This paper aims to:

- Provide an understanding of the Measuring the Impact of Networked Electronic Services (MINES) survey, including its use, methodology and outputs
- Consider the feasibility of using MINES in an Australian library or group of libraries
- Assess to what extent the survey might be a replacement for or complement to the CAUL Materials Availability Survey (CMAS) which was developed for print resources
- Evaluate whether the information to be gleaned from the survey is likely to be worth the effort involved in conducting it.

Overview of MINES

MINES is an online, transaction-based survey that collects data on the purpose of use of electronic resources and on the demographics of users.

It has formed part of the American Research Libraries’ (ARL) New Measures program since May 2003, and has been used by numerous North American libraries.

MINES employs a web-based user survey methodology to intervene in the online sessions of randomly selected users, delivering a short (3-5 questions) survey at the point that the user is about to access an e-journal, database article, or digital collection or service. Once the user has answered (or rejected) the survey, access to the item they were seeking proceeds in the normal way.

The survey aims to help libraries better understand their networked electronic resource usage: who is using the resources by status (e.g., undergraduate) and affiliation (e.g., School of Business), their location (e.g. on campus, outside the library), and their reason and purpose of use.

It can measure the use of commercially available digital content, electronic resources served via consortia arrangement or portals, and digital collections mounted on library servers.

It is argued that it is of value for collection development and service decisions and assists with the assessment of the impact of digital resources and services.

As the survey is delivered before the client has accessed the resource they are seeking, it does not attempt to measure satisfaction with the resource or whether the resource is actually what the user was intending to access.

Reported use of MINES

MINES was developed by Brinley Franklin from the University of Connecticut and Terry Plum, from the Simmons Graduate School of Library and Information Science, Massachusetts. Both have published several papers on usage of the survey, as has Martha Kyrillidou, Director, ARL Statistics and Service Quality Programs.

According to the MINES website (http://minesforlibraries.org/home) the survey has been used by 50 North American libraries. Most reported use relates to a group of 16-19 libraries in Canada which
have implemented MINES through a contract between ARL and the Ontario Council of University Libraries (OCUL). Other reported usage is from the University of Connecticut (Franklin’s home institution) and the University of Iowa (not yet accessed). There is a published study (by Kyrillidou) from the University of Macedonia in Greece; but no other usage outside North America has been located.

Results have also been published from a very similar survey at Ohio State University.

There is a lengthy bibliography on the MINES website at: http://minesforlibraries.org/publications.

The sources consulted for this paper are noted in the Bibliography below.

**Methodologies adopted**

It is argued that MINES is based on sound web design principles, following the Web survey design guidelines recommended by Dillman, Smyth and Christian (2008).

- **Electronic resource coverage**

Libraries conducting the survey attempt to survey all electronic service users, regardless of their point of entry (OPAC, library Web, etc). They aim to intercept users attempting to access e-journals, e-books, databases, digital collections, electronic course reserves and 856 field links out of the online catalogue. Some resources intercepted are full-text; some are not.

Methods used by libraries noted on the MINES website include IP validating scripts, scripts generating links for databases and journals, and OpenURL technologies. Two of the more comprehensive infrastructures singled out include:

  - placing the survey at the campus router or
  - using EZproxy, a widely adopted, re-writing proxy server. Any library running EZproxy can locally implement an application that presents the MINES survey to networked users as they initiate a session and captures networked services usage both locally and remotely during the sampled time periods

The most recent OCUL survey included all resources in its SFX OpenURL link resolver Knowledge Base.

- **Sampling method**

MINES uses a “random moments” sampling plan.

Early applications were based on a randomly chosen two hour period each month for 12 months, during which a survey form was presented electronically to captured users and these users’ subsequent use of databases or e-journals was also tracked.

A variation at the University of Macedonia used a two-hour randomly chosen period on a daily basis for three months.

More recent applications have used a sampling method whereby over the course of 12 months every nth user is intercepted, using a random number generator. For example, for all institutions included in the 2010-11 OCUL survey, a lottery process occurred whereby a number between 1 and 250 was drawn at the beginning of the survey and then every 250th time thereafter. When a user attempted to access an electronic resource, their numbered call was checked against the number randomly drawn; if it didn’t match they would be presented with the resource they were attempting to access; but if their number matched they would be presented with the survey instead.
• **Mandatory vs optional**

In some implementations, completion of the survey is mandatory – the user cannot access their desired resource until they complete the survey. In others users are given the option to opt-out. In some cases “turn-aways” and users who clicked through the survey without filling it out are also counted. Some libraries have run the survey in mandatory mode one day and optional the next. It is argued that one of the strengths of MINES is that it provides a count of non-respondents.

