say a single platform that could be used as an option for any institution in the country is CARL's open repository working group which has worked pretty closely with what we've developed as a collaboration with open air that was quite fruitful in terms of providing your Canadian discovery portal within open air, as implementation of open air metadata practice profile has been taking hold. We have a metadata harvester for those repositories that are not quite up to being able to be harvested by open air directly.

The working group has also been supportive in mapping the repository, landscaping the country, building a community of practice fostering best practices and a sense of community amongst possible managers.

Another initiative that we've engaged in is an initiative in Europe, but Canada joined a few years ago. For scholars it is a matter of pledging support, financial support. Infrastructure services are perhaps threatened in their sustainability by having the project; they use funding or something like that, so they try to transition to a sustainable financial model.

Scott gathers money to help support them and then they distribute it. So we've made, as you can see, a very substantial contribution to a number of worthwhile infrastructure services and I think we're quite proud of the contribution Canada's made.

At this point, lastly, I'd like to speak about open education and our work there. Current commitments are towards building capacity and open education, and partially to advocate for more funding to be made available. For open education resources, we have a working group as well. We have a project to try to articulate a vision and approach, because the approach is geared towards a national repository and a national repository infrastructure project as well as strengthening what is possible with open education. Resources that are bilingual, or that have indigenous contractions, those are our kind of content strengths that we're helping to foster education in Canada, but these are decentralized. So it's really a provincial matter and the art of this is to try to even out the provincial capacity by working nationally, if you will. Sometimes it may be trying to get some investment from the Federal Government to assist our open education working group (2019). We have a nice model that may be of interest for a visiting program officer that supports many of our initiatives. So basically it is, say, 20% of somebody's time as staff member in a member institution that they dedicate that to this CARL initiative, whatever it may be. So we have 49 or 10 of them now, and it's really an effective way to get more things done. Basically we have a staff otherwise in the current five, but this is the way that we strengthen our capacity to provide further initiatives that make sense on the national scale. We have leadership there that we're exercising. We have a building, a community of practice, and are sort of participating in national discussions and student organizations, university organizations.

You, as university teacher, are going to try to raise the profile level and to increase the investment that is made, because we see it as a viable alternative to very expensive textbooks.

Ашық деректер, ашық репозиторийлер, ашық білім: канадалық мәнмәтін

Сьюзен Хейг

Атқарушы директор

Канадалық зерттеу кітапханалары қауымдастығы, Канада

АБСТРАКТ

Бұл мақалада Канада мысалында ашық мәліметтер, ашық репозиторийлер мен қолжетімді білім беру туралы талқыланады. CARL туралы не білесіз? CARL – Canadian Association Research Libraries — Кітапхана зерттеушілерінің

Канададағы ассоциациясы. Бұл ұйымның француз тілінде де атауы бар. Ұйым қатарында Канаданың ғылыми зерттеумен айналысатын университеттерінде орналасқан 29 академиялық кітапханалар, екі ұлттық кітапхана, Канаданың екі мұрағаты және екеуі федералды ұйым болып табылатын ұлттық зерттеу каналдары/федералды ғылыми кітапханалар. Біздің кітапханаларымыз мемлекетіміздің түрлі қалаларында орналасқан. Канада тұрғындары жергілікті географиялық ерекшеліктерге сәйкес америка шекарасынан 200 шақырым қашықтықта тұрады.

Открытые данные, открытые репозитории, открытое образование: канадский контекст

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АБСТРАКТ

В статье обсуждается актуальность открытых данных, открытых репозиториев и доступного образования в контексте Канады. Что такое CARL? CARL — это Канадская ассоциация исследовательских библиотек. У организации также есть название на французском языке. В структуру организации входят 29 академических библиотек университетов Канады с наиболее интенсивной исследовательской направленностью, две национальные библиотеки, которые являются важными архивами, Канадским и национальным исследовательскими каналами/федеральными научными библиотеками, обе из которых являются федеральными учреждениями. Вышеназванные организации расположены в самых разных уголках страны. В связи с географическими особенностями местности, население Канады, в основном размещено в 200 либо более километрах от границы США.

