

DAEDALUS

Facing the Challenges of E-Theses at the University of Glasgow

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Abstract

DAEDALUS is a three year nationally funded project to build a range of OAI-compliant digital collections at the University of Glasgow. These collections include published and peer-reviewed papers, grey literature and eTheses.

The University of Glasgow always been part of the British Library thesis deposit scheme, and has contributed to the Index to Theses accepted for higher degrees by the Universities of Great Britain and Ireland since its inception. The University is a member of UTOG (University Theses Online Group), and became a member of the Virginia based NDLTD (Networked Digital Library of Theses and Dissertations) in 2001. The University is a significant producer of theses and about 370 full higher degree theses are accepted each year.

DAEDALUS will enable us to develop an eTheses collection around the software provided by the NDLTD and to use that as a catalyst for establishing guidelines and policies for the deposit of e-theses. The initial service will be voluntary and complementary to the hard-copy submission.

This paper will discuss the issues and challenges faced by Glasgow in setting-up this service. It will be set within the wider context of the provision of a national UK strategy for e-theses deposit and the work undertaken by Edinburgh and The Robert Gordon University. The challenges for DAEDALUS will include a range of cultural and technical issues such as adoption of the service and the use of mixed media, which must be overcome for the project to be successful.

The project will work in partnership with a range of different departments, which already host some student theses to create a centralised service analogous to that in place for our printed theses for disclosure and long term preservation.

University of Glasgow

The University of Glasgow, founded in 1451, is the second oldest university in Scotland and the fourth oldest in Britain [1].

The mission of the University is to be a major research-led university operating in an international context with the following fundamental aims:

- to provide education through the development of learning in a research environment
- to undertake fundamental, strategic and applied research

- to sustain and add value to Scottish culture, to the natural environment and to the national economy.

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There are some 13,000 bound theses held in Special Collections on level 12 of the Library. These are stored in environmentally secure conditions. The oldest thesis which we have on deposit in Special Collections is entitled "Dyspepsia" and is dated 1838.

DAEDALUS

DAEDALUS [2] started in August 2002 and is a three year JISC funded project under the FAIR Programme [3]. It will build a range of Open Archives Compliant (OAI) digital collections at the University of Glasgow, one of these core collections will be a repository for electronic theses and dissertations (ETD's). The other collections include:

- Published and peer reviewed academic papers
- Pre-prints and grey literature
- Research resource finding aids
- Administrative documents

These collections will enable us to unlock access to a wide range of our institutional scholarly output. DAEDALUS is also working with two complementary projects, also funded under the FAIR Programme: Electronic Theses at The Robert Gordon University [4] and Theses Alive! [5] at the University of Edinburgh.

To ensure that the project achieves its aims it been split into two distinct but complementary strands: Advocacy and Service Development.

During this first year of the project the focus is twofold:

- To provide the technical infrastructure for the first three areas of content: published papers, preprints and e-theses
- To establish an Advocacy campaign and to gather content for these services
- Both of these activities are well underway.

Advocacy

We identified Advocacy as a critical role in the success of ePrints and ETD services. The project has a Project Manager (Advocacy) whose broad remit is:

- to create an Open Access culture
- to gather content for the range of Open Archives services including ETD's
- to provide advice on policy implications, guidelines and processes of the services
- to formulate an exit strategy that ensures a full and fully used service.

The Project Manager (Advocacy) works with our Subject Librarians and with the other FAIR Projects as well as academic staff within the University.

Service Development

The remit of the Project Manager (Service Development) is to establish five OAI-compliant collections [Data Providers] and one search service [Service Provider]. These collections will use a range of different software solutions including GNU Eprints 2.0 and MIT's DSpace.

In the final year of the project we will also build an OAI-compliant search service, which will enable users to cross-search this material.

The technical infrastructure for the first three areas of content: published papers, preprints and ETD's is now in place. This has been achieved with the successful installation of the ePrints, DSpace and the Virginia Tech ETD-db software. Work is now ongoing in the configuration and development of these services.

GNU Eprints 2 - Published and Peer-reviewed papers

Published and peer-reviewed papers will be deposited in a repository implemented with the GNU Eprints 2 software from the University of Southampton [6]. There are now some 68 archives running GNU Eprints and some of these are using it for theses e.g. ETD Individuals at Virginia Tech.

DSpace - Preprints and Working Papers

DSpace is a "digital repository created to capture, distribute and preserve the intellectual output of MIT" [7]. The source code was released on the 8th of November 2002 and is freely available for download. DSpace is being used as a repository for preprints, working papers and techni-

cal reports at Glasgow. The next release of DSpace will include additional support for ETD's.