**Survey content and resource URL capture**

• **MINES**

The MINES survey comprises 5 multiple choice questions, which users answer by clicking on a bullet point:

- Status (undergraduate, postgraduate, faculty, library staff etc)
- Disciplinary affiliation (Business, Education, Humanities etc)
- Location (in the library; off-campus; on-campus but not in the library)
- Purpose (coursework/assignment; teaching; patient care; sponsored (funded) research; non-funded research; other including general interest)
- Reason for use (reference/citation from another source; course reading list; important resource in my field; recommended by a librarian; recommended by a professor/colleague)

The order of questions is changed over time.

A number of validity checks are undertaken. Workstation IPs are spot checked against self-identified location. Unlikely combinations, e.g. respondents claiming to be “undergraduates” and choosing “sponsored (funded) research” as their purpose of use are spot checked to make sure they have understood the question and/or mapped back to get additional instruction. For sponsored-research responses, there is an open-ended question asking the name of the principal investigator, granting agency, name of the grant etc to ascertain that the definition of sponsored research has been understood correctly.

It appears there may be an optional comments field at the end of the survey as one of the OCUL reports includes a count of users who commented on being annoyed with the survey.

Some implementations of the survey capture the target URL (i.e. the URL of the resource the client was trying to access), and if possible the information in these is used to identify which vendor/publisher’s content was chosen, and in many cases the specific journal, article, book etc.

• **OhioLINK**

The OhioLINK version of the survey also asked 5 questions including status and affiliation (academic unit). A different set of Purpose options were provided:

What is your primary reason for viewing this article?

<table>
<thead>
<tr>
<th>Class paper/project</th>
<th>Assigned reading</th>
<th>Masters thesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctoral dissertation</td>
<td>Other scholarly research</td>
<td>Grant preparation</td>
</tr>
<tr>
<td>Current awareness</td>
<td>Personal interest</td>
<td>Prep for teaching</td>
</tr>
<tr>
<td>Patient care</td>
<td>Assisting someone</td>
<td>Other</td>
</tr>
</tbody>
</table>
Users were also asked how did they find the article and how often they used the Electronic Journal Centre (First time, daily, weekly, monthly, infrequently)? Options for the former were:

<table>
<thead>
<tr>
<th>Browsed a particular journal’s issues</th>
<th>Cited in a printed source (e.g., book, reading list)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cited in an online source as a clickable link</td>
<td>Cited in an online source but not as a clickable link</td>
</tr>
<tr>
<td>Received through an awareness service as a clickable link</td>
<td>Received through an awareness service but not as a clickable link</td>
</tr>
<tr>
<td>Memory</td>
<td>Another person told me about it</td>
</tr>
<tr>
<td>Used Electronic Journal Centre search option to enter a search term and view results</td>
<td></td>
</tr>
</tbody>
</table>

**Cost**

The MINES website quotes a fee for the survey of US$7,000 to US$15,000 per year, depending on the length of the implementation and the final deliverables.

ARL apparently provides advice on the local setup and local questions, validates and analyses the data, and prepares a final report.

At the conclusion of the survey period, the library or consortium receives an analysis that provides insights on the impact of networked electronic services by analysing the use of digital resources and identifying the demographics and purpose of use.

**Results analyses available**

The content and format of the standard ARL report provided for the MINES fee is not yet known.

Results and analyses that have been presented in reports have included:

- Frequency tables (by institution, affiliation, user status, location, purpose and reason for use)
- 2-factor Cross tabs (eg User status x purpose of use; location x reason for use)
- 3-factor cross-tabs (eg User status x affiliation x purpose)

Comparisons have been made between libraries (e.g. within a consortium) and over time (e.g. showing greater use of e-resources by undergraduates and in the humanities).

Such results have been used by libraries to gain a better understanding of what is happening with regard to the use of their electronic resources, e.g. who is using what, where and why.

Knowledge of where users are located when accessing resources can guide library support service decision making. Knowledge of what is being used and by whom has been found to be useful in collection development decision making.

MINES’ results have also been used to provide information about developments within an institution e.g. the extent to which references to e-resources are being included in undergraduate reading lists.

Results have been used to impute the relative importance (or unimportance) of library staff and academics in pointing users to resources.

Results such as the frequency of use of library resources in funded research have been used to argue for the value and impact of libraries.

Because the MINES and OhioLink surveys both intervene at the point the user is about to access a resource, neither is able to shed any light on users’ satisfaction with a resource or what they
subsequently do with it (read it, download it, print it, cite it, follow through on references in it, etc). The report of the most recent implementation of MINES among the OCUL libraries (Thomas 2012: 386) notes that “future studies may consider exploring additional details of the user characteristics including satisfaction as well as the direct value users derive from different electronic resources and potential linkages to teaching, research and learning outcomes” but no indication is given as to how this might be done given the current survey methodology.

**Noted shortcomings of MINES**

While the published papers reporting on MINES laud its value, they do admit some limitations. Problems noted in earlier studies included libraries having to set up interception points for the survey through rewriting proxy servers, database to web scripts, authentication systems, electronic resource management systems, locally developed scripts and open URL-servers.

