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of the

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INTERNATIONAL CONFERENCE

on

PERFORMANCE MEASUREMENT in LIBRARIES and
INFORMATION SERVICES

“Meaningful Measures for Emerging Realities”

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Edited by:
Joan Stein
Martha Kyrillidou
Denise Davis

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Editorial Note: The Proceedings contain the Conference Overview, four Keynote Papers, three Invited Papers, 37 Seminar Papers and the After-Dinner Speech. Three papers are not available for publication in the Proceedings. They will appear in future issues of the journal Performance Measurement & Metrics. British usage has been retained where used by contributors.
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AFTER-DINNER SPEAKER

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The Fourth Northumbria International Conference on Performance Measurement in Libraries and Information Services convened on Sunday, August 12 and ran through Thursday, August 16, 2001. In a significant departure, the conference was held in the United States instead of England, at the Sheraton Station Square in Pittsburgh, Pennsylvania. Sponsorship for the event was provided by the Association of Research Libraries (ARL), the Oakland Library Consortium (Carnegie Mellon, the Carnegie Library of Pittsburgh, and the University of Pittsburgh), the University of Arizona Library, Arizona State University Library, Texas A&M University’s Sterling C. Evans Library, and the Health Sciences Library Consortium (HSLC) of Pennsylvania.

In spite of its change in location, the conference remained a truly international event, with 120 delegates, representing 22 countries, in attendance. Some of the conference delegates traveled from as far away as Japan, Hong Kong, New Zealand, Australia, and Africa, in addition to the many enthusiastic European delegates. There was also strong representation from a significant number of American delegates this year. The delegates represented a wide range of institutions, from public libraries, academic libraries, special libraries, national libraries, library schools, research institutes, and library associations. Attendees included many returning delegates along with welcome new faces, and encompassed researchers, practitioners, and educators.

This 2001 conference had the good fortune to be an official IFLA Satellite Pre-Conference, sponsored by the IFLA Section on Statistics; this connection between the Northumbria Conference and IFLA’s Statistics Section holds promise for fruitful collaboration in the future. Already, a joint full day session at IFLA in Glasgow (2002) this summer will be sponsored by the IFLA’s Statistics Section, IFLA’s Research and Theory Section and the Northumbria International Conference board.

Since the first Northumbria conference in 1995, library professionals have recognized that the traditional library measures of “goodness” that count collections and transactions no longer provide an adequate picture of the library’s contributions to its constituents. Each successive conference has focused on the evolving research and practice in the development and testing of new measures to reflect such important trends as the increasingly electronic library landscape, service quality from the user’s perspective, library users’ changing needs, and the importance of presenting the library’s contributions in terms of impacts and outcomes. This fourth conference centered on the theme of “meaningful measures for emerging realities” and contributions surveyed the field of performance measurement from that perspective.

The proceedings begin with the seven excellent keynote and invited papers from speakers around the world that provided the framework for the event and much food for thought. Rowena Cullen (New Zealand) opened the conference with a plenary session titled “Setting Standards for Library and Information Service Outcomes and Service Quality”, in which she urged us to incorporate the results of performance measurement into our decision-making processes. She called for industry-wide standards for outcomes measurement and service quality and for more rigorous research into effective measures. Cullen proposed an "evidence-based" librarianship, which incorporates measures that focus on the actual success stories of users in finding what they need.

Peter Young of the Library of Congress gave us a thorough analysis and overview of the current global challenges facing libraries and researchers that seek to create measures for electronic library services and collections. He pointed out that “Library statistics and measurements provide a framework for planning and tracking change.” In particular, he stressed the importance of the development and application of standard measures, a standard vocabulary to describe these measures and ensure consistent application, and the ability to transform our traditionally quantitative input/output data into an outcome-based, qualitative framework. He sees opportunities for libraries to develop new measurement criteria in the areas of network technology infrastructure, information resource content, extensiveness, and efficiency.

Christine Koontz (Florida State University, US), in her novel and entertaining talk on “Technology: Pied Piper or Playground Bully”, explored both the blessings and the curses of rapidly changing technology. The opportunities this technology provides include broad access to previously inaccessible information, the ability to identify user markets using geographical information systems software, and the ability to collect and analyze measures. However, each of these opportunities present us with challenges that require solutions: the difficulty of counting and measuring access to electronic materials and services, serious privacy issues, and the lack of standards. The rate of technological change and obsolescence is another confounding factor in the equation.

Geoffrey Ford (Bristol University, England) presented the broader picture of library performance measures by placing them within the context of strategic planning and management decision-making. He explored the various ways that measurement can be shaped by and integrated with strategic concerns of both the library and the parent organization. Ford noted that most libraries work from the level of operational strategy and called for a more holistic approach,
addressing business or organizational strategy. Assessing strategic outcomes and influencing the development of strategy are two important strategic uses of measurement and evaluation.

Anna Maria Tammaro (University of Florence, Italy) presented her work with defining and implementing performance measures for a digital university press in Florence, Italy. The measures she has developed and tested, described in “Facilitating Scholarly Communication: cost and benefit of a digital university press”, hold promise for other digital presses around the world. As libraries become more diversified in the services they offer and become more involved in content-creation, measures of this type become very important. Florence University Press was designed to be an author/reader-centered service created to eliminate obstacles to effective scholarly communication. They use a combination of qualitative and quantitative measures to ensure that they meet the needs of their user community.

Rush Miller (University of Pittsburgh, US) & Sherrie Schmidt (Arizona State University, US) gave a joint presentation of work to date on the Association of Research Libraries’ E-Metrics project, which both presenters have been involved with since the outset. This project sought to create useful measures for the “hybrid” library, which is in transition from a print-based orientation to a digital orientation. Their presentation details the process, lessons, and future possibilities of the issues involved with measuring in the midst of change. The measures created as a result of this effort will fill a real void for the profession and assist libraries in their efforts to adequately describe recent trends in library use and usability.

Professor Peter Brophy (Centre for Research in Library & Information Management (CERLIM) and Manchester Metropolitan University, UK) presented the final keynote address in which he gave insightful and well-formulated predictions for libraries in the 21st century. He suggests that libraries are changing so fundamentally that traditional measures adapted to the electronic environment will not suffice. He posits five different, potential models (which will overlap) of libraries in the 21st century and presents suggested measures that could be relevant for each model. Always an original thinker, Brophy’s paper provoked a great deal of interest among the audience and was presented in his usual fluent and entertaining style. It proved to be an excellent note upon which to end the conference since it incorporated many of the themes and issues raised throughout the conference and put them into a new perspective.

The seminar papers from the parallel sessions were rich with contributions and are arranged within these proceedings under the following headings related to the overall conference theme:

• Standards/Strategies and Policies
• User-Centered Measures
• Assessing the Emerging Environment

Within these broader categories, speakers’ presentations explored a wide array of issues, ranging from reports on current significant research projects such as the ARL E-Metrics Initiative and other discussions of measuring the use and extent of a library’s electronic offerings, the meticulously researched Libqual+ instrument and presentations related to service quality for both internal and external customers, results of user surveys both in print and on the web, existing and developing standards, measures for information skills instruction, the importance of impact indicators, building a culture of assessment, determining research library support of sponsored research, and designing user-framed services.

As always, conversation between sessions was lively and engrossing as people shared ideas and reactions. After Peter Brophy’s final keynote speech, the conference concluded with a panel session during which members of the audience were encouraged to bring issues and questions to the attention of a panel of experts or to the entire group for response, which stimulated an interesting exchange of opinions. For those of you who attended this conference, these proceedings will be a reminder of the papers you heard and an opportunity to read the papers you were unable to attend. For those who were unable to attend, they will serve to inform you of research, trends, and developments in the rapidly changing field of performance measurement for libraries and information services.

Researchers and practitioners in the field of performance measurement in the United States were fortunate to have the conference held here in 2001. Now that interested attendees have been able to experience and judge the value of the event for themselves, we hope that they will continue to be involved when the conference returns to its original home location in England for 2003. For further information about the 2001 conference, visit the conference web site at: http://www.arl.org/stats/north/index.html

Please see the announcement following for information about the 5th conference in 2003.

Joan Stein
Head, Access Services
Carnegie Mellon University Libraries
Pittsburgh, PA USA
Announcement

5th Northumbria International Conference on Performance Measurement in Libraries and Information Services at Collingwood College, Durham City, England

28 - 31 July 2003

The Information Management Research Institute of the School of Information Studies, University of Northumbria is once again pleased to announce that the 5th Northumbria International Conference on Performance Measurement in Libraries and Information Services will be held 28th July – 31st July 2003 in Durham City. Collingwood College is set in delightful grounds, a few minutes walk from the World Heritage Site of Durham Cathedral and castle. The Call for Papers will be January 31, 2003 with notification of acceptance by March 2003.

To precede the IFLA Conference in Berlin, Germany
The purpose of this paper is to review European Commission funded performance measurement studies and in particular to report briefly on the outcomes and lessons of the EQUINOX project. Based on this experience and other research in CERLIM, the paper then goes on to examine some models that may be useful in developing our understanding of libraries in the 21st century. Finally some examples of the types of library performance indicators, which might be applied in the future, are suggested.

“Librarianship is a curious profession in which we select materials we don’t know will be wanted, which we can only imperfectly assess, against criteria which cannot be precisely defined, for people we’ve usually never met and if anything important happens as a result we shall probably never know, often because the user doesn’t realise it himself.” (Charlton, quoted by Revill, 1985)

European Commission Performance Measurement Projects

Although the European Commission (EC) had shown interest in the development of performance measurement for libraries as early as the late 1980s, the first significant EC-funded study was one led by De Montfort University in the UK under the title PROLIB-PI in 1994-95 (Ward et al., 1995). The study analysed previous research into performance measurement for libraries, including work by Nancy Van House, Charles McClure and others, and drew up a consolidated list of performance indicators and the datasets needed to calculate them. It was particularly useful because it helped participants in the four subsequent major EC-funded library performance measurement projects - EQLIPSE, DECIMAL, DECIDE and MINSTREL - to focus on developing from a reasonably common, and reasonably advanced, starting point. The four projects were part of the Telematics for Libraries Programme, so software development was also to the fore. There has been more interest in commercialising this product, although negotiations are still ongoing. The project made progress in four areas:

- the EQUINOX software product itself (illustrated in Figs 1 and 2);

Fig. 1: The EQUINOX Software System, illustrating the hierarchy of mission, aims, objectives, performance indicators and datasets
- the publication of an XML DTD designed to resolve interoperability issues between heterogeneous library & information delivery systems and decision support systems like EQUINOX;

- the promotion of quality management approaches. Unlike EQLIPSE, EQUINOX promoted a generalised approach which was not tied to the international quality management standard ISO9000;

- the development of international consensus on a set of performance indicators for the electronic library. In this aspect the project aligned itself closely with ISO activity in the field.

Only the last of these is considered in this paper.

The EQUINOX Performance Indicator Set

As part of the project, EQUINOX convened a number of meetings and project staff held both formal and informal discussions with librarians from all sectors and from across Europe. We also maintained liaison with the work being undertaken by McClure and Bertot in the United States. A draft set of performance indicators was produced in early 2000, and this was refined in further discussions. By the formal end of the project, in November 2000, the set had been reduced to 14 indicators. These are shown in Fig. 3.

1. Percentage of the population reached by electronic library services
2. Number of sessions on each electronic library service per member of the target population
3. Number of remote sessions on electronic library services per member of the population to be served
4. Number of documents and entries (records) viewed per session for each electronic library service
5. Cost per session for each electronic library service
6. Cost per document or entry (record) viewed for each electronic library service
7. Percentage of information requests submitted electronically
8. Library computer workstation use rate
9. Number of library computer workstation hours available per member of the population to be served
10. Rejected sessions as a percentage of total attempted sessions
11. Percentage of total acquisitions expenditure spent on acquisition of electronic library services
12. Number of attendances at formal electronic library service training lessons per member of the population to be served
13. Library staff developing, managing and providing ELS and user training as a percentage of total library staff
14. User satisfaction with electronic library services

The later stages of EQUINOX involved 45 libraries across Europe in the testing of the software tool and of the performance indicator set. Not all libraries were able to gather datasets for all indicators, although all tested some and their experiences with the software tool were uniformly positive. The full results of this work have been published in the project’s formal reports, which are available from the web site (EQUINOX, 2001).