Virginia Tech ETD-db - E-Theses

Theses will be deposited in a repository using the ETD-db software from Virginia Tech [8]. This is already in use in sites such as Caltech's Collection of Open Digital Archives (CODA) [9] and is well documented.

The ETD-db software was installed in February 2003. We have now set-up an ETD Demonstrator service which has been configured with a Glasgow "look and feel", similar in style to our ePrints service. The range of administration options for managing theses have been removed from the home page and are available on a separate administration page.

The home page also provides a range of links to other Theses search services such as *Digital Dissertations* and the *NDLTD OAI Union Catalog*. It is our intention to ensure that our ETD service is OAI-compliant and to register it with the NDLTD Union Catalog.

Theses - The Status Quo at Glasgow

Deposit

The University's Senate regulations require two bound print copies of all theses to be accepted for full fulfillment of higher degrees. These must be double spaced and single sided and must be deposited by the graduand in the University Library. All of the production costs are borne by the student (and some faculties or departments even ask for a third copy for the supervisor). A number of recommended bookbinders in Glasgow are provided on the Library's website.

The presentation requirements are based on "Recommendations for the presentation of theses (BS 4821:1990)" published by the British Standards Institution. While this standard has now been withdrawn and, to date has not been replaced, it remains the foundation for our presentation requirements. Copies of the full text of the standard are available in the University Library.

Theses are forwarded to the Library from relevant faculty offices. Sometimes they come quickly, sometimes, however they languish in the faculties: periods of up to 5 years between the acceptance of a thesis and its actual deposit in the Library have been known, depriving researchers of the knowledge of its existence for that time. As we move to an ETD model, this lead time would be effectively removed and researchers would a) be aware of the existence of such a thesis and b) be able to access it in accordance with the scholarly mission of the University.

Access

Once deposited in the Library the theses are catalogued to MARC21 standard, assigned a fixed location and, in recent years have been assigned Library of Congress Subject Headings. One copy is kept in the Special Collections Departments, the second either goes to a departmental library (if there is one) or to Store.

The Library tries to address access and security issues for copies held in departmental libraries [some departments may require a third copy for the Department] but it cannot ensure that these libraries address these issues with either the physical copy or any version which is published on the web.

Student can restrict access for 1 or 3 years from deposit in the Library but the majority chose not to exercise this. We will offer a range of restrictions for the online version of a thesis as we take advantage of the features provided by the ETD-db software:

1. It can be made freely available and can be accessed by anyone;
2. It can be restricted to members of the University of Glasgow
3. It can be withheld until you provide permission for it to be made public.

Glasgow participates in the national British Library Thesis service. On expiry of any restriction the British Library Thesis service at Boston Spa [part of the British Library Document Supply Centre (BLDSC)] [10] is sent bibliographic details of doctoral theses to add to its database. Students may choose to renew this restriction on an annual basis beyond the three years but this is very rare. The library catalogue record indicates any restrictions placed on access.

Consulting theses

When a reader has identified a thesis which they would like to consult they must go to the Special Collections Department and complete a bookslip requesting to see the thesis. It is brought out to them and can only be consulted in the Special Collections reading room. They can however request part, or all of it to be photocopied. The Library keeps a record of those who consult theses. This is of use in any disputes over plagiarism, however as has been demonstrated we have no record of who may consult a thesis in a departmental library. It remains to be seen if this will be an issue as theses become available online and the need for any additional controls which it may be necessary to impose.

Special Collections took over responsibility for theses in 1993. Until that date, theses were available from the Enquiry Service and could then be used anywhere in the building. It was felt that there were inadequate controls in place over the use of theses and access was transferred to Special Collections.

In 2000-01 there were 1,548 requests for theses in Special Collections, however these requests represent only 6% of the total number of requests for their material.

Borrowing or purchasing Theses

Glasgow **does not** lend its theses, except through the British Library Document Supply Centre (BLDSC). If a researcher wishes to borrow or purchase one of our theses, the British Library will obtain the original print copy of the thesis from Glasgow University Library and will copy it (usually in microform), returning the original to the Library. The British Library will then keep a copy of the microform. The British Library keeps a record of who requests theses and it is necessary for the reader to sign a form agreeing to abide by copyright restrictions. From 1999 to date, the British Library have added approximately 470 titles from Glasgow to their collection, of these only 15 have been requested more than once.

At the same time as details of theses are sent to the British Library, bibliographic details plus the abstract are sent to the *Index of Theses*. The *Index* includes details of all theses accepted for higher degrees, so details of considerably more theses are sent to them than to the British Library.

Details of higher degree theses in partial fulfilment of degrees and undergraduate dissertations are not sent to the British Library or *Index to theses*, nor are they kept in the University Library. They are left to the appropriate department or faculty to deal with. The result is that many of these remain unknown and, even if identified, tracking down a copy becomes ever more difficult as time passes.