Status of Open Access, Digitization Initiatives, and Institutional Repositories in the Philippines

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ABSTRACT

Several academic and special libraries and information centers in the Philippines have initiated the development of institutional repositories (IRs). Most of these were managed by librarians and information professionals. This paper presents the status of digitization initiatives and institutional repositories by selected libraries (mostly academic libraries), archives, and museums in the Philippines in supporting open access (OA). Objectives of setting up the repository, software used, and compliance with digitization standards are discussed. The experiences, challenges, and lessons learned in establishing institutional repositories of selected institutions in the Philippines, particularly by academic and special libraries and information centers are described. The initiatives and experiences of academic librarians in establishing electronic theses and dissertations are also brought to the fore. Lastly, the practices, processes, decisions, and problems encountered by librarians and information professionals in developing IRs will be discussed.

Keywords: Open Access, Digitization, Institutional Repositories, Academic Libraries, Special Libraries, Philippines

Филиппиндегі ашық қолжетімділік, цифрландыру бастамалары және институционалдық репозиторийлердің жағдайы

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АБСТРАКТ

Филиппиндегі бірнеше академиялық және арнайы кітапханалар мен ақпараттық орталықтар институционалдық репозиторийлерді (IR) құруға бастамашы болды. Олардың көпшілігін кітапханашылар мен ақпарат мамандары басқарды. Бұл мақалада Филиппиннің жеке кітапханалары (негізінен академиялық), мұрағаттары мен мұражайлары ашық қолжетімділікті қолдау үшін институционалдық репозиторийлерді цифрландыру және құру бастамаларының

ағымдағы мәртебесі берілген. Репозиторий құру мақсаттары, қолданылатын бағдарламалық жасақтама және цифрландыру стандарттарына сәйкестігі қарастырылады. Филиппиннің жекелеген мекемелерінде, әсіресе академиялық және арнайы кітапханалар мен ақпараттық орталықтарда институционалдық репозиторийлер құру кезінде алынған тәжірибе, қиындықтар мен сабақтар сипатталады. Сондай-ақ академиялық кітапханашылардың электрондық диссертациялар жасаудағы бастамалары мен тәжірибесі сипатталатын болады. Соңында, IR құру кезінде кітапханашылар мен ақпарат мамандары тап болған тәжірибелер, процестер, шешімдер мен мәселелер қарастырылады.

Состояние открытого доступа, инициатив по оцифровке и институциональных репозиториев в Филиппинах

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АБСТРАКТ

Множество академических и специальных библиотек, а также информационных центров на Филиппинах инициировали развитие институциональных репозиториев (ИР). Многие из них управляются библиотекарями и информационными специалистами. В статье представлено текущее состояние инициатив по цифровизации и ИР в поддержку открытого доступа отдельными библиотеками, архивами и музеями на Филиппинах. Обсуждаются вопросы цели основания репозиториев, используемого программного обеспечения, соответствия стандартам оцифровки. Также, описываются опыт, сложности и извлеченные уроки при открытии репозиториев в указанных организациях, особенно в академических и специальных библиотеках и информационных центрах.

Open Access and Open Educational Resources in Kyrgyzstan: Developments and Perspectives

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ABSTRACT

This paper provides an overview of the development of open access (OA) and open educational resources (OER) in Kyrgyzstan. The country has been going through various political and socio-economic transformations, which have had an impact on the country's educational infrastructure, as well as in its educational policies and practices.

Since 2014, OA and OER have been on the agenda of educational practitioners. Various relevant projects have been implemented by government agencies, educational institutions, and donor organizations. The paper highlights successes and challenges in implementing OA and OER and discusses the state of OA publishing and OA repositories in the country.

Қырғызстандағы ашық қолжетімділік және ашық білім беру ресурстары: даму және перспективалар

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АБСТРАКТ

Мақалада Қырғызстандағы ашық қолжетімділікті (АҚ) және ашық білім беру ресурстарын (АБР) дамытуға шолу жасалады. Ел біздің білім беру инфрақұрылымына, сондай-ақ білім беру саясаты мен практикасына әсер еткен түрлі саяси және әлеуметтік-экономикалық өзгерістерді бастан кешуде.