Among the key issues identified from these trials were:

- there is an ongoing tension between demands for performance indicators which describe the situation as it now is, and for those which describe newly emerging services. Because we were aligned with ISO practice, there was pressure to develop indicators which were applicable in the majority of exist-
ing libraries, rather than to move towards entirely new indicators. For this reason, the EQUINOX indicators are designed to be the ‘equivalents’ of established indicators for traditional services.

- from its inception, EQUINOX had taken the view that data collection should wherever possible be automated; indeed this was the motivation for the XML DTD development. However, as had been found in EQLIPSE, library systems are capable of providing only a small fraction of the required data. Much of the most interesting and valuable data cannot be collected in this way - user satisfaction is one example. The balance between using what is available - an example might be number of log-ins - against expensive manual data gathering – interviewing users to find out why they log in (and why they don’t) – is not an easy one to achieve.

- the perennial problem of just what should be counted occupied a considerable amount of our time. This issue had been rehearsed in CERLIM’s earlier work for the UK eLib Programme, and it is worth quoting from that report:

"use of electronic services could be measured by reference to connect time, number of sessions, number of concurrent sessions, number of bits, cost, number of active users or a variety of other factors. Care has to be taken with each of these possibilities, since it is possible that each could be affected by irrelevant and indeed uncontrollable variables. For example, connect time may well depend on network response times outside the control of the individual library, while number of bits could be drastically curtailed if a cache came into use." (Brophy and Wynne, 1998)

As in that earlier work, consensus was reached on the use of sessions as the basic unit, but of course this remains a controversial issue, not least because of differing definitions of session boundaries.

- there are considerable difficulties with interpretation of data and indicators. For example, while there was consensus that an indicator such as “Number of library computer workstation hours available per member of the population to be served” was needed, there was less agreement on its interpretation. For a university such as Carnegie Mellon in Pittsburgh, for example, which has recently announced that the campus is now fully wireless, such an indicator is all but meaningless.

- most importantly, these discussions and debates raised the most fundamental issue of all – just what is a library in the networked age? What should its role be? How is it related to other information providers, aggregators and intermediaries? When we attempt to measure its performance, how do we relate its contribution to the broader environment – of learning, of commerce, of leisure?

**What is a library in the 21st century?**

The networked environment is not simply another issue for librarians to address. It changes fundamentally the whole business in which they are involved. Just a few of the impacts are:

- **Information plethora:** we have moved from a situation of information poverty, where people had to search hard, and needed expert help, to find the information they needed, to one of multiple sources competing for attention coupled with information overload. Far more than in the past, the role of the information intermediary will be to filter and select – to provide less rather than more.

- **Unstable information objects:** a large proportion of the world’s information is now inherently unstable. Unlike print on paper, which has a reasonable life and in any case is held in multiple copies in distributed storage, electronic objects often exist in only one copy, and that copy is changed on a whim. There is no certainty that if I give you a URL the object you discover will be the one I viewed – assuming there’s anything there at all. More and more objects will be created dynamically on demand, so that no two copies will be identical. This situation is entirely different from that which drove the development of traditional libraries.

- **Quality of content is patchy and often unknown:** it is far more difficult than in the past to judge the reliability and authority of any information object. Now that self-publication is so easy, the mechanisms which provided quality assurance of information are breaking down. Libraries have held a clearly understood place in the information chain in the past, but if that chain is shattering, what will their future role be?

- **Services are technically heterogeneous:** there are thousands of different information services available for access by libraries and their users, but they are not like books, which could be shelved, conveniently (even if a special ‘Oversize’ section were needed) in straightforward sequences. They use a wide variety of access protocols, hold data in different formats, respond differently to the same request and
the results they return are frustratingly difficult to integrate into a single service. This is a huge challenge for anyone wishing to use a wide variety of sources to deliver information services.

- Metadata is haphazard and semantically confused: in a world of almost endless information resources, description is all-important and offers the key to effective selection of resources. Yet only a minority of information objects have useful metadata, and even where this is structured it is often semantically confused or ambiguous. Libraries pride themselves on the quality of their catalogues – how do we reproduce this quality in the networked information world?
- Users think they don’t need intermediaries: there is a growing body of evidence that students rarely use library interfaces in their search for information, preferring to go straight to an Internet search engine (in the UK the preference seems to be for Google – at least this is a preliminary finding of CERLIM’s EDNER project, described later). They want some information on their topic, not a comprehensive list; the best is unnecessary if a ‘good enough’ resource can be found quickly and easily. How do services which pride themselves on the quality of their product market themselves to achieve survival in this environment?
- Client access is pervasive and will soon be universal: although the library has an important role in providing access to IT hardware and software at present, this can only be a transitional phase. Internet access via TV sets and mobile devices shows the likely trend. Before very long virtually everyone in developed countries – and this is not to deny the very real, but different, issue in less developed regions – will have Internet access at home or at work or on the move. In time – and the time period will not be all that long – Internet access will be as universal as telephony.

These are merely examples of the issues that we face, but they indicate the scale of the challenge. A step towards meeting that challenge will be to rethink our concepts of what libraries are for and what they do.

Five models of the Library

**MODEL A: THE TRADITIONAL LIBRARY**

This is the library with which we are familiar. It features:

- A physical building which, through its architecture and interior design, is a statement about the values of the institution or community that owns and sponsors the library service.
- Bookstock: carefully selected titles which are organised and presented to meet the likely needs of users.
- Journals and newspapers, enabling users to keep up to date with their areas of interest.
- Inter-library loans, extending the reach of the library beyond its own walls and stock.
- Reference services, designed to provide answers to the questions users pose.
- Friendly and knowledgeable staff, who are the approachable face of the library.
- A welcoming atmosphere, perhaps taking a leaf out of the bookshops’ book by including a modern coffee bar and comfortable seating.

It is important that we do not lose sight of the advantages of this model of the library for the future. People will still need physical places, they will almost certainly want to use some kind of individual, physical information objects for some purposes and they will value the expertise of trained and knowledgeable staff who can help them with their enquiries.

**MODEL B: THE MEMORY INSTITUTION**

In Europe there is an increasing emphasis on the library as a ‘memory institution’, a body – along with museums, archives, galleries etc. – with a responsibility for maintaining humankind’s recorded memory. As Dempsey *et al.* (1999) have written:

“Archives, libraries and museums are memory institutions … Their collections contain the memory of peoples, communities, institutions and individuals, the scientific and cultural heritage, and the products throughout time of our imagination, craft and learning. They join us to our ancestors and are our legacy to future generations. They are used by the child, the scholar, and the citizen, by the business person, the tourist and the learner. These in turn are creating the heritage of the future. Memory institutions contribute directly and indirectly to prosperity through support for learning, commerce, tourism, and personal fulfilment.”

In this description we have another model, which has a resonance with established library activity, but expressed in a different way and starting to pose some interesting challenges. While national, major academic and other libraries have taken on the role of preserving (mainly textual) heritage in the past, the commonalities with the broader ‘memory institution’ arena have not been explicit. Emphases on conservation and preservation, on bibliographic description will remain important. To these may be added the museum sector’s expertise in interpretation.
The challenge of this model, of course, lies in its extension to the world of digital objects. So much of mankind’s memory is being lost that a new emphasis on concerted efforts to preserve, conserve, interpret and make available the historical record is vital. This will take individual libraries away from their sole concern with “their” holdings into community-wide efforts to find collaborative solutions. As this happens, the role of the library will be redefined.

**MODEL C: THE LEARNING CENTRE**

Governments throughout the world are giving ever-increasing emphasis to education and lifelong learning, in recognition that a skilled and educated workforce is a prerequisite for economic well-being and prosperity. Libraries have recognised that, since information resources are crucial to education, they have a contribution to make. It is unfortunate, however, that their rhetoric is sometimes divorced from the reality of the role that they can realistically play. In the UK, for example, there has been talk of the public library as a ‘street corner university’. Such sound-bites display a view of the library which is not only unrealistic but potentially damaging to the co-operative relationships which offer a real way forward. Libraries certainly have a role to play in education, but the model of the library as learning centre, in a networked world, needs much more rigorous analysis than has been undertaken so far.

The issue may be illustrated by reference to a report prepared for the *Formative Evaluation of the Distributed National Electronic Resource* (EDNER), a major UK project that CERLIM is leading. EDNER is funded at approximately $1 million over 3 years and is examining in depth the development of national-level higher education information services in the UK. Our partners in this work are educational researchers in the Centre for Studies in Advanced Learning Technology (CSALT) at Lancaster University. In an early contribution to the project (Goodyear, 2001), the CSALT team noted, in examining development projects designed to extend the use of networked information resources in learning and teaching, that little attention appeared to have been paid to pedagogical issues. I would suggest that that is a finding that might be applied more widely to libraries’ efforts to become learning centres. CSALT’s model suggests that attention needs to be:

- paid to pedagogical philosophy, including:
  - the high level pedagogy – the broad approach being taken, such as a belief in a *Problem Based Learning* approach.
  - pedagogical strategy – the planned actions, which enable tutor and learner to share and develop agreement on what is to be done at a general level.
  - pedagogical tactics – the detailed level, such as how learners are to be encouraged to participate, how tutors will deal with problems and so on.

- associated with an educational setting in which tutors set *tasks*, students undertake *actions* (and note that the actions are often not the same as the tasks set) and there are outcomes – which are sometimes, but not always, learning outcomes. All of this happens within an educational context, which includes but is not limited to assessment regimes, student tutoring systems and other support, and so on.

Added to these issues we need to explore how the concept of the library as learning centre relates to current developments in the area of virtual learning environments (VLEs) and managed learning environments (MLEs). Clearly there is a great deal of work to be done.

**MODEL D: THE LIBRARY AS COMMUNITY RESOURCE**

The fourth model focuses on the role of the library within its own community. In part this is traditional territory, but a number of developments suggest that it could become more critical. ‘Community librarianship’ has a long track record and has made important contributions. This role may be more important in a networked world in two ways: partly by offering a human presence when so much else is virtual; partly by helping create community ‘glue’ in both physical and virtual communities.

One of the limitations of the library’s role in this area in the past has been a reluctance to go beyond ‘information provision’ to the offer of ‘advice’. There have been cogent reasons for this reluctance, not least fears over liability if the advice is mistaken, but it does not fit with community needs. Citizens, particularly those who are disadvantaged, do not want to be referred to a book or even a web page, but want help in understanding the possible answers to their problems and queries and in making informed choices. Librarians may need to form alliances with social workers, counsellors and others to provide the kind of integrated service that is needed.

In the networked world, citizens can also become publishers. CERLIM has recently been awarded a major new European Commission project entitled *Cultural Objects in Networked Environments* (COINE) which will seek to create systems that enable local communities to create their own structured information spaces, which might be termed *MyWorlds* (COINE, 2001). This offers a role for expert institutions, at the local level, which can not only point citizens towards information resources but also help them capture, record and share their own stories. Such interactive systems that pro-
mote involvement may help libraries to secure their future as community resources.

MODEL E: THE INVISIBLE INTERMEDIARY

The final model is perhaps the most important, for it suggests that libraries could forge for themselves a central role in the information society. As has already been noted, the vastness of the ‘information universe’, and its lack of comprehensive organisation, makes information overload and what might be termed ‘information confusion’ serious problems. Organisations are needed which can select from the information universe on behalf of their users – creating their own ‘information population’ by discarding the dross and the irrelevant – and present meaningful descriptions of that information to enable selection and retrieval.

The universe of potential users needs to be treated in the same way: users are ‘registered’ with the service and detailed descriptions are developed. In this case the descriptions will include preferences data, individual interests and so on. In the future the library may need to pay as much attention to maintaining this type of metadata as to that related to information objects – many commercial e-providers already do so.

The library, in this model, acts as an intermediary between user and information, but may be largely invisible – it facilitates meaningful interactions and ‘smoothes the way’ for the user. The model is depicted in Fig. 4, and has been further described in The Library in the Twenty-First Century (Brophy, 2001).

An important issue for libraries is that they are not alone in seeking to fulfil this role. Each library is, to some extent, in competition with others and there are many other players in this marketplace. But libraries do have advantages: they are already trusted as intermediaries, they have vast experience in organising and describing information and they have developed experience of the real issues in the interoperation of heterogeneous information systems in complex environments.

New Performance Indicators for New Libraries

In this final section I want to make some suggestions as to the kind of performance indicators that might be appropriate to the models outlined above. These are no more than indicative suggestions, and much work is needed to define a suitable set, but they illustrate how far we may need to go beyond the performance indicator sets currently available. Briefly:

FOR MODEL A: THE PHYSICAL LIBRARY

We already have a wide range of indicators. As this conference has illustrated, effort now needs to be concentrated on assessing outcomes and impacts, and on quality assessments, which go beyond simple user satisfaction statements. LIBQUAL+ is an excellent example of such work (Cook et al., 2001).

