



Extending the Reach and Impact of Graduate Works

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RESPONDING TO CHANGES IN THE EVOLVING LANDSCAPE FOR DISSERTATION PUBLISHING

Scholarly publishing – the basis for research that drives advances of all types in all fields – is in the midst of a major revolution. The process of creating and publishing research works today has changed monumentally in the past 35 years, with much of the shift coming in the past two decades. The rise of personal computers in the 1980s created a gateway for digital creation and access to scholarship – one that has exploded with advent of the Internet as both a major communication tool and an unmatched avenue for surfacing content via web browsers and search engines.

Digital technologies have burst through national, cultural and language barriers, connecting researchers in ways never imagined. The Internet has created synergies and new collaborative potentials across the full complement of academic disciplines. And Open Access (OA) initiatives make significant research accessible to users across the globe, directly and by way of links from blogs, websites, curriculum vita and social media applications.

But this is a double-edged sword. While these changes have created many new options for locating and accessing information, they have also resulted in considerable confusion. With a dizzying array of access points and methods, searching for authoritative information is becoming exceedingly difficult.

Open web searching is a labor-intensive process which involves the discovery of works across a wide range of channels. It involves searching through a wide range of document types and versions, including preprints, reprints, informal and formal communications, and presentations. Often these variant documents also carry different titles or even different authors as they move through the research reporting process and workflow. The diversity of documents in repositories is expected to continue to increase

as different participants communicate and share various aspects of their projects with their peers in diverse venues.

Searching through scholarly material on the web has never been easy and today, it is becoming nearly impossible to trace developing research using the Internet. For authors of graduate works who haven't yet built a base of fans to seek out their work, it begs a philosophical question: if research was published, but no one found it, was it ever published at all?

DISSERTATIONS AND THEIR CRITICAL ROLE IN THE GLOBAL DISSEMINATION OF KNOWLEDGE

Developing research often comes in the form of the dissertation – the formal product of the successful completion of advanced higher education. The Council of Graduate Schools, in *The Role and Nature of the Doctoral Dissertation*, describes the dissertation as “an intensive, highly professional training experience, the successful completion of which demonstrates the candidate’s ability to address a major intellectual problem and arrive at a successful conclusion independently and at a high level of professional competence.” (<http://www.eric.ed.gov/PDFS/ED331422.pdf>). Indeed, the completion of the dissertation is what separates someone with a Ph.D. from everyone else, marking one of the most important achievements in a scholar’s life.

Dissertations can play an important role in advancing scholarship, but without dissemination to the right readers, this critical work can also end up being what Joe Moxley, Professor of English at the University of South Florida, describes as just “an academic hurdle – an exercise in writing for an audience of five rather than in making a meaningful contribution to a discipline’s literature.” (*EDUCAUSE Quarterly*, November 3, 2001, pp. 62-3 @ <http://net.educause.edu/ir/library/pdf/eqm0139.pdf>)

Effective dissemination can play an important role in launching the careers of dissertation authors. Just as important, it has broader repercussions for academic and

library communities as well. Dissertations have the potential – and are designed – to make a critical contribution to the academic discourse.

Effective dissemination of graduate works offers many benefits to the academic community and society at large:

- A critical contribution to the academic discourse
- Insight into the process of invention and discovery by scholars still honing their skills
- A key source of literature reviews for use by subsequent scholars
- A collection development analysis tool for libraries weighing the relative value of serials or other materials in their libraries
- A tool to review research methods and theories as they have evolved throughout history
- A model of successful advanced research to provide guidance to subsequent doctoral candidates
- A key source of metadata for citation analysis for studies of evolving communities of scholars and in the development of theories and research methods
- A promotion tool for master's and doctoral programs, researchers, and advisors in key disciplines

Ensuring easy discovery of and access to dissertations and theses is critical for the future. This need wasn't lost on a young Ann Arbor-based entrepreneur named Eugene Power, the founder of information firm ProQuest. In 1938, when dissertations were scattered among their host institutions, he envisioned a central repository for dissertations and a system of on-demand access for other scholars to learn and build upon their foundational research. His scheme included easy integration of dissertations into library cataloging systems, where they could be found by users in the context of research, and a universally accepted identifier that would allow them to be tracked and shared across the globe. His first work in this new scheme? He indexed *Definitiones ivris pavcae* by Johannes Stover, accepted by Rijksuniversiteit Groningen in The Netherlands in 1637.