2014 жылдан бастап АҚ және БР білім беру саласы тәжірибешілерінің күн тәртібінде. Әртүрлі жобаларды мемлекеттік органдар, білім беру мекемелері және донорлық ұйымдар жүзеге асырды. Мақалада АҚ және АБР іске асырудағы жетістіктер мен проблемалар, сондай-ақ АҚ-ның-елдегі басылымдар мен АҚ-репозиторийлердің ағымдағы жай-күйі талқыланады.

Открытый доступ и открытые образовательные ресурсы в Кыргызстане: развитие и перспективы

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АБСТРАКТ

В презентации представлен обзор развития открытого доступа (ОД) и открытых образовательных ресурсов (ООР) в Кыргызстане. Страна переживает различные политические и социально-экономические преобразования, которые оказали влияние на образовательную инфраструктуру страны, а также на образовательную политику и практику. С 2014 года ОД и ООР находятся в повестке дня у практиков образования. Различные проекты были реализованы государственными органами, образовательными учреждениями и донорскими организациями. В презентации освещены успехи и проблемы в реализации ОД и ООР, а также обсуждено текущее состояние ОД-изданий и ОД-репозиториев в стране.

The Focus of the Wartime University Library - Open Educational Resources: the Example of the Ukrainian State University of Science and Technology

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The morning of February 24, 2022 changed the life of every Ukrainian. We woke up to explosions and the reality of what was happening to us, right in the heart of Europe, and in the 21st century. It was a full-scale Russian military invasion of Ukraine with the intention of destroying the Ukrainian people as a nation, including its history, culture, education, and science.

Eight months since the beginning of the Russian invasion of Ukraine, and almost nine years since the occupation of Crimea, Sevastopol, parts of Donetsk and Luhansk regions, Ukrainian librarians, like the entire Ukrainian people, survived the initial difficult period of the war and are only getting stronger.

The war was a catalyst for the development of open educational resources at the Ukrainian State University of Science and Technology during the lack of access to physical collections and local electronic resources.

The University Scientific Library has been studying the topic of OE and OER since 2019 . And first, it was an analysis of official UNESCO documents, research articles, and the practical experience of academic libraries around the world.

Then, with initial practical experience, came the understanding of what the role of the university library should be in the direction of open educational resources.

A library is an organizational structure that provides an optimal balance between the efforts of teachers, including as authors, and a mechanism for helping to understand OER, as well as creating, using, publishing and distributing OER.

The focus on OER was an initiative "from below" (that is, from the Library), rather than "from above" (such as from the Ukrainian Ministry of Education and Science).

It was during wartime that the rector and vice-rectors of USUST gave the green light to develop OER. They supported the Library's calls for the introduction of new models of information support for distance learning and teaching.

In addition, the administration, teachers, and librarians understand that after the end of the war, hundreds of disabled people affected by Russian aggression would want to get either higher education or retrain themselves. But physically they will not be able to come to the university. And it is the Library that should support inclusivity with its resources and services. This is social justice.

Today, our library already represents Ukraine in SPARC Europe & ENOEL (European Network of Librarians of Open Education).

The Open Education Global 2022 International Project Competition (USA, October 17-20, 2022) brought victory to our project "Advocacy work of the Scientific Library to Advance Open Education in Ukraine: Ukrainian State University of Science and Technologies", submitted by the ENOEL team and the USUST Scientific Library.

Ukrainians today have stopped looking for an answer to when the war will end; but we have an unambiguous understanding of the dimension in which this answer is located — "until our victory". Librarians have their own service, their own information front, which is difficult. But our university communities need us, and we will not let them down, no matter how difficult and dangerous it is.

Соғыс уақытындағы университет кітапханасының ошағы - Ашық білім беру ресурстары: Украина мемлекеттік ғылым және технологиялар университетінің мысалы

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ABSTRACT

The paper discussed the evolution of information library resources usage in universities during the last 20 years. Proactive position of the polytechnic university library makes it an important link in many business processes of the educational activities, research and management. The common features of the country university libraries system changes are highlighted as well as particular features of SPbPU library transformation are explained.

The Polytechnic University was established in February 1899, more than 120 years ago. Now, it is one of the largest universities in the country, the leader in the field of higher engineering education in Russia, with more than 30,000 students, in the structure of 12 institutes and 34 higher schools.