FOR MODEL B: THE MEMORY INSTITUTION

Here we need to assess how well the library is fulfilling the role of preserving and encouraging use of humankind’s memory. We might want to measure:

- The proportion of archival objects, which are archivally secure – conserved in appropriate ways.
- The quality of the descriptive metadata available.
- The number of scholars served per archival item.
- The number of interpretative events (akin to museum exhibitions) per archival item.

FOR MODEL C: THE LEARNING CENTRE

In this case we might want to concentrate on:

- The proportion of ‘events’ designed by or run by the library for which explicit learning objectives exist. (This is akin to the kind of performance indicator that is common in educational institutions, though these days 100% would be required.)
- The proportion of learning outcomes that were successful.
- The proportion of information objects cited in dissertations or essays that were library-supplied.

FOR MODEL D: THE COMMUNITY RESOURCE

Here the concerns might include:

- Market penetration, especially among targeted groups, measured by reference to active participation.
- “MyWorlds” created per member during the last 12 months.
- The user view of the service against its rivals.
FOR MODEL E: THE INVISIBLE INTERMEDIARY

Possible performance indicators might include:

- **Personalisation**
  - The proportion of users for whom personal metadata has been updated in the previous 3, 6, 9, 12 months.

- **Reach**
  - A Conspectus-style measure of the extent of sources to which access may be provided.

- **Information description**
  - The proportion of sources delivered which had 'high level' descriptive metadata.

- **Quality of content delivered**
  - 'Quality' results returned per query.

- **Interoperability**
  - The ability to handle the latest versions of all standards (e.g. full Z39.50).

- **Delivery mechanism of choice**
  - The proportion of cited references in users’ papers, which were accessed via library mechanisms.

**Conclusion**

In this paper, I have reported on the state of research and development in library performance measurement in Europe. I have also suggested that we need to rethink the underlying models of libraries in order to find new and relevant performance indicators for libraries operating in the networked world. I have suggested some examples of the type of indicator which may be appropriate.

In concluding, however, I would also like to draw attention to a problem I alluded to earlier but which will loom ever larger, namely the interpretation of those indicators. The issue is best illustrated by two diagrams. In Fig. 5 there is a depiction of our traditional interpretation of library ‘goodness’ - we assume that the more books issued per user or the more documents delivered, the better the service. This is illustrated by the straight line. But in the networked environ-

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**Fig. 5: ‘Traditional Library’ goodness**

**Fig. 6: ‘New Library’ goodness**
References


Whereas in the more traditional forms of library performance measurement focused on inputs, process and even outputs there is some acceptance of the value of setting base level standards, there has been little research in the field of impacts and outcomes, and no agreement on any form of standards. Research that can provide rigorous evidence of outcomes is needed for managers to make decisions that will maximise the impact of library and information services. Lessons may be learned from the health sector where research into the impact of information on clinical decision-making is being rigorously examined. The Evidence Based Librarianship movement proposes new standards for research that can be applied to outcomes research and also to the extensive work being done on service quality and satisfaction. The paper concludes that consensus on these methodological issues is necessary before consensus on standards for service quality could be promulgated.

Introduction

Library standards have in the past been primarily based on inputs, (financial, staffing resources, collection size) and to some extent on throughputs, or process/effectiveness measures. Consensus on these, to the extent that it exists, (Moorman, 1996) has been based on comparisons of national and local statistics. Manuals of evaluation have recommended the use of outputs to evaluate library performance but output measures are rarely included in sets of standards. As the focus of research on the evaluation of library and information services shifts to impacts and outcomes of library services, and to satisfaction and service quality, the question arises of whether it is feasible, and indeed desirable to set standards in these areas as well.

The difference between the outputs and outcomes of information services, and user satisfaction and service quality is based on the nature of their relationships to information transactions. Outputs are the direct result of the interaction between inputs and process, that is, the transformation of inputs such as books, staff, and facilities into outputs such as loans, enquiries answered, reader education programmes attended. Outcomes are a result of these interactions, events and services. Outcomes are defined by ACRL as “ways in which library users are changed as a result of their contact with the libraries resources and programs” (ACRL College Libraries Standards Committee, 2000, p.175). Satisfaction and service quality also result from interactions, events and services provided by the library. They are indicators of how the customer perceives the transaction and the service they have received, and are therefore a measure of the affective relationships that result from customer responses to these transactions. “For a library, service quality encompasses the interactive relationship between the library and the people who it is supposed to serve.” (Hernon and Altman, 1998). Indeed, Hernon and Altman (1996) go so far as to state that without the basics of service “no higher order outcomes (such as the enhancement of learning, the facilitation of research, or the impact on intellects) will occur.” The relationship between customer satisfaction and service quality is less well defined, service quality being both a component of customer satisfaction and a result of customer satisfaction with the service overall. The impact of service quality and satisfaction on outcomes also needs further exploration.

Outputs have traditionally been evaluated by means of reference accuracy and fill rates, title fill rates, document delivery rates etc. There are well-documented methodologies for evaluating these, and the debate focuses primarily on the unit of measurement and its validity (Van House et al., 1987). Outcomes have proved to be a more difficult area of evaluation, and there is no work to date on standards for outcomes, although there are areas in which it may be possible to provide guidelines and benchmarks for institutions interested in this form of evaluation. The area of service quality and satisfaction has been explored more extensively in recent years, and suggestions have been made concerning the possibility of using results of some service quality studies to set indicative standards of scores that libraries might include in their evaluation and planning procedures. Such proposals will be investigated in this exploration of the question of setting standards in the domains of outcomes and service quality in library and information services.

Output standards

Despite the work of people like Van House on methodology the establishment of both input and output standards for university and college libraries and public libraries has remained controversial. Standards for College Libraries promoted by the ACRL have shifted between quantitative standards sought by practitioners, and qualitative standards advised by ‘the expert testimony’ of a small number of persons respected
within our field" (Parker, 1995). The current standards focus on inputs, outputs and ratios of inputs to outputs benchmarked against comparable institutions (ACRL, 2000). The ACRL has held back from any formulaic approach for university libraries. In both the 1979 standards, and the 1989 version the standards remain qualitative rather than quantitative. “A university library's collections shall be of sufficient size and scope to support the university's instructional needs and support the university's programs” (ACRL, 1979); “… collections should be extensive enough to support the academic programmes offered recognising that there are instances where reliance can be placed on access to other resources … there should be provision for adequate funding for … newly added disciplines…” (ACRL 1989). It is unlikely that the new revision of university library standards currently in preparation will be more prescriptive than this given the shift from collections to electronic services.

The Public Library Association has similarly moved away from prescriptive, input standards that began in 1933, culminating in the Minimum Standards for Public Library Systems (1966) and has refocused library evaluation on overall effectiveness (De Prospo, 1973) and the standardisation of data collection for evaluation across inputs, processes and outputs (Altman, 1976). The current approach focuses on the use of planning procedures (Nelson, 2001) and techniques for measuring service quality and user satisfaction (Hernon and Whitman, 2001) as the main quality assurance procedures. “Individual planning and role setting thus replaced national standards as a way of measuring library services and effectiveness (Moorman, 1997). At state level, however, standards are still focused on resources, hours open and range of services offered because these are needed “when building the case for increased funding in budget discussions with governing bodies.” (Moorman, 1997).

The Citizen's Charter in the UK is still primarily based on input standards, but national standards for public libraries out in draft format (United Kingdom, 2000) include a rather idiosyncratic mixture of inputs (materials expenditure, opening hours, range of services, staffing levels, workstations); services and processes; and outputs (primarily fill rates, and unobtrusive testing of the staff’s and the collection’s ability to answer queries, and user ratings of staff helpfulness). A maximum level (desired standard) is to be set for each where possible and a minimal level at which the Department of Culture, Media and Sport will intervene. Many of these have still to be defined. It seems likely that debate about final maximum and minimum values for a range of services, and for the more complex evaluation procedures will be protracted.

In the academic sector in the United Kingdom, by contrast, most of the focus is on standardisation of data for national databases of input/process statistics, benchmarking of outputs with comparable institutions, and a number of EU projects focusing on new performance measures, including the EQUINOX project on performance measures for the networked electronic environment (EQUINOX, 2000). Most of these focus on input measures (percentage of population reached by electronic library services; number of library workstations available; percentage of information requests submitted electronically; total acquisitions expenditure on electronic library services), or process/efficiency measures (cost per session, cost per document, successful vs rejected sessions). Only one measure relates to the end results—user satisfaction is the last measure listed. It is possible that such a strong focus on inputs is a sign of an immature technology and that later measures will focus more on the actual success of users in retrieving needed information, and the outputs and outcomes of electronic library services.

Controversy therefore still surrounds the question of standards. Lancaster noted some time ago evidence that libraries make greater use of quantitative standards, in particular to obtain resources, than they do the qualitative standards and statements on policy and process that have largely replaced them (Baker and Lancaster, 1991). Despite the difficulties the profession has on many occasions in reaching agreement on such standards, he notes that there is value for the busy manager in having some concrete yardstick against which to measure achievement. It is for most a way of making sense of their world and their activities. Assessing user needs, planning for results, are activities that need to be put in some context, and given some meaning by external standards in some part of the process. Thomas Hennen in American Libraries put this question back on the agenda again last year criticising the profession for moving away from standards, and recommending a move not ‘back’ to basic standards, but forwards to:

i) minimum standards for all public libraries in the US;

ii) advisory, or target standards, possibly pegged to percentiles in performance that all should strive for, even if only a few achieve them;

ii) benchmarks of excellence to be recognised as best practices (Hennen, 2000).

And yet uniform standards for inputs and outputs do not address the diversity of communities, and different roles of libraries in today's world. As Bob Usherwood comments on the new UK standards, they lack “an underlying philosophy” of library service, and the emphasis on measuring quantities rather than the imponderable matters of quality “makes it particularly difficult to rate services to people who are ‘different’ such as ethnic minorities and the socially excluded.” (23 steps, 2000). The question of how to measure quality remains largely unanswered in the draft proposal.
Within the controversy a few common points emerge. We may well be on the way back to standards for input and process measures in libraries. Benchmarking is emerging as a useful form of quality assurance for the more complex outputs, while satisfaction scores and service quality measures may become routine ways of assessing the robustness of relationships between information services and their users, their responsiveness to stakeholders, and their competitiveness in the global digital environment.

Outcome standards

If the application of standards to what are now routine library measures is difficult and controversial, their application to outcomes, themselves still ill defined, is even more problematic. ACRL’s definitions of outcomes, or ‘ways in which library users are changed’ include: academic performance improved by contact with library; library use leading to improved chances of a successful career; undergraduates using the library more likely to succeed in graduate school; students who use the library are more likely to lead full and satisfying lives. These have not been followed up by research, and contain too many other variables and ‘confounding’ factors to enable successful research design. If standards are to be set in the area of outcomes a great deal of work is needed firstly to establish units of data collection, and secondly to examine reasons behind varying results. Well-formulated and rigorously tested research questions and hypotheses are critical for robust results in the field of impact/outcome research. (Hernon and McClure, 1990, p.71-78).

Listing three of her own studies, in medical libraries, corporate libraries and the government sector that are among the few addressing outcomes as a means of demonstrating value to stakeholders, Marshall notes “the success of outcome studies depends largely on the researcher’s ability to identify key activities that are directly related to the quality of a product or service and to create survey questions or focus group that explore the impact of information in these areas” (Marshall, 2000). The ACRL ‘outcomes’ need to be reformatted as researchable and valid questions in terms of Marshall’s and Hernon and McClure’s statements.

Despite the lack of rigorous research, there has been interest for some time in establishing outcomes, impacts and benefits of library services in the tertiary education sector. Powell (1992) summarises a number of earlier studies which attempt to investigate the question of impacts, largely associating library use and library instruction with user’s perceptions of value, but concludes that research to date was inadequate to develop valid, reliable measures of the actual impact libraries are having on their users. Lindauer (1998) identifies important institutional outcomes to which academic libraries contribute, by looking at the standards promoted by the higher education accreditation authorities in various states, and aligning them with library performance measures advocated in the LIS literature. She identifies some specific performance measures which provide evidence of this contribution, primarily output measures, and targets additional dimensions of performance that need to be taken into account in assessing the impact of libraries on institutional outcomes, for example, those favoured by key stakeholders in the institution as identified in Cullen and Calvert (1995), and the impact of a high quality campus networks (McClure and Lopata, 1996). These are summarised into five ‘domains’ in which the teaching-learning library is perceived to impact on institutional outcomes. While these studies provide valuable insights into the overall contribution of the library to educational outcomes none are directly focused on identifying actual measurable impacts on an individual or of individual transactions.