The development of our ETD service will provide access to a wider range of these Master Theses and could be extended to include a range of undergraduate dissertations. We have already had examples of such theses deposited into our pilot ePrints service from the Department of Environmental and Evolutionary Biology.

Multimedia elements of theses and supplementary, non-print material such as CD-ROM's, discs, tapes, and programs are occasionally submitted with the thesis. These are stored with the thesis in pockets at the back. There is currently no attempt made to ensure any compatibility, or long term access to these materials. This is a critical preservation and access issue which must be addressed if the University were to ever move to an ETD-only submission model. It is, however not only an issue for ETD's. It is currently possible to access this supplementary material using CD-ROM players and other equipment in Special Collections but as new formats become available [such as DVD's] it will be necessary to keep pace with these new formats while also ensuring other physical formats such as videocassettes remain accessible.

E-theses on campus

Searches across campus have revealed a wide range in the provision and information about theses on departmental websites. Many simply list the theses which have been completed in their departments, some include links to the abstracts and a minority provide links to a postscript version of the thesis. Some also include the supplementary multimedia files which support the thesis. None of these electronic copies are linked to from the Library catalogue, nor do we intend to. Only theses held in the ETD service will have a link from the catalogue record to the full text.

First steps

Discussions with Faculty and Research Committees about the aims of DAEDALUS across the University including Veterinary Medicine and Education have all been very positive, in particular about ETD's. We are now working with them to gather content for the service and to identify the range of issues which must be addressed for a full service to be implemented. Many departments have asked why we don't simply mandate the submission of theses electronically - that however, cannot be done without a change in Senate regulations.

The Senate is the University's supreme academic body and is supported by the Senate Office. The Senate Office provides the administrative support for the Senate's Committees and for the Senate's statutory responsibilities (especially student appeals, complaints and discipline). It also supports Faculties and academic departments in ensuring that the University's educational provision for students is of high quality.

We have identified a range of publicly available theses which we are asking for permission to make available in the service in these initial trial stages. These theses, many of which are held in postscript format will be converted to Adobe Acrobat's PDF format.

Issues and Challenges

The FAIR Programme and the funding which it has provided to projects such as DAEDALUS as well as Theses Alive! and the Electronic Theses project have provided fresh impetus in the UK for the development of institutional eTheses services. The international work undertaken by Virginia Tech and others can now be taken forward by Universities in the UK.

There remains a rich collection of technical and cultural challenges for institutions such as Glasgow as we make the transition to the deposit and provision of eTheses. A

key challenge is the cultural change within the University although the positive response we have had from many faculties has been very encouraging. The work and studies of Theses Alive! and the Electronic Theses Project by The Robert Gordon University will also continue to inform the evolution of our own service.

We are developing a range of guidelines which those students [and their supervisors] who would like to make their Theses available online can consult. This will provide guidance on Copyright and access issues, similar to those in place for the hardcopy version. We will also provide an additional Author declaration form for eThesis deposit.

The Library will provide mediated submission service which will convert the submitted theses to PDF format and ensure that the content is submitted to the service and linked from the catalogue. In the longer term we would want to move to a model of the students producing a PDF compliant version of their thesis and self-archiving it.

Effective digital preservation policies and controls will also need to be put in place to ensure the continued access to ETD's. The wider issues of digital preservation for University content are part of an Information Strategy review currently being undertaken.

The Future

Building on initial momentum and interest of faculties such as Veterinary medicine we aim to have 265 theses [Higher and Doctoral] deposited in the service by July 2005. This "proof of concept" and demand will enable us to ensure the ongoing development of the service and to discuss any necessary changes to Senate regulations for example - a cultural challenge for the project.

The ideal for the Library would be that only a single hardcopy bound version would need to be deposited, in addition to an electronic copy. This single copy would then be deposited in the Library's Store rather than in the Special Collections department.

The development of an ETD service at Glasgow is a challenging activity but one which we believe will be of benefit to the entire University community. It will enable researchers to have a greater visibility [and thus more impact] for their work and will showcase the research output of the institution.

It is very appropriate for those of us involved in the FAIR Programme in the UK that one of the aims of ETD 2003 is to encourage even more universities around the world to become a part of NDLTD and to promote free access to scholarly electronic documents. 2003 may come to be seen as a landmark year in the development of ETD services in the United Kingdom and while these services may still be in their infancy they are now in place. Our attendance at this conference and the opportunity to learn from the international ETD community will be

invaluable as we work to ensure that the availability of ETD's in the UK becomes the norm rather than the exception.

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