As for the university library, it appeared immediately upon the foundation of a new type of engineering university. From the very beginning, the foundation was formed by leading scientists in the profile of the university. The drawings depict the reading room in 1900 and then 100 years later. The atmosphere of academia has been preserved: antique tables and chairs, bookcases.

About the fund, the volume of the printed fund is decreasing by about 500,000 over the past 10 years. Subscriptions to electronic databases are growing; a significant part of which is the national subscription of the Ministry of Education and Science of Russia. But the main priority in the university (and in the report) is the resources collected by the library. The repository of the university is called the SPbPU Electronic Library, the resource is registered in the national database registry.

In 2005, the Fundamental Library was transformed into an Information and Library Complex. This additionally absorbed the IT and digital resource structures. In the national context of working with open resources in scientific and educational activities, the general trend of the development of “openness” is reflected both in the national and university context. The desire to open everything is gradually supplemented by different aspects and options of openness. The types of access to metadata and resources themselves are separated, the types of access are standardized, methods of linking data

in the global space are being developed, and knowledge graphs are being built focused on different types of tasks to be solved.

For Russian universities, the era of active work with electronic resources came 20 years ago. This was when the Ministry of Education and Science of Russia began to require mandatory access to the electronic library system (or ELS) for university licensing and program accreditation. This term became known as the repository (electronic library), which contains educational resources on disciplines taught at the university. On this wave, new structures began to appear in publishing houses that provide access to ELS with digital copies of the educational publications produced. Aggregators began to appear next. But some universities, especially large ones, began to create their own ELS. The Polytechnic University also created an Electronic Library in 200 by order of the rector.

About 15 years ago, there was a demand from the Ministry to create an electronic information and educational environment at the university, where a separate paragraph indicated the need for electronic educational resources to be present in this environment. Moreover, it was separately indicated that access to educational electronic resources for students and teachers should be provided from any device connected to the Internet.

In 2015, also by order of the Ministry of Education and Science, there was a requirement to keep all graduate works of students and postgraduates in the university's ELS.

Thus, there were quite a lot of incentives to work with electronic resources in the educational process. And these requirements were checked during regular accreditation inspections.

Since 2020, a national project on the digital transformation of universities has been carried out in the country, and all the results achieved over the past 20 years in terms of the use of electronic resources in scientific and educational activities should be implemented in the digital platform of the university.

Considering the national context in terms of open data and scientific activity, open data was introduced by a separate legislative act - this is open (state) data on the activities of government agencies, grouped into 16 areas of activity. There is no science among them! In the global Open Data Barometer system, Russia's position is fairly well represented. On open science and its modern interpretation, we pay attention to only one point — phrases about the need to create infrastructures and ensure connectivity in various aspects of the applicability of this term are repeated.

Only the tip of the iceberg is really open now — the texts of articles and data present in articles in the form of appendices or materials included in the text. So much data is

missing! It is not for nothing that publications have appeared about the crisis of reproducibility of experiments.

Also on the slide is a fragment of the OECD's recommendations on whether to transform "open access" into "enhanced open access to achieve a balance between cost constraints, privacy, priority protection, prevention of data misuse, and others.

We are impressed with the approach of saying that in addition to the openness of the resource content, equally important is the fact that the resource is involved in various global structures that allow you to find the resource through its properties represented in a generic way. This approach means creating a space based on persistent identifiers. The initiators of this approach are the largest agencies registering DOI - DataCite and CrossRef. Without dwelling on the details, we note that the most important requirement is the openness of metadata, the indication of permanent identifiers in them for authors, organizations, other involved objects, as well as the guaranteed availability of a page with metadata at the address on the Network with which the permanent identifier is associated. That is, the degree of responsibility of the parties entering the open space of a new level increases.

Moving on to the experience of the Polytechnic in the existing context, let's focus only on one object of the university's information infrastructure — the repository, called the SPbPU electronic library. There are three most important requirements for a successful repository implementation. First, modern technology must be used, including a next-generation search interface, a single search window, and seamless access from anywhere in the world. Secondly, actions to fill the repository and use its resources should be integrated into the university processes. At the same time, the recipients of the resource will not necessarily be people, in other systems, and the further away, the greater the volume. Third, we are obligatorily following the new rules of behavior in the digital university, helping to get the most out of the services provided.