It is in the health sector, where most of the detailed work has been done on the impact of libraries and information on decision-making. The uniqueness of the clinical decision-making role and its independence from management structures, which confuse decision-making in the business sector, make this field a rich source of information about the impact of information provision. There have been a number of studies (Marshall, 1992; Klein, 1994; Burton, 1995) that demonstrate a change in a clinical decision as a result of timely and relevant information provided by an information service, and in some cases a cost benefit in reduced hospital bed stay.

Within the health sector the evidence based medicine /evidence based healthcare movement has resulted in increased scrutiny being given to ‘interventions’ based on bringing recent and rigorously researched information to the clinician at the point of care. Systematic reviews being sponsored by the Cochrane Effective Practice and Organisation of Care Group into the impact of paper - and computer-based information ‘reminders’ on clinical practice show some positive evidence relating to the benefits of information provision (Wyatt, 2000). However, even in the medical context Wyatt was able to find few examples of rigorous research into the impact of information systems to assist clinicians in decision-making. While the medical literature demands as its ‘gold standard’ the use of randomised double-blind controlled trials or at the very least a non-randomised controlled clinical trial for evidence of positive clinical outcomes of an ‘intervention’, researchers acknowledge the difficulty of developing similar methodologies which can demonstrate the impact of information ‘interventions’ in clinical processes, taking into account a range of variables impacting on clinical decision-making and eliminating bias in evaluating outcomes.

The value of health information impact research has been recognised in our own sector; rigorous methodologies from health research are being recommended.
in the LIS sector to try to produce clearer evidence of impacts and outcomes. Hernon and McClure indicated in 1990 the significance of randomised trials to provide more reliable evidence of the outcomes of providing information to groups of library users (Hernon and McClure 1990, p. 71) although they acknowledge that randomisation of subjects to control and experimental groups is not always feasible in the library context, especially in applied rather than pure research contexts (Hernon and McClure 1990, p.83). Only in the area of information literacy research have there been studies that employ randomised or case-controlled trials of the impact of the intervention, although ‘blinding’ procedures in assessing outcomes are not generally employed.

More recently medical librarians in the United States and UK have formed an Evidence-Based Librarianship Implementation Committee whose first task is to define the “the most relevant and answerable research questions facing the practice of health sciences librarianship” and then to develop protocols for evaluating the validity and reliability of the evidence available from research, for developing practice guidelines and disseminating research results. Eldredge notes that this would require a shift in research methods from a theoretical approach based on history and philosophy, and methods derived from management and social sciences towards the more rigorously tested research designs of the health sciences, and in particular clinical medicine. The model is based on the wider range of methodologies encompassed by the Evidence-Based Health Care movement, rather than Evidence-Based Medicine with its disease-based model and insistence on RCT’s as the ‘gold standard’, and argues for a “few intentional variations from the standard EBM approaches.” (Eldredge, 2000, p. 290). Eldredge’s proposed model for EBL, which seems likely to be accepted at the forthcoming EBL conference at Sheffield in September 2001, includes seven principles that include the following statements: “EBL supports the adoption of practice guidelines and standards developed by expert committees based on the best available evidence, but not as an endorsement of adhering to rigid protocol.” “In the absence of compelling reasons to pursue another course EBL adheres to the hierarchy (or levels) of in Table 2 [see below] . . . for using the best available evidence, lending priority to higher levels of evidence from the research.” (Eldredge, 2000).

Like Evidence Based Medicine which suggests that ‘expert opinion’ and ‘standard practice’ are insufficient bases for clinical decision-making because they often lag far behind current best evidence, and that clinical pragmatism must be accompanied by evidence systematically gleaned from rigorously conducted research EBL allows for the application of pragmatic professional experience alongside a systematic review of the best research available as judged by a consensus of professional opinion on the appropriate criteria to apply to assess what ‘the ‘gold standard’ is for LIS research.

The levels suggested by Eldredge, based on the ability of the research design to eliminate bias, form a hierarchy of value:

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<th>Levels Suggested by Eldredge</th>
<th>Methods</th>
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<td>Systematic reviews of multiple rigorous research studies,</td>
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<tr>
<td>Systematic reviews of multiple but less rigorous studies (e.g. qualitative)</td>
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<td>Randomized controlled trials</td>
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<td>Controlled comparison studies</td>
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Library research, he notes, is focused on case studies, descriptive surveys and qualitative research. As methodologies in these areas improve, eliminating potential sources of bias and ‘confounding variables’ these methods may move to higher levels of evidence. Confounding variables in medicine include anything from aspects of a subject’s lifestyle, diet, to other medications. In evaluating the outcomes of library and information services on specific experimental subjects these might include previous educational experience, educational programme engaged in, intellectual ability, learning style etc. Research designs that can control for such variables will be needed to establish the outcomes of library services as evidence.

Formulation of a researchable question, as Marshall notes, is the first hurdle. Just as it is extremely difficult in the health sector to ascertain changes in the health status of a population due to specific interventions without extensive longitudinal studies, but it is possible to demonstrate with a sufficiently rigorous research design the impact of a specific clinical intervention on a smaller population. We too need to lower our sights to specific outcomes that can start to build up a picture of overall impact. This can be done by testing the impact of specific interventions (e.g. research designs that I am currently working on will attempt to assess the impact on clinical decision making of training and desk-top access to Medline supported by no-cost document delivery, compared with access to Guidelines and protocols), but confounding variables such as clinical decision-making styles, and existing information-seeking behaviour of the clinicians involved are problematic.

Theoretically, testing a new information service involves the use of large samples and random allocation of subjects to the test and control groups, pre-testing to identify confounding variables, and using some form of a ‘blinding’ procedure in assessing impact, in order to avoid bias, but RCTs are not always ethically and operationally possible to apply in library settings (as Hernon and McClure noted 1990, p.80). Case/control group
comparison studies are more feasible and may represent a level of rigour that is an acceptable ‘gold standard’ within our profession. Assessing the outcomes of existing services may require the use of comparative studies between institutions serving similar constituencies (i.e. cases defined according to dependant and independent variables) but offering clearly identifiable variations in service in order to test for impact on some of the outcomes listed by Hernon and Altman (1996, p.2) most notably, the use of library materials by both faculty and students in their work, corrected for other variables such as information use related to the discipline, intellectual ability, study habits etc.

Nigel Ford and Andrew Booth suggest that as well as lacking the RCTs and other rigorous studies to provide the necessary evidence for EBL, our literature is not structured adequately (lacks systematic abstracts, and index terms that enable searchers to retrieve well conducted studies), and that we do not as yet have a body of systematic reviews such as are found in the Cochrane Library (which includes five databases of reviews and protocols). A focus on the highly structured research question (the outcome of a specific intervention in a controlled population) that informs medical research and retrieval of the results of research using similar questions is necessary to produce a body of systematic reviews that could be used for library decision-making. This again would necessitate the development of consensus on the criteria that should be applied to both quantitative and qualitative research that could be used as ‘evidence’ for informed problem solving and decision making.

The application of these ideas to the development of standards in relation to the outcomes of library and information services suggests that:

i) standards that are to be applied across the sector for evaluation must be based on consensus concerning the value and relevance of rigorous empirical research;

ii) there are few soundly conducted impact/outcome studies that there is no body of knowledge on which to base standards;

iii) that consensus on the criteria for research would be a welcome first step in this direction;

iv) that given the difficulty of designing randomised controlled trials to evaluate the impacts/outcomes of information services, a consensus of expert opinion might agree on comparative control vs case studies, as long as methodologies were able to demonstrate that the design would reduce bias and correct for confounding variables in assessing the outcomes.

Standards in service quality/satisfaction

Finally we turn to the question of service quality and satisfaction, measures of the strength of the relationship between the various component parts of an information service and its consumers, and the question of establishing standards in this area.

There are a number of ways of measuring both satisfaction and service quality. Two approaches which are currently dominating practice in the evaluation of library and information services in North America if not elsewhere are Peter Hernon’s customer-focused manuals for the ALA on satisfaction and service quality (Hernon and Altman, 1996; Hernon and Altman, 1998; Hernon and Whitman 2001) and applications of the SERVQUAL instrument from the quality of service model of Zeithaml, Parasuraman and Berry (1990) in the ARL/Texas A&M trials of the LIBQUAL+ instrument. A number of other applications of the SERVQUAL instrument in libraries are referred to in Nitecki (1998) and Cullen (2001).

Hernon’s approach to the question of standards in the field of satisfaction and service is based on his understanding of service quality as a multidimensional construct, which encompasses the content of the service (the materials, information or study space sought by the customer), the context (the experience of the user, interactions with staff, comfort of facilities etc.), and other dimensions such as the customer’s expectations of service on that occasion, and any gap between those expectations and their perceptions of service, again on that occasion. However, as we noted above, satisfaction with individual encounters contributes to overall perceptions of service quality. It is also a result of the combined impact of these encounters that contribute to an overall level of satisfaction with the service in its entirety. Similarly, perceptions of service quality and satisfaction may be individual and collective leading to the overall reputation of the institution (Hernon and Altman, 1998; pp.8-9).

It is clear that these complex relationships between attributes of the service and attributes of users as individuals and members of multiple constituencies are on a quite different dimension from the impacts/outcomes examined above. However, these relationships form the basis of the organisation’s success in the marketplace and should form the focus of evaluation in the context of library planning and decision making. Commitment to customer satisfaction and service quality involves ascertaining local customer needs and preferences, prioritising organisational activity in line with these and ascertaining how well these expectations are met. A variety of qualitative and quantitative research methods and analyses of institutional data that can be used to provide this information are outlined. A modification of the SERVQUAL instrument, explored in more detail in Hernon and Calvert (1996) and Nitecki and Hernon (2000) is included in the methods described.
as an economical way of gathering data on expectations and perceptions of service delivery in the same instrument.

In this framework the role of standards belongs in the domain of inputs, processes, and some outputs, and need to be clearly communicated to the customer (Hernon and Altman (1996) quote an example from Wright State University Libraries Mission Statement). They are set for specific services by individual institutions in response to customer expectations (not necessarily unrelated to activities of other institutions and recommended professional standards where these exist). The focus is on the multiplicity of customer needs and expectations and the commitment to prioritising resources and focusing on whichever of these is deemed to be most crucial to the organisation’s mission.

The quality service model of Zeithaml, Parasuraman and Berry (1990) provides the framework for the SERVQUAL instrument that attempts to capture some of this complexity with its measurement of customer expectations and response to 20 or more aspects of service delivery. The model itself is based on five ‘gaps’ that may lead to poor quality of service. These ‘gaps’ are analyse the discrepancy between: customer expectations and management’s perceptions of these expectations (gap 1); management’s perceptions of customer expectations and service quality specifications (gap 2); service quality specifications and actual service delivery (gap 3); actual service delivery and what is communicated to customers about it (gap 4); customers’ expectations of service and perceived service delivery (gap 5) (Zeithaml, Parasuraman and Berry, 1990). Results from multiple applications of the original SERVQUAL instrument which was designed to analyse gap 1 showed that customer responses could be factorised around five ‘dimensions’ of service quality: tangibles, reliability, responsiveness, assurance and empathy. These dimensions represent the robustness of the institution’s relationship with its customers on each aspect of service quality. Factorisation of the SERVQUAL scores derived from applications of the method in libraries has not consistently loaded on these five dimensions of service quality as some form of standard, or indeed to attempt to set standards in relation to SERVQUAL methodology. Is it possible to set valid and reliable standards for what are essentially measures of relationships?

