

AN ELECTRONIC JOURNAL IMPACT STUDY: THE FACTORS THAT CHANGE WHEN AN ACADEMIC LIBRARY MIGRATES FROM PRINT¹

Carol Hansen Montgomery, Ph.D.
Dean of Libraries
Drexel University, Philadelphia, PA, USA

INTRODUCTION

The Hagerty Library of Drexel University is one of the first U.S. academic libraries to migrate to an (almost) all electronic journal collection. Beginning in mid-1998 the electronic format *only* was preferred whenever possible so that with the 2002 renewals the library subscribes to about 370 print and 8600 unique electronic journals. The initial change process and the particular environmental factors that made this possible have been described in Montgomery (2000) and Montgomery and Sparks (2000). In brief, the major transition period from the Summer of 1999 through Fall of 2000 was time-consuming and traumatic. It was during these two renewal cycles when the major print subscription “cancellations” took place.² See **Table 1**.

Table 1: Migration to Electronic Journals

Type	1998	1999	2000	2001	2002
Print	1,710	1,475	1,000	300+	370
E-Journal	200	4,400	5,000	7,600	8,600

Drexel University, formerly Drexel Institute of Technology, is a technologically oriented, Research Intensive university (according to the latest Carnegie classification) with approximately 500 full-time faculty and 12,000 students. It is located in an urban area of Philadelphia that borders on the central business area. Several institutional factors converged to make this rapid transition to electronic journals possible and right. The Library had:

- Strong support from the university administration
- A large majority of computer literate users
- Networking and PC Infrastructure in place
- A poor current print journal collection
- A major budget increase
- The need to support growing distance education programs
- Ready access to large print journal collections in the immediate area

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<http://www.library.drexel.edu/facts/imls/default.html>

² The cancellations of subscriptions for 1999 were of little-used titles that had not been evaluated for some time, and therefore, the decision to cancel them was relatively straight-forward.

Another contributing factor was the belief, on the part of the Library administration that, in the electronic world, preservation is longer the responsibility of individual libraries. The only model that makes sense in the new order is for a mix of organizations with national and international scope to step forward and assume the archiving role. And, in fact, this is happening. Arms (2001) notes that “Long-term preservation requires organizations that are committed to the long-term. Candidates include the national libraries, scholarly societies, charitable foundations, and major university libraries. It is no accident that these are all not-for-profit. Preservation is a service to the future that cannot depend on financial rewards.” Arms discusses several viable preservation models that exist today: JSTOR, the major university/publisher partnerships, and the Association for Computing Machinery. Other examples exist: the American Chemical Society recently announced a file containing a complete retrospective conversion of all their journals; the Library of Congress is archiving electronic journals in physics (Carlson, S., 2001); and OCLC, the Research Libraries Group, the Digital Library Foundation and the Council on Library and Information Resources are all stepping up to various parts of the e-journal plate. See OCLC (2001), Research Libraries Group (RLG) (2001), and Council on Library and Information Resources (CLIR). (2001).

With an Institute for Museum and Library Services Leadership research grant the Drexel staff began a systematic quantitative study of the impact of thw transition to an electronic journal collection on library staff and costs in the Fall of 2000. The library also collects use data and conducts surveys to assess users’ reactions to the change. This paper describes some of the conclusions of this work, along with lessons learned and major issues.

IMPACTS

The results to date show a profound impact on library operations and costs. No area has been left untouched. Labor intensive activities related to print such as shelving and journal check-in have been replaced by labor intensive activities involved in electronic journal management such as URL and list maintenance. Major findings are:

- Transitional costs are high. These include, primarily, setting up the systems and procedures to access and manage the electronic journals, and the collection development and acquisition processes.
- Collection development for electronic journals during the transition period and into the foreseeable future is far more complex than the comparable process for print journals. In addition to the factors considered in making a print buy or retention decision (primarily faculty recommendations, use, price or price per use if available, relevance, publisher, accessibility via indexing services, collection balance) when evaluating electronic journals staff should weigh:
 - Stability (based on source of journal)
 - Comparability with print
 - Competitive sources/pricing plans
 - Interface
 - Access restrictions

Provision of statistics
Archiving commitment
Linked to and linked from statuses
Ability to “loan from” via ILL
License characteristics
And more.....

- Acquisitions costs are generally higher for electronic collections because of the costs of analyzing licenses, selecting among sources, and negotiating site licenses. The one [or for large libraries few] stop shopping provided by a serials vendor cannot be duplicated yet for electronic journals. It is difficult to separate the acquisitions processes from collection development. They overlap.
- Arguably, we could say that subscription costs on average are less for the Drexel electronic collection. However, this simple statement ignores a complex set of factors that must be considered to make a comparison between electronic and print subscription costs meaningful. A “subscription” in the electronic world is not a simple payment for the annual content of a journal title. An electronic subscription often brings with it several years’ of back files. And the price models and electronic content vary so radically that Drexel has found it necessary to define three electronic journal types by the criterion: How stable is content?

“Pure” Electronic Journals are individual subscriptions or publisher’s packages which may or may not be part of a consortia “deal” (i.e. acquired by purchase through a subscription agent or from the publisher directly).

Aggregator Journals come from vendors that provide access to different publishers’ journals. No possibility of content dropping, only adding. The collections started as full-text content and added searching (e.g. JSTOR, MUSE).