As for the SPbPU electronic library, at the insistence of students and learners, all electronic resources involved in the educational process are available through a single digital library window. According to the sources of content, it can be seen that the Electronic Library performs different functions: (1) the ELS — it houses electronic educational resources for university programs, (2) the institutional repository – it contains conference materials, journal articles, scientific reports and arrays of data (datasets) begin to appear, (3) an archive preserving scientific and the cultural heritage of the university in digital form, these are the personal collections of outstanding polytechnic scientists, photographs, memoirs, and the complete collection of the issue of the Polytechnic newspaper for over 120 years.

Some streams were automated resource transfer systems that have been developed in the EL. Draw your attention to the fact that for each stream there is a specificity in the

order of transmission, in the set of metadata. The copyright holder transferring the resource can choose the type of access — from placement in a closed repository to open to everyone on the Internet. If necessary, license agreements are concluded, sometimes with the use of technical means, which is permitted by Russian legislation in terms of copyright.

The resources of the Electronic Library are grouped into collections. Pie charts show some characteristics of a common array: a significant part of the resources are created at the Polytechnic University; most of the resources are accessible by the login-password of the unified identification system of the Polytechnic University, less than half of the resources are publicly available. Of the resources coming from the Polytechnic, the overwhelming share is created digitally.

One of the streams of transfer of graduate works of students and postgraduates is presented. The process involves (1) students who upload the work to the website, create a description of it and sign a license agreement, (2) curators from departments who check the correctness and completeness of the data entered by the student and (3) bibliographers who control the correctness of the conversion of the file into a protected format and the presentation of metadata in the bibliographic record. It should be noted that this collection is not available in the public domain since 2020 by the decision of the university administration.

Despite the fact that many resources are closed, the Electronic Library is in the top hundred of the world ranking of institutional repositories from Google Scholar. Let's pay attention to two inflections on the graph of the statistics of calls to resources. The first one was in 2012, when a new search interface appeared in the Electronic Library that meets modern requirements. The second is 2017. When resources began to be assigned DOI identifiers. The decline in statistics was associated with the execution of the decision of the university management to close individual collections to external users. But we should note that the Electronic Library management technologies have made it possible to fulfill the requirement within a few days.

In 2017, the National Center for the Identification of Scientific Data was established at the Polytechnic University, and in 2021 – the national consortium DataCite. The developed pilot version of the Scientific Data Repository allows not only to place resources for long-term storage, but also to create their descriptions with the involvement of permanent identifiers and reference books, using the universal metadata schema DataCite.mSingle sign-on, i.e. the use of the Polytech identification system account when working with Russian and foreign restricted access resources, when working with its own electronic library, is based on the use of federal authentication technology and the FEDURUS national federation, which is part of the eduGAIN global interfederation,

There is much involvement of electronic library resources in the processes of universities by the example of the formation of a digital profile of university teachers and researchers. Many resources fall into the profile, which means they are taken into account when determining the KPI and the level of remuneration of a scientist is accepted only if they are available in the Electronic Library of the university. It is impossible to introduce a new discipline into the programs if the required educational publications are not available in the library fund. Preferably in electronic form.

In conclusion, the Polytechnic's approach to ensuring improved/enhanced openness is in compliance with FAIR principles. When many results are scattered among different sources or simply lost, to a new model where more and more "dark data" will be stored and made available to the empowered. Along with words of gratitude to the organizers and participants — a photo of the rear facade of the same main building of the university, but in the autumn twilight, when not everything is clearly visible. And the call for libraries to disclose dark data so that the research is truthful, the results are verified and available for further use.

Санкт-Петербург политехникалық университетінде ашық деректерді басқару

Наталья Соколова

Директор

СПБПУ АКК Корпоративтік ақпараттық-кітапханалық жүйелер орталығы, Ресей

АБСТРАКТ

Мақалада соңғы 20 жылдағы университеттердегі ақпараттық-кітапханалық ресурстарды пайдалану эволюциясы қарастырылды. Политехникалық университет кітапханасының белсенді ұстанымы оны білім беру, ғылыми зерттеулер мен басқарудың көптеген бизнес-процестерінде маңызды буынға айналдырады. Еліміздің университеттік кітапханалар жүйесіндегі өзгерістердің жалпы ерекшеліктері, сондай-ақ СПбПУ кітапханасының өзгеру ерекшеліктері түсіндірілді.