SERVQUAL is essentially a diagnostic tool that attempts to determine the robustness of the relationship between an organisation and its customers along several dimensions. Damage to this relationship can be detected by the instrument and remedial action taken. It has value for longitudinal comparisons rather than inter-institutional comparisons, and any proposal to focus on a single measure would have to be treated in this context. Tentative suggestions concerning the ‘meaning’ of SERVQUAL scores that might indicate the extent of damage to the customer relationship along the five dimensions are reported in Cullen (2001). However, these relationship issues are unique to each individual institution, and examination of scores on each individual item is needed to ascertain where the problem lies, and what the remedy might be.
However, the quality service model of Zeithaml, Parasuraman and Berry (1990) explicitly allows for both organisational, and industry-wide specifications and standards for service quality and we should perhaps explore these in more detail before transforming the SERVQUAL instrument into something it was never intended to do. Investigation of potential remedies may involve investigations exploring the disparity between customer expectations, service quality specifications and actual service delivery — SERVQUAL gaps 2 and 3, using past research in areas such as reference service, focusing on known parameters of success in the reference interview (Cullen, 2001). An investigation of the impact on customer perceptions of service quality when setting individual standards for specifics of service delivery such as turn around times, document delivery times etc. (Hernon, 1996) or material fill rates as in the UK draft standards. There is more potential in using past research, and developing rigorous new research to establish industry specifications or standards for service quality that could be incorporated into a quality service model rather than attempting to transform the instrument itself, a diagnostic tool, into an industry standard.

Secondly there are continuing concerns about sampling methodologies and response rates in most SERVQUAL studies that are not completely allayed by the cogent arguments of Cook, Heath and Thompson in two other papers they distributed at the ARL Symposium “Measuring Service Quality” in October 2000 (Thompson, 2000; Cook, Heath and Thompson, 2000). Use of the web as a mechanism for delivering the SERVQUAL/LIBQUAL+ questionnaire highlights many of these issues concerning: the robustness of the instrument; the need to increase response rates and ensure the integrity of the responses; to ensure the research sample matches user population profiles in more aspects than role as faculty or student, and also reflects the ethnic diversity, socio-economic status, gender, educational background; and other issues (confounding variables) known to affect web based research, and which may also impact on library use and therefore perceptions of service quality. The Texas A&M team are to be congratulated on raising these methodological issues concerning their project so extensively but they have not yet been debated openly within the profession, and they must be. A far broader consensus on these questions is necessary before, as Eldredge notes, we can have confidence in the ‘evidence’ produced by this sector of research, and find some way of relating measures of service quality to measures of outcomes that will throw light on these problematic relationships.

In conclusion, it may be appropriate, and indeed timely to move back (or forwards as Hennen suggests) to standards for inputs, and possibly even process/eiciency measures, and some outputs. These can be useful management tools, and are valued by accrediting bodies. But they must be based on empirical research, as well as benchmarking with comparable institutions, and ‘expert opinion’ based on long experience. The maximum and minimum measures in the draft UK public library standards will need to be based on the same three factors. Our main endeavour here is to ensure that there is room for professional judgement, diversity and a sound empirical base for data collection. Other approaches to standards may be necessary in the more complex areas of relationships such as service quality and satisfaction, or outcomes where there is potential for confounding variables (e.g. cultural, and cognitive characteristics of users) or bias that can invalidate results. A first step would be to reach consensus on what kind of evidence we will accept in our profession as providing the benchmark we will use as our ‘gold standard’. Do we agree on the levels being set in the EBL group? Will we make a professional commitment to research at this level in order to enable to move more confidently to that ‘gold standard’ that fits our context and our needs?
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Introduction

This paper examines aspects of strategic planning and management and explores ways in which evaluation can be integrated with the wider context.

The terms *policy* and *strategy* are closely related, and in some cases are used interchangeably. I follow Allen & Wilson (1997) and distinguish between them. *Policies* provide the principles for courses of action. *Strategies* define the means of implementing courses of action.

A more formal definition of strategy can be found in the literature of management. *Strategy* is the *direction* and *scope* of an organisation over the *long term*: which achieves *advantage* for the organisation through its configuration of *resources* within a changing *environment*, to meet the needs of *markets* and to fulfil *stakeholder* expectations. (Johnson & Scholes, 1999, p.10).

This definition sounds as if it were designed for commercial organisations, but the same basic concepts apply in the kind of public sector and not-for-profit organisations for which many librarians work. We all have stakeholders, and like it or not, libraries and information services of all kinds are competing with other units and organisations to meet the needs of markets, which can be defined as potential users. We can readily see that this definition of strategy adapts to ‘organisations’ such as local and national governments.

Note the words highlighted in *italics*. It is something of a paradox that strategy is generally defined as “long term” when the political reality is all about the short term.

Strategy operates at several levels, and we can distinguish at least three of these:

- **Organisational strategy** is about the overall purpose and scope of the organisation.
- **Business strategy** is about competing successfully in a specific market. A *business unit* is part of the organisation for which there is a distinct external market for goods or services. In the public sector, the equivalent of a business unit might be a part of the organisation or service for which there is a distinct client group.
- **Operational strategy** is all about the deployment of people and other resources to deliver the higher-level strategies.

Most librarians operate at the level of the operational strategy, and so it is not surprising that most of the literature of performance measurement is at this level. All the manuals and standards are directed at defining and using evaluation at the operational level. There are examples of ways of taking a more holistic view. In 1995 we read:

‘Performance indicators are designed to give a fully rounded picture. Therefore any judgement [of a library] must take indicators from each aspect of performance [since] these aspects are interrelated.’ (Joint Funding Councils, 1995)

More recently the balanced scorecard technique has become recognised as a more universal statement of the same concept and has had some application in libraries (Pienaar and Penzhorn, 2000). This paper is not a review of methods, but the added value approach also has some potential for evaluating achievement of strategies. (Karunaratne, 1978; Ford, 1989; Hudson, 2000; MacEachern, 2001).

As has been pointed out (Willemse, 1995; Cullen 1998), operational indicators are usually defined by librarians, and their acceptance by funding bodies at higher levels has been difficult to achieve. I believe that the reason for this is that we have not been very good at relating library activities to the higher-level strategies - business or organisational. I want to explore ways in which we might do that.

What then are the strategic uses of evaluation and performance measurement? It is clear that they can be used in two ways: firstly to assess the achievement of strategy and secondly to influence the development of strategy.

Assessing strategic outcomes

First, then, some examples of strategy to illustrate how evaluation and performance measurement is, or might be, used to assess the achievement of strategies. These come from a number of levels. In decreasing order of generalisation, they are

- Supranational
- National – government
- Library sectors
- National
Typically a university librarian is presented with an outward facing mission statement like the following:

The University is committed to excellence in teaching and learning within an environment of internationally recognised research. (University of Bristol, 1998, p. 1)

This is translated into a series of strategic goals or objectives, which give some clues as to how we might go about fulfilling the mission. What are the indicators of performance that enable the librarians to determine whether they are contributing effectively to the university strategy?

‘Unless we can show how a library contributes or does not contribute…to the educational life of its market, the library manager is inevitably in a weak position vis à vis his academic colleagues’ (Xavier, 2000, p. 27).

My suggestions for evaluating the library’s contribution to the university strategy are shown in Table #1.
<table>
<thead>
<tr>
<th>University Strategic Objectives</th>
<th>Library Objectives</th>
<th>Activities (examples)</th>
<th>Outcomes (???)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhance its status as an internationally recognised research university</td>
<td>Maintain and improve status as a research library</td>
<td>Build extension to main library. Adequate funding to support academic research programme</td>
<td>Research collections attract staff and students. External funding received</td>
</tr>
<tr>
<td>Provide excellent teaching at all levels</td>
<td>Meet expanding demands for provision of support of teaching and learning</td>
<td>Electronic reserve collection of teaching materials. Targeted services for part-time and distant learners.</td>
<td>Happy students. Alumni donate money for library</td>
</tr>
<tr>
<td>Produce graduates who are adaptable and alert to the benefits of lifelong learning</td>
<td>Students trained in information skills</td>
<td></td>
<td>Alumni reporting value of information skills training</td>
</tr>
<tr>
<td>Give greater emphasis to growth in postgraduate student numbers, particularly research students</td>
<td>Improve services to postgraduate students</td>
<td>Extended opening hours in vacations</td>
<td>Happy graduate students</td>
</tr>
<tr>
<td>Maintain a balance of basic, strategic and contract research</td>
<td>Improve capability to support research</td>
<td>Adequate budget to maintain access to journals</td>
<td>Happy academic staff</td>
</tr>
<tr>
<td>Promote interdisciplinary research both within itself and with other institutions</td>
<td>Co-operate with other libraries to support research</td>
<td>Free access for external researchers. Co-operative acquisitions with other local universities</td>
<td>Happy researchers</td>
</tr>
<tr>
<td>Recruit and retain excellent staff and improve their effectiveness through training and development</td>
<td>Recruit and retain excellent staff and improve their effectiveness</td>
<td>Programme of transferable skills training for all library staff. Increased involvement in development and research</td>
<td>Competent and adaptable library staff</td>
</tr>
<tr>
<td>Optimise the use of resources to improve the working environment and range of services for students and staff</td>
<td>Seek ways to improve efficiency and co-operate with other sections of the University to develop information services</td>
<td>Close links with Computing Service and Education Technology Service to develop managed learning environment and hybrid library</td>
<td>Services perceived as ‘joined up’ by users</td>
</tr>
<tr>
<td>Improve the quality of the environment for the people who live and work in the University and for the wider community</td>
<td>Improve working environment</td>
<td>Ergonomic workstations for all Air conditioning fixed</td>
<td>Happy library staff and users</td>
</tr>
<tr>
<td>Achieve a level of income, which will allow for balanced growth, adequate capital investment and provide a sound financial base</td>
<td>Increase ability to generate income</td>
<td>Level of income achieved</td>
<td>Happy administrators</td>
</tr>
</tbody>
</table>

Table 1: Library performance related to university objectives

---

Outcomes (???)

- Happy students
- Alumni donate money for library
- Alumni reporting value of information skills training
- Happy graduate students
- Happy academic staff
- Happy researchers
- Happy library staff and users
- Happy administrators
One of the strategies of the university is to maintain its profile as a research-intensive university. Can we demonstrate at all that anything to do with library services has any impact on the research quality? In the United Kingdom every 4 or 5 years there is a Research Assessment Exercise, in which publicly funded universities are required to take part. The outcome of this exercise leads to a series of scores: each university is assessed on the research quality in each of its subjects researched, and for a period of 4 to 5 years after the exercise the government funding to those universities is determined in part by the results of the exercise. By adding the scores on each subject together for each university, we can get an overall score for the research quality of the university. We can then plot this against almost any input or output relating to library services. Whether by chance or not it turns out that there is a clear correlation between use of the ISI databases and the research assessment scores (East, 1997). There is then perhaps an argument to use this indicator strategically to justify the continued subscription to ISI databases or to suggest, if they don’t already subscribe, that funds should be made available in order to boost the chances of a university in gaining better research scores.

**Public libraries**

A survey of UK public libraries has shown that a majority were engaged in community development work, but in only a minority of cases was there a formal strategy (McKrell and others, 1997). The majority were monitoring their effectiveness in this area, but there is not enough detail in the survey to show how this is being done: a list of comments gives pointers to places where further enquiry would be fruitful. A more complete example was described at the second Northumbria Conference (Giappiconi, 1998). I have extracted some information to illustrate my general point (Table 2). Those who have visited the public library at Fresnes (France) will appreciate that Thierry Giappiconi has certainly been very effective in attracting funds to develop library services there.

<table>
<thead>
<tr>
<th>Community Strategic Objective</th>
<th>Library Goal (example)</th>
<th>Performance Indicator (example)</th>
<th>Outcome (???)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encourage reading and development of the book and literature</td>
<td>Support, stimulate and extend school work in reading training</td>
<td>Number of books borrowed per user aged 6-14 years</td>
<td>Literate population</td>
</tr>
</tbody>
</table>

**National Libraries**

Some national libraries are examples of a rare breed: libraries which are not part of larger organizations, but whose purpose in life is just to exist. It is not quite so simple, because they do have to get funding from government sources. The Library of Congress has become a national library by stealth: it was designed as a library for the United States Congress, but its mission reveals the truth:

The Library’s mission is to make its resources available and useful to the Congress and the American people and to sustain and preserve a universal collection of knowledge and creativity for future preservation (quoted in Davies, 2000, p. 167).

The Library adopted a strategic plan in 1997, but the Annual Report of the Librarian for 1998 does not give the main headings of the strategy, nor does it specifically identify achievements related to the plan. There are a few numbers that can indicate how well the overall mission is being met (Table 3).