Power's work was the genesis for ProQuest Dissertations & Theses Database (PQDT), which has grown and evolved over seven decades to become the most widely-consulted resource of its kind and the linchpin for identifying and accessing doctoral dissertations and theses. Using state-of-the-art technology and working in close collaboration with academic partners, Power created a system that lifted dissertations from an otherwise disorganized pool of grey literature, making them key research documents heavily used and valued across the globe.

TECHNOLOGY POWERED BY COLLABORATION

Power's genius – and legacy – was in setting a course of collaboration and supporting it with the latest technology. In 1938, technology meant applying a groundbreaking new approach called microfilm for easy storage, copying, distribution and preservation. To ensure quality, he organized the National Microfilm Association to set standard practices and a path for ongoing innovation. By 1951, the Association of Research Libraries had recognized ProQuest as the publisher of record for all U.S. dissertations, using microfilm to guarantee preservation and archival access.

ProQuest worked closely with institutions and the academic community to help plan for a shift from microfilm to digital access. For example, in 1987, ProQuest staff met with researchers from the University of Michigan, Virginia Tech and others, to brainstorm on how new approaches to electronic publishing and the application of Standard Generalized Markup Language (SGML) might be applied to the preparation of dissertations.

Later, in 1992, ProQuest joined forces with Virginia Tech, the Coalition of Networked Information and the Council of Graduate Schools, along with ten other universities, to discuss the feasibility of enhancing and supporting Electronic Theses and Dissertation (ETD) activities in North America, beginning an organized effort to support dissertations with 21st century access. Microfilm would remain a key preservation tool, but access

and discovery would be driven digitally. By moving dissertations to an electronic world, real-time, on-demand access was fully realized.

By 1996, with U.S. Department of Education funding, a three-year nationwide educational effort was launched to increase awareness and further test the feasibility of making ETD the publication method of choice in the country. That same year, Virginia Tech passed a resolution that all theses and dissertations submitted after 1996 at the university be submitted *only* in electronic form. Other universities soon followed suit with either required or voluntary plans. In the same year, a free, voluntary federation of institutions – called ND LTD (Networked Digital Library of Theses and Dissertations) – was established to promote “the adoption, creation, use, dissemination, and preservation” of ETDs (<http://www.ndltd.org>). ProQuest has been a founding member and key partner in these efforts from the start.

In 1997, ProQuest began another technological shift – using digital technology to enhance both indexing and access to dissertations. This brought dissertations more directly into the daily flow of researchers, making the full-texts and 24-page previews of dissertations available to users through the PQDT portal. Rather than relying on standard bibliographic information, users now had richer information for identifying dissertations of interest – and even access to the full-text of dissertations in seconds, online.

By 1999, the United States Library of Congress was looking for a way to expand its burgeoning collection of digital research tools in an era of tight budgets. Recognizing the company’s ability to work seamlessly in a digital environment, the Library designated ProQuest as its official repository for digital dissertations. It was the Library’s first such agreement and it continues today.

Now, in 2011, as content boundaries are blurring, ProQuest moves PQDT to a new platform that will integrate dissertations into broader searches, enabling further discovery beyond scholars to students, professionals and information seekers of all kinds.

PARTNERING WITH GRADUATE SCHOOLS AND LIBRARIES WORLDWIDE

Technology provided half the formula for Power and the other half came from collaboration with graduate schools and libraries. ProQuest academic partners now number 3,000 worldwide, encompassing 98% of the dissertations published in North America. They use ProQuest to archive their graduate works, not only enabling their discovery by the global academic community, but ensuring their preservation as part of the scholarly record. The company has built a leadership position in preservation with standards that assure permanent availability. Every dissertation, every thesis submitted to ProQuest is preserved on microfilm, with film copies stored in separate controlled vaults. Digital copies are stored on separate servers, with another backup copy stored at an offsite storage facility for extra protection. ProQuest works with such organizations as the Library of Congress and the National Science Foundation to ensure world-class best practices in preservation. Currently, the company is working toward being a Trusted Digital Repository, the highest level of digital preservation status.