Управление открытыми данными в Санкт-Петербургском политехническом университете

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АБСТРАКТ

В статье рассмотрена эволюция использования информационно-библиотечных ресурсов в университетах за последние 20 лет. Проактивная позиция библиотеки политехнического университета делает ее важным звеном во многих бизнес-процессах образовательной деятельности, научных исследований и управления. Выделены общие черты изменения системы университетских библиотек страны, а также объясняются особенности трансформации библиотеки СПбПУ.

The Limits of Open Access

Celia Emmelhainz

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ABSTRACT

This paper discusses the limits of openness in the work of librarians and archivists, and why we cannot provide all our scientific, cultural, and literary materials to the public online. I first discuss the limits of "open access" as a model, and then some ways to move forward.

Сәлеметсіздер ме, құрметті әріптестер! Здравствуйте, уважаемые коллеги!

Thank you for inviting me here today. My name is Celia Emmelhainz, and I manage the National Anthropological Archives within the Smithsonian. I previously worked as a librarian at Nazarbayev University — so it is lovely to join you again today, even from afar!

Today, I'd like to talk with you about some of the limits of open access, and ways that we can respond to them.

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First, I'll start with a story.

In January 2016, my university library digitized many old documents gathered by anthropologists. Our library was very proud of this new "open access" collection of 800 large PDF files with 50,000 pages of diaries, linguistic notes, maps, and images from research with indigenous communities.

My manager asked me to promote our open access project: to email our faculty, write a new Library Guide, and lead a workshop for students on using digital archives.

But I paused.

As a librarian, the first things I noticed about our open access project were issues of access: these large PDFs would be hard to read on a smartphone in the countryside. There was no transcription to help readers understand old handwriting. And files without recognized text are hard to search.

So, I asked a professor for help in making these materials accessible. We talked about applying for a grant to hire indigenous community members to curate and transcribe these materials.
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But then I heard that the real problem was not access, it was open access. People were angry with our library for posting these images online. Professors said these materials were sensitive. Outside researchers had come into a community and written down its knowledge, and shared it with strangers. The community wanted to work with their own language and cultural materials, without outsiders involved. They did not want their ancestors' pictures on Facebook. They worried that people from outside would use their stories against them.

Amidst many emails and phone calls and meetings, we removed all 50,000 pages from the Internet. Now, you have to contact the archive to work with these materials. And we used this experience to revise our guidelines on sharing sensitive collections (Garrett, Stoner, et al., 2019).

This was an eye-opening experience. But it shaped my thinking on the benefits and limits of open access.

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Here I should pause to note that open access has many benefits, even for small communities. When we share books, images, and audio files, people can learn from each other. Robert Leopold notes that indigenous communities can use records held in archives to support their land claims, restore their language, and re-learn old traditions (2008).

Online access is especially helpful for anyone without a visa or money to travel, who must stay home to care of children or elders, who has mobility issues, or who would struggle to come to the centers of knowledge and read in person. In a keynote speech last year, Botakoz Kassymbekova (2021) noted that,

> "to study Central Asian history, you really have to go out of Central Asia. If you don't have money and you don't have resources, it will be very difficult for you to learn about many aspects of the region's past. Moreover, some of the important archives are closed… or are inaccessible."

In other words, Dr. Kassymbekova had to leave her homeland to find materials about her own country. That's not acceptable — we want people in every village to have access to many stories and histories — whether they attend university or not, or whose archives hold the materials.

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Yet when we aim to open up access to the world's knowledge, we hit many limits.

The first are logistical limits: at the rate knowledge is being recorded, we can't "digitize everything" (Thompson, 2017); only a small portion of what we create can be saved and passed down.

We face limits of time, as humans create things faster than we can curate them.

We face limits of money. As you know, it costs money to create and acquire things, to hire people to describe them, to scan papers, to recognize text, and clean up digital files — and then pay, year after year, for the people and storage space to maintain these files.