<table>
<thead>
<tr>
<th>Mission</th>
<th>Measure</th>
<th>Staff</th>
<th>Transactions/staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make resources available to Congress</td>
<td>&gt;560,000 requests</td>
<td>714</td>
<td>Approx. 800</td>
</tr>
<tr>
<td>Make resources available to American people</td>
<td>&gt; 1.1 million enquiries</td>
<td>765</td>
<td>&gt;1440</td>
</tr>
<tr>
<td>Make resources useful</td>
<td>&gt;2 million items used</td>
<td>1189</td>
<td>&gt;2625</td>
</tr>
<tr>
<td>Sustain &amp; preserve universal collection</td>
<td>Ca 3.8 million items acquired, discarded, preserved, etc.</td>
<td></td>
<td>Ca. 3.200</td>
</tr>
</tbody>
</table>
One strategic aim that is mentioned in the Annual Report is that determining costs of processes is a high priority, so we might expect future reports to show some scrutiny of the numbers in the final column.

There is no question that the British Library is meant to be a national library. It is now in the middle of a period of rapid change and strategic development. It has long been known as an international research library of world renown with major collections available to anyone who needs to use them. It is perhaps interesting to look back at an earlier strategy. The National Lending Library (NLL), now part of the British Library, was originally established to increase the availability of scientific and technical literature in the UK. The strategy to achieve this had two dimensions: coverage, and speed of supply. There is some independent evidence of the impact that the Library had on the speed of supply. In 1958-59, the median supply time for interlibrary loans to UK university libraries was 10 days (Mackenzie, 1960). This was before the NLL had got into its stride. Fifteen years later, by which time the NLL had become the major supplier of interlibrary loans, the median supply time had come down to 6 days (Barker, 1974).

The British Library has recently issued a document outlining its new strategic directions, defining its main and enabling strategies with illustrative outcomes. Table 4 gives some examples of headings in the strategy and my suggestions as to how these might be measured.

I should stress that these are only illustrations. The Library commissioned a study to clarify relationships with university libraries, which made some recommendations about the kind of performance regime that would be required (Office for Public Management, 2001). The strategy to increase co-operation with other institutions has been made operational, in part, through the Co-operation and Partnership Programme and funding is available to develop co-operative programmes with public libraries and academic libraries. The resonance with government policies (see below) is shown through the initial call for proposals, which was to work with public libraries to widen access to collections and to support lifelong learning.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Possible Performance Indicators (examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Collection building strategy</strong></td>
<td>% of UK publications available</td>
</tr>
<tr>
<td>Ensure improved coverage of the UK national published archive</td>
<td>% of UK digital publications available</td>
</tr>
<tr>
<td>Increase collecting of digital materials</td>
<td>% of non-UK publications available nationally</td>
</tr>
<tr>
<td>Develop greater collaboration with other libraries</td>
<td>% of searches of OPAC that find items that are in the catalogue</td>
</tr>
<tr>
<td><strong>Access strategy</strong></td>
<td>% of visitors who enjoy</td>
</tr>
<tr>
<td>Make the library’s collections more accessible to users</td>
<td>the median supply time had come down to 6 days (Barker, 1974).</td>
</tr>
<tr>
<td>Extend opportunities for enjoyment</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Policy values (Overman and Cahill, 1990, reported in Rowlands, 1997b)</th>
<th>Government information principles (from Carbo, 1997)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access and freedom: people need to be well informed</td>
<td>Convenient access to all government information;</td>
</tr>
<tr>
<td>Privacy</td>
<td>Services accessible to all persons</td>
</tr>
<tr>
<td>Openness: the right to know about decision making processes</td>
<td>Safeguard privacy</td>
</tr>
<tr>
<td>Usefulness: fit for purpose</td>
<td>Education and training in rights and responsibilities</td>
</tr>
<tr>
<td>Cost and benefit: reconciling commercial interests with the public interest</td>
<td>Ensure quality, integrity and appropriate preservation and archiving</td>
</tr>
<tr>
<td>Secrecy and security</td>
<td>No charge on the superhighway widest possible cost-effective dissemination</td>
</tr>
<tr>
<td>Ownership: intellectual property rights, and reconciling commercial interest with the needs of individuals</td>
<td>Ensure security</td>
</tr>
<tr>
<td></td>
<td>Private sector to provide value-added information and services</td>
</tr>
<tr>
<td></td>
<td>Consultation with all interest groups</td>
</tr>
</tbody>
</table>

Table 5: Information policy values in action
National strategies

Now, to turn to the context within which libraries operate: national and supra-national information policies and strategies. We must ask the question - What are strategies at this level for? Are libraries and information services self-evidently Good Things, so that the purpose of a national strategy is to nurture and sustain them? After all, "...survival... is itself an index to majority opinion" (Orwell, 1947), and libraries have certainly survived. Perhaps we can get some clues from looking at how things work now, whatever the situation may have been in the past.

It is my impression, looking from outside, that there have always been visions of national information policies in the USA. Perhaps this is because there has been for a long time now a government agency, the National Commission on Libraries and Information Science, responsible for advising the President and Congress on policy. Overman and Cahill (1990) described the values that underpinned US Federal activities in the information policy area over several decades. We can illustrate the application of these values by reference to the Clinton-Gore administration’s vision of the “information superhighway”. Carbo (1998) has described the development of the policy on the National Information Infrastructure, giving the strategic overview. The ‘Government information principles’ she describes map so neatly on to the values (Table 5), that it looks as if the original analysis by Overman and Cahill did indeed identify the fundamental values.

So, the strategy for developing the US National Information Infrastructure is underpinned by some fundamental values. These values can be considered to reflect the interaction between two dimensions of information policy. One dimension is about the flow of information, and the other is about value. These dimensions can be illustrated in a 2 x 2 matrix (Table 6).

Returning to the strategy for developing the US National Information Infrastructure, the five fundamental goals of the strategy can be summarised as to:

1. Make information technology work to advance American values: this covers the top half of the matrix - mainly Citizenship, but also cultural identity in the Protectionism box.
2. Use information technology to build stronger communities: Citizenship.
3. Enable everyone to participate: the left hand side, Citizenship and Consumer Choice.
4. Ensure that everyone takes responsibility: Citizenship and Protectionism
5. Maintain world leadership in developing the Information Superhighway: Competitive Advantage.

Supra-national

The European Community has had a number of strategies related to libraries and information services over the years, and Oppenheim (1998) has provided a useful summary, albeit now outdated. The latest initiative is to promote the development and use of European digital content on the global networks - E-content. This will focus on the market implementation of Europe’s content potential and not on the technological aspects of the global networks. The strategic objectives are to:

• improve access to and use of public sector information
• enhance content production in a multilingual and multicultural environment
• increase dynamism in the digital content market

Table 6: Mapping the information policy construct (from Rowlands, 1997a)

<table>
<thead>
<tr>
<th>INFORMATION FOR CITIZENSHIP</th>
<th>INFORMATION PROTECTIONISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>open, unrestricted information flows</td>
<td>closed, restricted information flows</td>
</tr>
<tr>
<td>• Free public libraries</td>
<td>• data privacy</td>
</tr>
<tr>
<td>• Internet</td>
<td>• censorship</td>
</tr>
<tr>
<td>• Freedom of information</td>
<td>• national security</td>
</tr>
<tr>
<td>• Access to democracy</td>
<td>• commercial secrecy</td>
</tr>
<tr>
<td>• Advice services</td>
<td>• cultural identity</td>
</tr>
<tr>
<td>• Legal deposit</td>
<td>• national champions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INFORMATION FOR CONSUMER CHOICE</th>
<th>INFORMATION FOR COMPETITIVE ADVANTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>freedom of the press</td>
<td>Intranet</td>
</tr>
<tr>
<td>the mass media</td>
<td>competitive intelligence</td>
</tr>
<tr>
<td>universal service</td>
<td>patents</td>
</tr>
<tr>
<td>public-private synergy</td>
<td>intellectual property rights</td>
</tr>
<tr>
<td>charged library services</td>
<td>market research</td>
</tr>
<tr>
<td>infotainment</td>
<td>consultancy</td>
</tr>
</tbody>
</table>
Overall, the strategy seems to fit into the matrix already described above (Table 6) but the difficulties in evaluating it are clear. Taking the first of the objectives, how do we measure access to public sector information now? Can we operationalise that concept to define a metric that will still be valid after that information has been made available electronically? The concept of “improving access” has more than one dimension. One dimension means, “increasing the range of information that is available on the Internet” and that is relatively easy to quantify. Another dimension is “the time taken to get information”. Do we have a benchmark now for this metric, and when we have digitised everything, how will we normalise the metric to allow for the fact that not everyone has access to the Internet from his or her home?

Social quality

The analysis so far has still failed to answer the question, “What are high level strategies for”? The concept of social quality may be useful. This has been defined as:

‘The extent to which citizens are able to participate in the social and economic life of their communities under conditions which enhance their well-being and individual potential.’ (Beck and others, 1997, page 3)

The dimensions of social quality show how a government might adopt policy aims that were intended to increase social quality.

Socio-economic security: the way in which essential needs of citizens are fulfilled by systems and structures for welfare provision.

Social inclusion – the principles of quality and equity and their structural causes.

Social cohesion – the processes surrounding social networks and infrastructures.

Empowerment – enabling citizens to develop their full potential.

Since some of these dimensions are potentially mutually in opposition in regard to outcomes, it is necessary to use them as a sort of balanced scorecard involving all processes and outcomes to get an overall view. Berman & Phillips (2001) have applied this model to the information context and have illustrated the concept with some information indicators at various levels. Table 7 gives the framework for the Empowerment element.

The UK government and its agencies have been quite active in supporting libraries recently and their policy agenda can be interpreted in terms of the dimensions of social quality (Table 8).

The initiatives for public libraries are steaming ahead, and keeping track of all these initiatives is a major task for a non-specialist. One of the more

### Table 7: Information indicators for the nation-state (extracted from Berman & Phillips, 2001)

<table>
<thead>
<tr>
<th>Element of Social Quality</th>
<th>Input</th>
<th>Process</th>
<th>Outcomes</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empowerment</td>
<td></td>
<td>Accessibility of information sources and participation in networking.</td>
<td>Achievement of informational competencies and capabilities.</td>
<td>Self-reported, subjective evaluations of personal empowerment and quality of life achieved through use of information resources.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Use of information in daily life.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact</td>
<td>Self-reported, subjective evaluations of personal empowerment and quality of life achieved through use of information resources.</td>
<td></td>
</tr>
</tbody>
</table>

### Table 8: Social quality and UK library and information strategies

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Strategies relevant to libraries</th>
</tr>
</thead>
</table>
| Socio-economic security | • National Grid for Learning (networking schools)  
• People’s Network (networking public libraries)  
• SuperJANET (networking higher education)  
• New Opportunities Fund (digitisation of content)  
• Distributed National Electronic Resource |
| Social inclusion | • National curriculum - key information skills for children  
• IT training for teachers  
• IT training for public library staffs  
• eLib - Netskills training materials (for librarians) |
| Social cohesion | • Freedom of information legislation  
• Electronic delivery of government services |
| Empowerment | • most of the above |

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Fourth Northumbria
The unusual features of this group of strategies is that evaluation of achievement is ongoing. There is a database of indicators on the web, NETbase, where we have measures and indicators of performance relating to network infrastructure, training and staffing, content and service developments, networked services policy and collaborative working. Table 9 illustrates some of the relevant indicators.

It is perhaps significant that the director of the network project is Chris Batt, who was a member of the Public Libraries Research Group, one of the groups that had a lot of influence on the development of a performance measurement culture in UK libraries.