ProQuest offers many free value-added services for its partners. For example, authors at partner institutions can use ETD Administrator, a free digital submission tool that avoids paper. Another free digital service called ProQuest Dissertations@ allows institutions to access a portal of just their institution's own graduate works. For the library, ProQuest facilitates discovery of their graduate works in the library catalog by offering free MARC records for the institution's graduate works. With a deep well of expertise, the company is able to provide extensive support and QA for incoming graduate works, indexing and abstracting, and archiving of attachments such as datasets or video files.

ProQuest's successful partnership with the academic and library communities has allowed the company to create an unparalleled database of graduate works. ProQuest's digital dissertations archive of more than 500 million pages now includes more than 2.9 million dissertation records, 2.2 million abstracts, and 2 million dissertations in full text.

The archive is expanding rapidly, as institutions continue to add more than 80,000 dissertations annually. ProQuest has built its technology to scale, enabling PQDT to perform at peak usage. In fact, the database supported more than 200 million targeted searches in 2010.

OFFERING CRITICAL SUPPORT FOR DISSERTATION AUTHORS

Those 200 million searches per year make a remarkable difference for authors. PQDT is a vehicle for dissertation authors to surface the seminal work of their academic career on a global stage. Virtually every major research library in the world provides access to ProQuest dissertations content, extending access to a user community of millions of academic researchers. To further extend the reach of each author's seminal work, ProQuest also facilitates inclusion of citations to dissertations from PQDT into leading indexes such as ABI/INFORM, Sociological Abstracts, ERIC, Institute of Physics, Wilson Art Full Text, PsycINFO, MathSciNext, NASA Astrophysics Data Systems, and Chemical Abstracts. A permanent link is created for each dissertation and theses, which authors use in their curriculum vitae to facilitate citation of their work. The company partners with leading academic organizations such as the Council of Graduate Schools and the Canadian Association of Graduate Schools to offer awards for groundbreaking works from new authors, elevating the profile of dissertations as sources of emerging research.

With a group of Ph.D qualified staff managing the company's dissertation publishing, respect for the rights of authors has become a trademark. PQDT publishing is non-exclusive – enabling use of multiple channels for dissemination. Authors retain full copyright of their works, and they can potentially earn a royalty based upon sales. The company also provides a number of other critical services that guide dissertation authors over the hurdles of publishing and support the protection of their intellectual property. ISBNs are assigned to each graduate work, giving it a key unique identifier in the publishing world and mandatory deposit requirements of the Library of Congress are

met on behalf of the author. The staff works closely with each author to determine which specific access rights the author grants to ProQuest and will even register the work with the U.S. Copyright Office for an additional fee.

PROVIDING AUTHOR-CONTROLLED ACCESS

In a brave new world of 24/7 information and web crawling, there are new challenges and potential headaches for authors. Some academic journals are putting new policies in place to ensure the articles they publish are actually “new” and not already seen on various Web sites. For authors with their sights set on publishing in important journals, “prior publication” of a dissertation or thesis on the Web may spell disaster. ProQuest has developed a number of mechanisms to assist in alleviating these concerns. For example, an author may choose to have a distribution restriction on the release of copies of their manuscript but nonetheless allow ProQuest to preserve their manuscript in microfilm and electronic form and to further include the citation and abstract information in PQDT. The release restriction may allow for distribution of the manuscript only *after* a designated period of time (an embargo) or may be in place indefinitely until the author rescinds the restriction (full restriction). If the concern arises after submission of the dissertation or thesis to ProQuest, the company is able to apply these types of restrictions prospectively upon request of the author.

But what about those who seek the broadest access possible? Commercial open access is available as an add-on option to authors who want to make their research available for free on the open Web. Open Access Publishing PLUS from ProQuest is designed to offer the global research community a safe, secure option for long-term storage and access, while making their dissertations findable in the company’s Web environment. Further, the company has arranged with Google, Google Scholar and Google Books to allow indexing and searching across bibliographic data for graduate works published in 2007 and forward. Google searches now retrieve basic metadata for

each graduate work (title, author, abstract, keywords, etc), and provide links to ProQuest for access. ProQuest also offers Dissertation Express, a toll free hotline which can be used in ordering full-text dissertations and DATRIX Direct service which allows for precision searching to identify relevant graduate works on a topic.