We also face ethical limits. Sharing materials openly can affect people's privacy in unexpected ways. Even if we remove names… algorithms, data mining, and facial recognition mean that you can be recognized in the texts that you write, or by your face in a crowd, in ways we did not anticipate.

As Tara Robertson notes, many local publications were never intended to be read by a global audience (2016), and we may not have the rights or consent to share others' stories (Wooten, 2009). Often, people share knowledge with each other for a particular purpose, not for the permanent record. Finally, we face ecological limits. As S. Williams (2017) notes, "Our 'throw it in the cloud' mentality is in danger of destroying our built environment and our communities. Every digital object… generates data that has to go somewhere. The 'cloud' …exists in a structure somewhere… server farms take up an incredible amount of space [and] poor, marginalized communities bear the brunt of this type of industrial pollution."

I recommend that you read Goldman (2019) and Pendergrass et al. (2019) fully; they are included in my references. These authors note the immense environmental impact of our open access projects and encourage us to thoughtfully plan projects with a long view of our planet's health and our available resources in mind.

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So how do we move forward? I have a few thoughts. First, let's not forget about community-based access. Local librarians and archivists are essential for connecting communities with well-chosen materials. Investing in local infrastructure, local knowledge production, and local expertise (Emmelhainz, 2020) is just as important as investing in multinational infrastructure. Second, let's prioritize accessibility. If I can read a text online, but not add my own comments, translate it (Emmelhainz, 2015), download it, or share it, how useful is it (Emmelhainz & Ramsay, 2021)? Can ordinary people who struggle to read or listen adapt materials to their own needs (Johnson & Abumeeiz, 2022), or are only people with formal disabilities given accommodations? Can each person read catalog records in their own language, perhaps using linked data like Wikidata? And can we use materials offline, when our Internet is unreliable or unsteady?
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Third, let's plan for sustainable open access. As mentioned, we cannot build digital collections without thinking about the cost of maintenance to our lands and to the people around us. Perhaps our most ethical open access is a local one, holding space for people to connect to physical and digital materials in person, with the support of reference librarians and archivists, rather than creating complex digital repositories that constantly need more resources fed into them for hundreds of years.

Finally, open access needs curation, too! One of Goldman (2019)'s most provocative ideas is that we must strive to "collect less," and to grow more selective about what we gather. Rather than amass all the digital and physical resources in ways that crowd out our human lives, we can work in our community to gather seeds for our shared future. This process of community-based curating and sharing, I would argue, is exactly what we librarians and archivists are here for. Thank you. Назарларыңызға рахмет!

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Ашық қолжетімділік шекаралары

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АБСТРАКТ

Бұл жұмыста кітапханашылар мен архивистердің жұмысындағы ашықтық шектері және неге біз барлық ғылыми, мәдени және әдеби материалдарды жұртшылыққа онлайн режимінде бере алмаймыз деген мәселелер талқыланады. Алдымен модель ретінде "ашық қолжетімділіктің" шектеулерін, содан кейін ілгерілеудің кейбір жолдары талқыланады.

Границы открытого доступа

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АБСТРАКТ

Обсуждаются пределы открытости в работе библиотекарей и архивистов, и причины, по которым мы не можем предоставить все наши научные, культурные и литературные материалы общественности в режиме онлайн. В начале обсуждаются ограничения "открытого доступа" как модели, а затем некоторые пути его продвижения.

ABOUT THE AUTHORS

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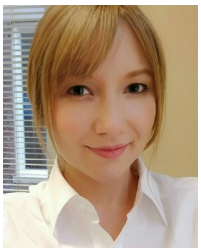

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Paolo Colet started working as an Assistant Professor in the School of Medicine, Nazarbayev University in 2017. He is a registered nurse in the United States (USA) and a registered nurse/midwife in the Philippines. He has vast experience in nursing and midwifery education and practice in the Philippines and Saudi Arabia, being a clinician, lecturer, clinical instructor, part-time school nurse, and reviewer for the nursing licensure examination. Locally, Mr. Colet was trained at La Union Maternity and Children's Hospital and in Ilocos Training and Regional Medical Center. He earned his baccalaureate, master, and doctorate degrees in the Philippines.