Public library standards

In carrying these policies through to realisation, the present UK government, while giving the kind of political support to public libraries that has been lacking for many years, has at the same time increased the degree of accountability to central government. The latest expression of this has been the publication of a set of standards, examples of which are given in table 10. These are explicitly related to the social inclusion agenda.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value at 16 May 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network infrastructure</strong></td>
<td></td>
</tr>
<tr>
<td>Libraries with internet access</td>
<td>62%</td>
</tr>
<tr>
<td><strong>Training and staffing</strong></td>
<td></td>
</tr>
<tr>
<td>Libraries which provide some form of internet training to customers</td>
<td>93%</td>
</tr>
<tr>
<td><strong>Content and service development</strong></td>
<td></td>
</tr>
<tr>
<td>Library catalogue remotely accessible to customers</td>
<td>33%</td>
</tr>
<tr>
<td>Enquiry services available remotely to customers</td>
<td>55%</td>
</tr>
<tr>
<td>Libraries subscribing to e-journals or e-data services</td>
<td>53%</td>
</tr>
<tr>
<td><strong>Networked services policy</strong></td>
<td></td>
</tr>
<tr>
<td>Libraries with electronic collections development policy</td>
<td>20%</td>
</tr>
<tr>
<td>Libraries with Internet filtering software</td>
<td>64%</td>
</tr>
<tr>
<td>Internet charging policy employed</td>
<td>86%</td>
</tr>
<tr>
<td>Partnerships and collaborative working Libraries with commercial partnerships to deliver ICT access</td>
<td>24%</td>
</tr>
<tr>
<td>Libraries involved in collaborative digital content creation</td>
<td>78%</td>
</tr>
</tbody>
</table>

Table 9: Achieving the People’s Network – UK indicators (Peoples’ Network, 2001)

<table>
<thead>
<tr>
<th>Measure or indicator</th>
<th>Standard to be achieved by 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of households living within n miles of a static library</td>
<td>85% within 2 miles (rural)</td>
</tr>
<tr>
<td>100% within 1 mile (inner London)</td>
<td></td>
</tr>
<tr>
<td>% of libraries with access to on-line catalogues</td>
<td>100% of libraries open &gt;10 hours per week</td>
</tr>
<tr>
<td>Electronic work stations per thousand population</td>
<td>0.6</td>
</tr>
<tr>
<td>% of users reporting success in obtaining specific book</td>
<td>65%</td>
</tr>
<tr>
<td>% of users reporting success in gaining information from a search or enquiry</td>
<td>75%</td>
</tr>
<tr>
<td>Quality index</td>
<td>To be devised</td>
</tr>
<tr>
<td>Items added per year per 1000 population</td>
<td>216</td>
</tr>
<tr>
<td>Time taken to replenish lending stock</td>
<td>8.5 years</td>
</tr>
</tbody>
</table>

Table 10: Standards for UK public libraries (extracted from Great Britain. Department for Culture, Media and Sport, 2001)
This analysis of the higher-level strategies gives us the framework to help in the second strategic use of evaluation and performance measurement: to influence the development of strategy. There is a spectrum of strategy development, which can be described as ranging from systematic to chaotic (Johnson & Scholes, 1999).

- Logical incremental
- Rational command
- Muddling through
- Externally dependent

Two of these are relevant to most librarians (Table 11).

Libraries are typically professional services embedded within public sector organisations, so it is easy to see how in this context there may be conflicts between the different levels of strategy.

### Table 11: Organisational strategies (adapted from Johnson & Scholes, 1999)

<table>
<thead>
<tr>
<th>Type of organisation</th>
<th>Dominant dimensions</th>
<th>Characteristics of strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional service</td>
<td>Cultural Incremental</td>
<td>Negotiation and compromise to accommodate conflicting interests</td>
</tr>
<tr>
<td>“Muddling through”</td>
<td>Political</td>
<td>Strongly influenced by groups with control over critical resources</td>
</tr>
<tr>
<td>Public sector</td>
<td>Political Enforced choice</td>
<td>Routines embedded in history</td>
</tr>
<tr>
<td>“Externally dependent”</td>
<td></td>
<td>Imposed by external forces</td>
</tr>
</tbody>
</table>

Policy makers and strategists

In order to influence strategy we need to identify the policy makers and the strategists. A useful typology was set out by Strachan & Rowlands (1997), which can be adapted to allow for a distinction between policy and strategy (Table 12).

### Table 12: Policy makers and strategists (adapted from Strachan & Rowlands, 1997)

<table>
<thead>
<tr>
<th>Policy-maker/Strategist</th>
<th>Role</th>
<th>Information sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legislator</td>
<td>• make decisions</td>
<td>• public opinion, constituents, press, lobby groups</td>
</tr>
<tr>
<td></td>
<td>• set policy direction</td>
<td>• political parties, system outputs (e.g. from Commissions, bureaucracy, etc)</td>
</tr>
<tr>
<td></td>
<td>• monitor issues</td>
<td>• debates in legislature, policy papers, expert opinion, etc</td>
</tr>
<tr>
<td>Bureaucrat</td>
<td>• develop strategic options</td>
<td>• system outputs</td>
</tr>
<tr>
<td></td>
<td>• implement strategies</td>
<td>• commissioned work</td>
</tr>
<tr>
<td></td>
<td>• review strategies</td>
<td>• policy papers, expert opinion, analysis of indicators, data and trends, research data etc</td>
</tr>
<tr>
<td>Interest group</td>
<td>• develop issues</td>
<td>• published data and indicators</td>
</tr>
<tr>
<td></td>
<td>• advocate policy and strategy</td>
<td>• research results in the literature</td>
</tr>
<tr>
<td></td>
<td>• lobbying/agenda setting</td>
<td>• own/commissioned research</td>
</tr>
</tbody>
</table>
The same authors have identified factors affecting use of information by policy-makers, summarised as:

**Barriers to Information Transfer and Use:**

- Situational - operational data not directly relevant or in suitable format; too much; time and cost constraints;
- Cognitive - technical language; failure to recognise importance; complexity of issues;
- Scientific - probabilistic nature of information makes policy making difficult; no research in area; difficult to perform experiments to produce information that can reliably be generalised to policy problems.

**Factors Promoting Information Transfer and Use:**

- Policy makers have a preference for:
  - Information from research funded, conducted or commissioned by themselves;
  - Information which accords for their intuitive feel for a problem;
  - Interpersonal sources over print-based;
  - Clearly presented materials that avoid technical jargon and make limited use of statistical quantification (Lindblom and Woodhouse, 1993);
  - Synthesised and evaluated research which includes a discussion of the policy implications of the results (Nelson et al., 1987).

There are some examples that can be cited of librarians seeking to influence the strategic process: one successful (Carmel, 1995) and one that has some potential (SCONUL and HCLRG, 2000).

**Why bother?**

The importance of getting involved can be demonstrated by an illustration of the policy making process (after Mintzberg, 1994).

![Policy Making Process Diagram]

It is clear that if the outcomes are evaluated only in terms of the intended strategy and deliberate actions, then the services being evaluated may be in danger of being perceived to be performing badly. In the organisational context, a library service is clearly an interest group. It is desirable therefore that both are recognised by the library managers in order to influence the strategy and to ensure that the evaluation relates to the emergent strategy.

**Synthesis/way forward**

Since most libraries and information services actually serve multiple constituencies, it is important that strategies address these multiple needs, and that evaluation should be both multifaceted and holistic, involving as many of those affected by the strategies as possible. This immediately shows that evaluation must be both quantitative and qualitative; the balanced scorecard offers a convenient tool that encompasses both aspects.

It is in the interests of librarians to have as large a group of potential users as possible, and as many capable users as possible. When evaluating information strategies, we need to ask who will benefit, who has access to services but is disadvantaged, and who is excluded? How do these outcomes square with those intended originally? (Eisenschitz, 1997).

In order to achieve our goals there is no alternative to getting involved in the development of organisational strategies. In attempting to influence strategy, using whatever evaluation and performance data is appropriate, it is important to recognise that there are three interpretations of the policy-making process (Rowlands and Turner, 1997).

- Rational actor - based on perfect knowledge, explicit goals, cold analysis, objective, impartial, fair.
- Bureaucratic imperative - influenced by values and beliefs, organisational context, uncertainty, short term, incremental.
- Garbage can - choices looking for problems, issues and feelings looking for decision situations in
which they might be aired, solutions looking for issues to which they might be the answer, decision-makers looking for work!

At the evaluation stage, it helps to assume that policy-making is a rational process. In terms of writing history, long after the event it becomes clear that the garbage can model is always present, with elements of rationality and bureaucracy thrown in, and that the balance between them shifts with time and place.

Finally, the process of policy making has been described in terms that could be used to describe strategic evaluation, and indeed the whole practice of performance measurement:

“...a primeval soup [in which] ideas float around, confront one another and combine. The soup changes in a process of natural selection, survival, demise and recombination.” (Kingdon, 1984, p. 104)

References


This paper discusses rapidly changing technology’s blessing and curse, for library practitioners, administrators, and researchers. Four projects are reviewed within the real-world context of a decade plus of library research. The projects were primarily affected by the: 1) lack of availability of technology; 2) lack of standardized data collection methods; 3) resistance by the profession to utilize available technology; and 4) lack of professional agreement on policy and standards issues. Finally, the realities and the myths of technology’s role in data analysis and data collection will be discussed.

Introduction

Rapidly changing technology remains a blessing and a curse for library practitioners, administrators and researchers. For example, user-related technology such as the Internet, while providing information access hitherto impossible, is also inherently difficult because of lack of technology, for library managers to count and measure. Identifying user market areas using geographic information systems software through user address data can provide precise geographic market areas, yet local library policies regarding any aspect of user privacy limit utilization of the data on a national or standardized basis. And while software packages for libraries burgeon for data collection, data collection standards are disparate, nationally and internationally, impeding large-scale standardized database development. Further, personnel and funding constraints within libraries and research communities may limit research when both data and technology are available. This paper discusses the implications of the blessing and curse of rapidly changing technology for library practitioners, administrators and researchers, within the real-world context of the author’s decade plus of library research.

First – Practicing Librarians: Is Rapidly Changing Technology a Blessing or a Curse?

Some years back I stumbled upon an article, written rather tongue in cheek, regarding how, with each new medium of information introduced, librarians as facilitators go into a tailspin. “What,” I said, “librarians? Why libraries are the primary medium to transmit all media formats!” Continuing to read, I realized it was true. The writer (whom I have long forgotten, and therefore, offer my apologies to) noted that when paperbacks first hit the stands, uproar and fear, and discussions by fellow librarians across the country was unending. A book with no hardcover? Who could have thought? Surely this would lead to comic books in the library.

The same round of uproar and discussion continued with the introduction of microfilm and microform. And continued when records gave way to 8-track and cassette tapes, and tapes to CD-ROMS, filmstrip projectors to films then videos. Most recently it seems every medium gave way (or at least stood aside) for the Internet. The World Wide Web of the Internet is organized daily, and whipped into shape by search engines and subject directories, which embody the reference librarian of old (and these devices are probably created by one!)

So how did, and do, these new media affect libraries? Obviously, for the better, since libraries survive and succeed by mirroring the information needs and wants of users’ serving it up in the users’ most desired media. These new media blend into and out of library collections and services, finally purged through the weeding process. And so the cycle goes.

Second – Library Management: Is Rapidly Changing Technology a Blessing or a Curse?

On the library management side, new media and technologies for better management also create uproar and non-ending discussions. First, pre-cast Library of Congress catalog cards dramatically changed technical services. Second, the largest and most recent change was the demise of the card catalog, which evolved into the online public access catalog (OPAC). The OPAC continues to transform and some can be found in a wireless state on a Palm Pilot screen.

While these two changes were not rapid, the transition was labor-intensive and reliance on experienced staff catalogers shifted to for-hire vendors. Innately, ven-
doors and librarians have different goals. Librarians strive for customer satisfaction through service, and vendors seek profit and market share. This difference in goals leads to problems. For example, the type of customer data available from current vendors is limited due to lack of demand by library managers, and additional expense for vendors to add customized features for a few. Thus, rarely do most current circulation systems offer even the simplest customer profiles such as type of use by demographics, volume of use by class level, or user address data by zip code. Further there is little doubt that, even if libraries of all types demanded this type of customer data, collectively it would be too small a percentage of the vendor’s market.

Automated circulation systems and barcoded books vastly changed public services operations. Remember, prior to this, we wrote our name and address on the library card? Everyone in town had the option of knowing what everyone else was reading. But librarians professionally guarded the hand-written cards, never considering selling users’ tastes and preferences, unlike today, where vendors sell our users’ subject searches and search strategies to private sector marketers. Technology creates glass windows where there were none. Librarians struggle to keep the curtains down.

Automated circulation systems opened up a whole new array of quickly accessible user data, creating an opportunity for libraries to more easily measure the impact of services upon the communities of people libraries serve. As a result, output measures were born. No longer did libraries simply measure inputs, i.e., holdings, square footage, circulation, reference questions, FTEs, and program and attendance counts. Now these uses could be quickly computed to library use numbers per capita, i.e. circulation and program attendance per capita of population served. Yet true user data per capita are rarely available at the outlet or branch level. This hinders knowledge of who uses each branch, what services and materials are used, volume of type of material/service used, etc. This delimits vital customer data for libraries, data that no successful retailer would or could think of going without.

Vendor-created scanned barcodes in books and other materials greatly facilitate check in and check out procedures, shelf reading and weeding and, most recently, in-library material counts. At present, these packages are expensive ($8-10,000) and therefore many libraries do not own the software or system. And since there is no single barcode standard, software packages for different applications are bought by individual libraries, resulting in inconsistent barcodes. This lack of standardization and availability severely inhibits development of comparable performance measures.