Full Text Database Journals provide access to electronic journals from different publishers but do not make title or issue level access available (except ProQuest). These databases began as a search tool and full-text content was added later. Journals are added or removed regularly from these databases according to the database vendor’s contracts with publishers. They often have an embargo on current issues of six months or more (e.g. Lexis/Nexis, INFOTRAC’S Expanded Academic).

Subscription costs vary greatly among the three types: at Drexel in 2001 the average per title costs varied from over \$300 for the individually subscribed titles, about \$90 for the aggregator titles, to \$5 per title for the full text database journals. Most academic libraries do not include the full-text database titles in the journal counts. However, use of the titles in these databases is so high that we feel it is misleading to exclude them from the total picture.

- The handling costs of print journals - mail processing, serials check-in, shelving, binding, claiming, repairing and shelf space are nil for electronic

collections, thus saving about \$71 per title (Tenopir and King, 2001, p. 216) or \$100 per title when extrapolated to 2002 dollars.

- Inventory control costs depend on the library's practices. There are two basic approaches - cataloging and linking from html pages - with many variations: Libraries may (1) catalog all three categories of titles - which is very time-consuming to create and, especially, to maintain; (2) catalog only the electronic titles in the first two categories listed above - which gives an incomplete picture; (3) catalog only the electronic equivalents of print titles - also incomplete; (4) maintain html list links for (created from databases in the more technologically advanced libraries) - far less costly than cataloging to create and maintain but does not provide "one stop shopping" for journal holdings; and (5) catalog the titles *and* provide access via lists - obviously more costly than cataloging only.
- User support for electronic journals appears to take more staff time than support for print journals.
- While directly comparable use data is difficult to obtain, it is clear that electronic journals are used more heavily than print. It is the magnitude of the difference between electronic and print journal use that is compelling. Precise measurement of the difference between use of the entire two Drexel collections is not possible at the present time - and may never be possible. Vendors do not supply accurate comparable use data and the library community has not standardized on the e-metrics, the measures of electronic resource use, although major efforts to do this are underway by the International Coalition of Library Consortia (ICOLC, 2001, and the Association of Research Libraries (Shim, 2001). Some vendors supply partial use data (data for only some of their e-journals) and some provide none at all. Drexel collects title by title use data on print journals in the form of volumes and issues re-shelved, also a partial and imprecise measure but the only option in a library that does not circulate journals. We also compile a merged listing of monthly e-journal use data for those vendors that supply data that approximates the ICOLC standard, journal articles "examined, downloaded, or otherwise supplied to user." Generally, what is provided by the vendor and counted is html views, PDF downloads, and/or prints. We have counts for roughly 67 percent of the e-journal services. They show that use of a few of the *individual e-vendor collections* (defined as full text views) to be used more than the entire Drexel print journal collection in 1998. For example, the Drexel 1998/99 print re-shelving count was 34,000 while ProQuest was used over 100,000 times in 2000/01.
- Drexel users prefer electronic journals. The change has been endorsed enthusiastically by most of the academic community. And, in a Summer 2001 survey faculty and students scored electronic journals above 8 on a scale of 1 (low) to 10 (high) on the factors: (1) saves me time; (2) makes work easier; (3) leads to better quality research; and (4) enables finding more information.

The most meaningful measure of print/electronic journal comparability, of course would be the cost per use to the library combined with the cost per use to the user. Researchers

have developed these figures for print journal use (Tenopir and King, 2001, pp.217) and the goal is to develop similar e-journal measures.

DISCUSSION

Cost differences between print and electronic subscriptions will vary from library to library, depending upon the collection choices, agreements with publishers, consortia arrangements, ability to negotiate, choices regarding cataloging and inventory control and, surprisingly, *size of library*. Meaningful cost per use information requires careful definition and will not be fully possible until vendors provide reliable, consistent data based upon universally-agreed-upon standards. It is worth noting that two common subscription models favor smaller academic libraries in a “rich get poorer and poor get richer” scenario: (1) access to a publisher’s entire electronic collection for a premium over the money spent on the publisher’s print subscriptions at the time of the “deal”, and (2) access to all of a publisher’s electronic journals held by *any* member of a consortium for a small premium over the money spent on the publisher’s print subscriptions at the time of the “deal”.

The major transition from print to electronic journals was completed at Drexel in 2001. We made some mistakes along the way and still have some “clean up” to finish. Among the lessons learned, we should have:

- Cancelled fewer important print journals when the only electronic access was through full-text databases. We have re-instated some of these print subscriptions.
- Kept more “bundled” print journals in a current journal area for browsing, and then de-accessioned them in lieu of binding.
- Assumed a print archival role in library science journals, building on Drexel’s programmatic strength in this field.
- Spent more time in developing and publicizing policies regarding the e-journal collection – which might have spared us from making the first three mistakes just listed. Examples are a policy for binding or not when we have access to the JSTOR equivalent and a policy regarding when a full-text journal is not an acceptable substitute for print.

Overall, Drexel’s electronic journal strategy appears to be successful. But there is risk. An electronic library is far more fragile than a print library. Electronic collections would likely suffer drastically and swiftly from a substantial budget reduction even if it were only short-term. At Drexel we believe that the benefits to our users now are worth this risk. Soon, if not already, most students and faculty will demand information electronically. If the library does not provide quality electronic information, they will go elsewhere to less reliable, but more convenient, sources. as many do now. This is an even greater risk for all concerned.

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