Additionally, he did his Clinical Fellowship at Joanna Briggs Institute, Australia, on implementing evidence, and was awarded as an Associate Fellow for Australasian for Quality in Health Care. His research program can be summarized into an acronym HOPE (Holistic nursing, Obstetrics and Gynecology, Patient Safety, and Education). Moreover, together with his team, he is currently working on funded research projects on COVID19 and in nursing education in Kazakhstan.

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Paola Corti is the Open Education Community Manager of the European Network of Open Education Librarians (ENOEL); she supports librarians in taking action to implement the UNESCO OER Recommendation. She also works at Politecnico di Milano, Italy, as a project manager and instructional designer; she works on international projects, MOOCs design and development, and professional development courses for Faculty and Researchers, mainly on Open Education and innovative pedagogies. She is a Facilitator for Creative Commons Certificate courses, and she is involved - hands and heart - in implementing the UNESCO OER Recommendation. Paola has been working in distance learning since 1998 and is a passionate advocate for Open Education (OE). Paola's work tries to link social justice and Open Education. She helps bridge the gap between educators and librarians in achieving more open access to education.

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Celia Emmelhainz is the manager of the National Anthropological Archives in America's national museum, the Smithsonian, and previously worked as an academic librarian at UC Berkeley and at Nazarbayev University. She has an MA in anthropology and an MLIS in library science. Her research focuses on decision-making in library and archive careers, qualitative data management and archiving, ethnographic methods in LIS, and on improving access to social science research materials.

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Lizunova Irina is a Doctor in History, Associate Professor, specialist in the field of book science, history of books, press and media, the author and co-author of more than 300 scientific works, including 7 monographs. Over the past five years, she has published 50 scientific works, including one monograph. I. Lizunova is a lecturer at the Higher Library Courses of the The State Public Science and Technology Library of the Siberian Branch of the Russian Academy of Sciences (SPSTL SB RAS). She is a chairperson of the editorial board of the journals "Bibliosphere" and "Proceedings of The State Public Science and Technology Library of the Siberian Branch of the Russian Academy of Sciences", member of the editorial board of the journal "Humanities in Siberia" (since 2014), member of the editorial board of the journal "Book. Text. Book Publishing" (since 2018), member of the editorial board of the journal "Proceedings of the State Public Science and Technology Library of the Siberian Branch of the Russian Academy of Sciences" (since 2019), Chairman of the Academic Council of SPSTL SB RAS on the Humanities, member of the Dissertation Council under the Federal State Budgetary Educational Institution of Higher Professional Education "Kazan State Institute of Culture". She was awarded the Certificate of Honor of the Russian Academy of Sciences (2017), the Gratitude of the Governor of the Novosibirsk region (2017). She has been an expert of the RAS since 2016.

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Carol Smith is a dedicated adherent to and practitioner of Dr. R. David Lankes' model of New Librarianship. This new disciplinary framework reconceptualizes the mission of libraries as "improving society through facilitating knowledge creation in their communities" and is the innovative and inspirational lens through which she approaches all aspects of library leadership. Librarianship was a mid-career change for Carol, following several successful and varied positions of leadership in both the oil industry and information services profession.

Prior to her current role as University Librarian at the Colorado School of Mines, Carol served as Library Director at Adams State University in Alamosa, CO (2013-2016). At the University of Central Missouri (2006-2013), she was a tenured Associate Professor of Library Services, serving as both a Business Librarian (2006-2010) and Technology Initiatives Librarian (2010-2013).

Natalia Sokolova is the Director of Information Library Systems Center of Peter the Great St.Petersburg Polytechnic University. She holds a Ph.D in CSE, MCS from Leningrad Polytechnic Institute. Previously, she was an Associate Professor at the Institute of Computer Systems and Programming Technologies (2000 -2019). She was a coordinator of several international projects, including EC programs. She is the leader of the Library Consortium of the North-West of Russia, the scientific advisor of the National Center of Research Data Identification. She is involved in developing MOOCs and teaching online courses for students and postgraduates, mainly in the area of information literacy and research outcomes promotion, as well as for university professors and librarians.

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