EXPANDING AVENUES FOR DISSERTATION PUBLISHING

Building upon the legacy of its founder, ProQuest has organized critical infrastructure that allows for easy access to graduate works by libraries, academic institutions and researchers across the globe. While it's considered a standard-setting service, it's not the only option for dissertations publishing. Many academic institutions are revising requirements for dissertation submission and allowing candidates various alternatives for submitting their completed dissertations. More and more alternatives – both open access and for-profit – are arising, each with its own set of policies and procedures. Among the alternatives:

- **Australasian Digital Theses Program** – described as “A distributed database of digital versions of theses produced by the postgraduate research students at Australian universities. The theses will be available worldwide via the web. The idea behind the program is to provide access to, and promote Australian research to the international community.”
- **Cybertesis – Portal de Tesis** allows simultaneous searches through a single Web interface of more than 27,000 full text theses stored in 27 different servers and university repositories. Submission is up to each institution or individual.
- **EthOS**, the electronic theses service of the British Library, contains an estimated 250,000 from the Library's collections – many are only digitized on demand, a process that currently takes an estimated 30 days.

- **NDLTD** is “An international organization dedicated to promoting the adoption, creation, use, dissemination and preservation of electronic analogues to traditional paper-based theses and dissertations.” Membership includes universities, associations and companies such as ProQuest. It’s a voluntary, global database of over 1.8 million records, focused on recent digital/electronic works.
- **OpenThesis** is a free repository of theses, dissertations, and other academic documents. It’s targeted to individuals and includes search, organization, and collaboration tools.

The only truly “open access” method to get the broadest return for web searches of dissertations published today would be to use a general web browser that might find the various sources for documents from the web. Is this the future that these documents or users deserve? Open Access repositories are still an evolving concept in the academic community. They do not yet provide a proven and enduring mechanism for publishing, distributing, and preserving important research documents.

There is also a rise in for-profit services offering market-oriented or profit-based services for dissertation authors. Three of the better known services are:

- **Dissertation.com** uses ISBN as the method to get their client's works into the search results lists of online bookstores. The company acts as a middleman to fulfill requests for print or online copies of individual titles, giving a percentage of the profit back to the author.
- **Universal-publishers.com** This company and various subsidiaries, such as Brown Walker Press, publish dissertations on demand for a fee, making them available for sale through Amazon.com and other distributors. “Our authors have access to one of the highest royalties in the publishing business: from 10% to 40% of the retail price depending on the mode and the level of the sale.”

- **WritersWorld** A British-based firm that publishes dissertations and other materials for a fee (generally about \$700), making them available on demand through major online services in the U.S. and Western Europe.

So, how does the scholar choose from all of the open access and for-profit options that are available? Many believe that doctoral and master's candidates are generally ill-prepared and unaware of the opportunities and issues with the options that are being presented to them. Further, among the for-profit options are services many consider to be little more than vanity presses – with all the negative baggage associated with these solutions. Problems with creative/copyright control, pricing and quality of publishing have plagued this medium of distribution, making it very controversial and a questionable dissemination alternative.

Some universities are responding by creating their own searchable Institutional Repositories, discoverable on the Web. Policies for these vary widely across the globe. For example, not all allow candidates to place embargoes on access to their dissertations. Repositories may or may not allow for only bibliographic or metadata as opposed to submission of the dissertation as-a-whole. Submission may or may not include access to datasets and other important ancillary information key to the creation of the research. Repositories may only include documents created at their own institution or region or they may be limited to only certain types of documents (such as PDFs of printed dissertations).

To many, the environment that's emerging is akin to the one in 1938 that prompted Power's creation of a central repository with on-demand access. Nancy Herther explores the potential disruption to the access environment in "Dissertations and Research in an Era of Change," *Searcher*, March 2010, p. 22, noting, "Electronic access to dissertations...is an incredible step for users... But how do you find dissertations now? Today's landscape seems quite chaotic."

More alarming than confusion is the potential danger to long-term accessibility to pivotal scholarly works.