There were difficulties in implementing “sessions” which differed depending on whether one or several database or e-journal source(s), aggregators, federated or discovery searches were involved.

Difficulties were noted capturing patrons who had bookmarked e-journals and databases or who used Google Scholar to find copies of known articles.

Some network infrastructure could only intercept off-campus users, not legitimate within-IP users.

Some databases required a specialised client on a workstation with a password.

The latest OCUL study was heavily reliant on SFX so “The degree of comprehensive coverage of a library’s actual electronic and print holdings depends on the resources, knowledge and diligence that library is able to dedicate to SFX knowledge base management” (Thomas 2012: 379). Exclusions noted were:

- Some SFX targets (content or service resources), especially e-books, data, print journals, audio visual, and other non-textual resources which are underrepresented in SFX.
- SFX targets which may not have been enabled or activated.
- Some of the most heavily used SFX sources (starting points) which had not been implemented at all [OCUL] schools, in particular the library catalogue, journals by title A-Z list, and Google Scholar.
- Open access journals and the article pre-print, prints, or post-prints found in institutional and discipline repositories.

The same study also reported a few unanticipated technology limitations, which allowed users to bypass the SFX menu or having their data recorded. These limitations include the use of DirectLink and Verde, or closing the browser window entirely as opposed to selecting the “No Thank You” option within the survey.
Merit in conducting MINES?

When this study was initially embarked upon, it was thought that MINES might provide Australian libraries with a survey to replace or complement the CAUL Materials Availability Survey (CMAS) which, having been developed for print resources, is now in decline.

Clearly the MINES survey is not a replacement for CMAS since it is conducted before the client accesses the resource they are seeking, so cannot verify that the resource they have found is in fact what they were seeking.

The survey also does not provide the user’s view of the quality of the resource they are accessing or their satisfaction with it.

Feasibility of conducting MINES in Australian libraries

While some assistance is available from ARL, it has been noted that to date only libraries or consortia with strong IT departments have succeeded with MINES.

Curtin University Library has a strong in-house IT service, has conducted online surveys in the past, has a large collection of e-resources and uses SFX and EZproxy.

IT staff at Curtin have indicated that they would not anticipate difficulties in conducting MINES at Curtin and it is their belief that many Australian university libraries which also utilise SFX and EZproxy would be technically able to conduct it.

However they have also pointed out that some of the information available from MINES is also available already at Curtin. A user’s ID (giving access to their status and affiliation) and location are already captured in Curtin’s log files. The route clients have followed to the web resource is available via Google analytics.

What Curtin does not already have access to is data on Purpose and Reason for Use. The question which has been asked though is whether this is in fact the data the Library most wants or needs.

For collection development, what Curtin Library finds most useful is the “turn-away” data available from vendors and the Library’s catalogue. Through Curtin’s discovery catalogue and vendor databases, Curtin Library clients are presented with many resources in addition to those to which the Library subscribes. If a catalogue user clicks on a reference to an item which is unavailable to them at Curtin (e.g. because the library does not have a subscription or because maximum access limits on the item have been reached), this information is captured by Curtin and/or the vendor and used when future subscription decisions are made.

The extent to which undergraduates are being presented in their course reading lists with resources available at the Library, and in particular e-resources, is important to the Library but currently monitored through periodic analysis of the course reading lists.
An alternative option which has been posited to glean the information the Library is interested in would be to use the user ID and URL accessed information captured in the log to contact the user AFTER they have accessed a resource to present them with a brief survey covering:

- MINES Purpose and Reason for Use data
- Information which is comparable to that collected by the CMAS survey, e.g. Is this the item you were seeking? Did they experience any difficulties in finding or accessing the item?
- Usage information e.g. What did they do with the item accessed – print it, download it, reject it, etc?
- Evaluative information about the item e.g. did they find the item useful (or, if they have downloaded or printed it but not yet read it, do they expect to find it useful?)

A random moments sampling method comparable to MINES’ could still be used to select the users to be followed up, but clearly such a survey would need to be voluntary not mandatory. Results would therefore not be as representative of usage as those gleaned from a mandatory MINES survey and some ethics permissions may need to be gained to obtain access to the users email address or other ID information, but this is not seen as insurmountable. For example all users or the randomly intercepted users could be advised that their usage data will be captured unless they opt out, or they could be asked to grant permission for their usage data to be used for a subsequent quality assurance check.

Such a survey would not present the international benchmarking opportunities that MINES does, but the uptake of MINES does not appear to have been as great as, say, LibQual+ making benchmarking opportunities limited regardless.

CONCLUSION

This study has presented an overview of the MINES survey, including giving an indication of what would be involved in conducting it. It appears clear that it could be conducted in some Australian university libraries but whether it is worth conducting and whether other options might be preferable needs further consideration.

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Measuring the Use of Networked Electronic Journals in an Academic Library Consortium: Moving beyond MINES for Libraries™ in Ontario Scholars Portal


MINES for Libraries®: University of Macedonia