OPEN ACCESS AND ARCHIVAL STORAGE

Although Open Access options and digital repositories are clearly a promising publishing alternative for many types of scholarly publishing in the 21st century, today they remain a volatile, uncertain avenue for archival storage and comprehensive search and retrieval.

Numerous digital repositories that include ETDs have been initiated on the web. According to OpenDOAR, widely considered to be the “authoritative directory of academic open access repositories” (<http://www.opendoar.org/>), 51% of today's Open Access repositories include dissertations – a mind-numbing 996 repositories at last count.

Few repositories are dedicated to dissertations and theses alone. Instead most dissertations today are included in general multidisciplinary or institution-based repositories. They may be specific to an institution, a particular geographic region, or an individual discipline. Most still contain relatively few documents with very limited retrospective coverage. There is currently no uniform set of procedures or standards for ETDs accepted across all types of repositories.

Dissertations represent a “well defined and well referenced document type. Rules for deposit and citation are generally established on a national level and international standards exist for specific information and these metadata...” notes Chistine Stock of INIST-CNRS (“Open access to full text and ETDs in Europe; improving accessibility through the choice of language?” In *Grey Foundations in Information Landscape; Ninth International Conference on Grey Literature, Antwerp, Belgium, 2007*, pp. 39-47.) She also notes the “rather complicated” structure of access within Institutional Repositories when it comes to dealing with these documents.

Open Access frameworks are still an evolving in the academic community, and they lack a proven and enduring mechanism for publishing, distributing, and preserving important research documents. In just the past few months, there have been some troubling signs indicative of the nascent state of Open Access. One notable example is how the very future of France's Persee national repository has been threatened by funding issues. (See, for example, http://fr-fr.facebook.com/note.php?note_id=185471614829731&comments).

Critical projects are still evolving and experimental and many are struggling to find sustainable funding models for the future. Clear and stable foundations are needed to ensure confidence in their viability as 21st century publishing and access platforms.

PREPARING FOR A GLOBAL STAGE

With the rapid and unparalleled expansion in volume of international graduate works, most notably but not exclusively in China and India, new international infrastructure is needed. More opportunities for graduate study around the world bring new players in the higher education marketplace, many of which are unfamiliar with accepted methods and standards that have been developed to deal with these key documents – their identification, indexing and access.

The increasing number of doctorates being accepted from non-Western cultures means that the future needs to be much more international in design, recognizing different traditions of academic publishing and perspectives on author rights. Similarly, the dramatic expansion in the number of dissertations being produced in non-Roman languages creates a need for interfaces that can manage multiple character sets. The entire global research community needs to be involved in creating a truly viable, 21st century dissertation archiving, location and access system.

ProQuest, continuing its path of pioneering technology and driving collaborative efforts, is working with key academic institutions and other stakeholders worldwide to create the infrastructure and capabilities that are needed for archiving and accessibility of international material. ProQuest's goal is to ensure that access to dissertations and theses is comprehensive in a growing global interchange of innovation and ideas.

AN UNWAVERING COMMITMENT TO SCHOLARLY PUBLISHING

Ensuring discoverability and reliable access to dissertations – no matter what the future holds – is a critical challenge for the academic and library communities. For authors, it may mean the difference between making a meaningful contribution to academic discourse and having no impact at all. Stakes are also high for institutions, libraries, and the academic community at large, where the sustained availability of a comprehensive access point for emerging research is critical today and for future generations.

One company has been there for 70 years, acting as a source of both organization and revolutionary advances. From Power's original vision of on-demand access for the scholars around the world... a mission he described as his "personal holy grail," ProQuest has used technology, collaboration and deep understanding of the needs of scholars – both authors and readers – to create increasingly easy discovery. Now, in a confusing landscape of options for publishing, ProQuest continues to evolve to provide flexibility and convenience for authors who want their dissertations to be more than just an academic milestone.

For institutions, ProQuest's Dissertations Publishing provides a secure option for preserving and promoting their scholarly output. For libraries, PQDT enables them to support their researchers with a highly targeted source of emerging research. And in the area of dissertations, ProQuest continues as an advocate, a reliable supporter and a driving source of innovation balanced with insight for the long-term preservation and access.