The Internet just further confounds the growing efficiency and effectiveness of developing standardized performance measures, by obfuscating through its own largess, how to count the who, and for-what, the when and from-where people are using the world wide web. For library management, rapidly changing technology pushed by profit-motivated vendors often dilutes control over individual library activities that were once the stronghold of manual operations. Technology facilitates operations but at what cost to accurate relevant data?

Finally – Library Researchers: Is Rapidly Changing Technology a Blessing or a Curse?

By and large for library researchers, technology that facilitates research – not research about technology – can never change fast enough. I would like to provide a brief insight and review of research, which originated when there was little technology, and research that was furthered by or could have been furthered by technology. This research is built upon data initially collected manually at the branch or outlet level in the public library field. I would like to review four projects that were affected by the fact that: 1) technology was not available; 2) technology was available but data collection methods were not standardized; 3) professionals were resistant to utilizing the available technology; and 4) technology created a starting point, but progress relied upon agreement on policy and standards issues.

Project Number One: Koontz’ Dissertation. (Koontz: 1990)

The purpose of my dissertation (in brief) was to answer the question my marketing mentor, Dr. Persis Rockwood, posed to me. How can public library management site library facilities effectively? After fingerpicking through thousands of catalog cards, I found there was little location research on location and siting. I selected 13 geographically dispersed library systems, and ended up with only six systems that fit the criteria (each counted the same library use measures) comprised of approximately 100 branch outlets. The study demonstrated a methodology for constructing location models for diverse urban environments.

The models utilize variables including:

1) Relevant demographics (Demographics included: population, sex, race, age, family life cycle (represented by US census categories of households with social security, public assistance, or a female head of household); owner occupied housing, income, education and vehicles per housing unit);

2) Spatial (Estimated size of market area and distance between library facilities. A geographic area contains the customers/users of a particular firm/library for specific goods or services.);

3) Library use (circulation, reference transactions and program attendance); and
PROBLEM NUMBER ONE.

The addresses of the branches were not available from a national directory or database. Only the addresses of the stand alone or main facility of the system headquarters was available and the number of branches and bookmobiles within the system. There was little or no interest in branch level data at the state or federal level due to the following reasons: 1) there was no branch level data available from a central source; 2) public library data was just starting to be collected for the first time ever on a system-wide basis, much less at the branch level; and 3) since there is no legal mandate for a public library (such as schools have) there was little built-in bureaucracy to support data collection on any level. Yet it should be noted that the majority of user activity, data for other industries, is of course, at the branch level. [The US National Center for Education Statistics published, through the US Government Printing Office (GPO), the first E.D. Tabs Report, Public Libraries in 50 States and the District of Columbia: 1989. The first compilation of data from 8,699 public libraries in all 50 states and the District of Columbia based on national standard data elements and definitions. The Public Library Data Statistical Report, Public Library Association, was published in 1988, till present, offering system-level data on a sampling basis. These publications did not include branch level use data at present, still do not, and there is no future plan by either group to make outlet level data available.]

Therefore, I had to call system administrators or branch managers of 13 library systems (450 outlets), and often the individual outlet, just to identify where each library was located (cross streets), so I could attach the variables to them (latitude and longitude). This was extremely time-consuming, but without this precise information there would be no way to continue, hence prohibiting my research.

PROBLEM NUMBER TWO.

Because there is no standard way that geographic branch market areas are determined, the branches are simply subsumed within what is called the legal service area of the system. These legal service areas are mostly arbitrary city and county boundaries, though some use school district boundaries. These legal service areas identify the population that the system is legally ascribed to serve, but in no way reflect who really uses each of the outlets in the system. Various methods of defining branch market areas include: assigning two or three census tracts to each branch; utilizing existing government planning districts; placing a radius of varying widths around each outlet; or, using the experience of the staff to determine proximate geographic area served and an estimate of the population in that area (VanHouse, 1987).

While retailers have long utilized customer zip code and address data to determine geographic customer markets – which provides much greater accuracy – library professionals have been reticent to do so, due to privacy issues. Yet, as early as 1972, it was suggested that libraries utilize user address data to better determine user branch market areas (Coughlin, 1972). I used the radius method of various sizes based upon estimated populations served to standardize the methodology. (These estimates were from the librarians, or staff. I used SELS to estimate the radii that the population encompassed.) I used compass and pencil based upon casting radii upon estimated population figures, and a GIS (geographic information system) type product that would estimate population. GIS is best defined as a computer system that maintains databases much like other computer systems, except the databases include geographic references such as address, latitude and longitude, census tract, voting district or a unique library drawn service area. It is possible to examine, for example, which library is nearest another library, which transit line is close to a new or proposed site, which addresses of users lie outside the designated library service area, and the demographics of the geographic service area.

This was in the mid-eighties, and the primitive geographic information system software (GIS) package I used was available for free from the University of Nebraska. It was free because it was 1989 when I procured the package, and the Census data was from 1980. The SELS package (Siting Evaluation and Location System) would identify census variables around a point, i.e., the geocode of the public library outlet by latitude and longitude. There were no digital maps available (cheaply) at that time. SELS required using paper census maps, identifying the location, and all the statistical calculations had to be performed outside the SELS package.
With paper maps and precise cross streets and locations, I could graphically identify topographical barriers to library use, and estimate the distance between facilities. With the automated census data, I could identify population characteristics proximate to each outlet. I could also utilize important research that others had conducted at the outlet level, including the impact of the size of the library, distance between the library facilities, and demographic characteristics associated with all aspects of the library use, including mode of transportation, groups affected by distance to the library, etc. (Koontz, 1997: 57-58)

**Problem Number Three.**

While I had 13 library systems willing to work with me, only 6 could be included due to the other 7 not collecting standard library use categories. For example, all 13 systems did not collect reference transactions. Only those systems that collected circulation reference statistics and program attendance could be included. While library visits, in-library material use, and interlibrary loan were of interest, these were not counted in a standardized or methodical fashion by all of the libraries, and therefore could not be included.

In summary, it was lengthy and arduous because the needed technology had yet to arrive. There was a lack of precise address data for branch outlets; lack of sophisticated GIS, which was an expensive and rapidly changing technology; lack of a standardized method of determining branch market areas; and a lack of standardized library use categories that all public libraries collect. Technology – holding hands with standardization of collected library use categories and an awareness of the importance of branch level data – could have greatly facilitated this research.

Researching at the branch level presented a significant finding: analysis of the demographic and library use data – showed where counted, there was higher in-library use, higher reference transactions and greater program attendance in branch markets serving predominately minority populations (this has been coined *majority-minority*). I could not have detected this if the data was aggregated at the system level. These populations had lower circulation, which often led to an assumption that the libraries were less used because circulation is traditionally recognized as the primary use. Unfortunately, in-library material use and library visits are not required use counts. Due to this, thousands of libraries appear little used, as opposed to the truth: that they’re just differently used. This was an important finding that led to the next project.

**Project Two: Expanded National Research**

After graduating and landing this current job in a GIS (geographic information systems) applications center, I settled in to use this technology to solve library problems. In 1996, FSU applied for and received a grant to further the above hypothesis that use was different in majority minority library markets and that it was not reflected completely in circulation figures (Koontz). The purpose was to provide a snapshot of non-circulation use in the library, including material uses, observed uses, and librarian assisted uses.

This project not only used GIS and U.S. Census Data to identify the 3500 majority minority markets, but incorporated handheld computers to facilitate counting in-library use by scanning barcodes of previously defined categories of use, including in-library materials use, observed use, and librarian assistance. This standardized one-barcode data was uploaded and mailed to our center for analysis.

This reduced the need for extra manpower in the field to analyze data, collected one week per quarter at these small libraries, and thus gained staff support. Finally, this project elicited a clear picture of all uses, and underlined the critical need to collect in-library use data in low-circulation libraries. Enhanced technologies, specifically GIS to process outlet level data based upon a growing body of research, gave this project national impact. Yet diffusion of this methodology is hindered by lack of a mandate at any level of government or professional organization to collect these types of use that occur in the library. This project led to projects three and four.

**Project Three: Library Application of GIS**

This research was designed to solve one of two remaining problems illuminated in projects 1 and 2. First, at present, there is still no standardized approach to determining branch market areas other than those manual and experiential methods discussed earlier. Yet there is technology available, GIS, to use to geocode user address data based upon library circulation or registration records. We received a small research grant from ALA to illustrate the utility of using GIS to conduct this type of research (Jue and Koontz, 1999). User data from three library systems was geocoded for best determining actual market areas. This methodology far surpasses any other method in accurately depicting geographic market areas.

While the three library systems in this project were able to provide this type of data, there is no assurance that all library systems can use this approach due to lack of software programming to extract user address data from the library’s database and policies or legalities against extracting this data to a vendor or researcher to put together such a map. This resistance from the profession emanates from old user privacy issues, laced with misinterpreted portions of the American Library Association’s Library Bill of Rights, i.e., “a person’s right to use a library should not be denied or bridged because of origin or age.” There is a feeling that the dot on the map portrays address and all aspects of user characteristics. I challenge this on
the basis on sanity. But this research project did not solve the basic underlying dilemma, which led to Project Four.

**Project Four: Comprehensive GeoMapping of Public Library Locations**

Our center was recently awarded a grant to map and geocode all estimated 16,000 outlets (Jue and Koontz, 2000-2001). The outlet addresses are collected by state under the direction of the Federal State Cooperative System, and many (approximately one third) have addresses that could be accurately geocoded (a dot placed accurately on a map as to the most accurate location).

This project replicates Project One, my dissertation. Yet while this project utilizes and benefits from new technology and increased manpower, it was still constrained by lack of standardized data collection, lack of accepted methodology for geographic market determination, and lack of outlet data from a central source.

Four students are calling each of 5 to 6,000 outlets for which better location information is desired. While I began pushing for a nationally geocoded public library base map seven years ago, to be honest, it would not have been as cheap as it is today: GIS was more expensive, geocoding was more expensive, etc. The enormous breakthroughs remain to be seen when this map is finally available in early 2002. This map will provide a first-ever, base map for researchers from all fields to utilize to identify the impact of public libraries in many areas of American life.

We hope to see a progression of data layers that will be added, including, initially: relevant demographics associated with library use; local library use figures in population ranges for comparison for same-size libraries; and accurate legal service area delineators. In the future such layers could be added as telecommunication networks, bandwidth, etc. With a first-time-ever accurate base map of public library outlets, the doors open to research that can build upon accuracy, not guesswork. It is just the beginning. Rapidly changing technologies greatly facilitated this body of research that started out manually, but to further this research, important policy decisions must be made by government and library and information leadership, and funding must be prioritized to further develop this landmark database.

**Reality and Myths: Part One**

The reality is in these projects. Technology:

1. Enhanced the quantity and quality of data that could be effectively amassed, i.e., branch level data including the branch address, library use and demographic data and all other spatial aspects such as distance between the facilities, schools, etc.;
2. Facilitated the collection of difficult to count performance measures;
3. Reduced the amount of time that would be needed to process and analyze data. (No joke, I estimate I would have added four years to my life if I had been using full-blown GIS in my dissertation);
4. Reduced the need for more manpower to conduct research;
5. Made the data digital – and therefore accessible and available in aggregated and disaggregated forms for other researchers.

The above realities are myths – if the maxims below are not true.

**Truth #1:** Technology is useless without a purpose. That is why it lives and dies. In this day and age more is embodied in less; smaller and smaller packages contain more and more data. Mainframes are a thing of the past for all but the largest entities. The 8-track had its day; now music is binary. By the way, or BTW, happy birthday to the personal computer (PC); it is 20 years old this week. Can you remember life before PCs and email? The PC and email are useful. To procure technology because it is new, and learn demonstration packages with no purpose in mind is a worthless activity. And that research can now be replicated nationwide on the Internet and further gain in value, but only if the original research is of quality. Otherwise, technology is useless.

**Truth #2:** Technology is useless if it makes something that is ugly and has no content pretty. Having sat through too many PowerPoint presentations with no content… I do not want to rag on and on about this. But refer to the hand-hewn radii in Figure 1. While ugly, these hand-drawn circles communicated that to conduct research we must know exactly where a library branch outlet is located in order determine which customers use it. This led to actually procuring user address data and plotting it with GIS, changing the circle into an actual custom-made geographic market area.
And finally, for the first time ever an accurate national database of geocoded public library branch outlets is being developed to further and facilitate policy and research. Not bad for an ugly hand-drawn circle full of top notch data.

**Truth #3:** Technology is a tool for people. People are not a tool for technology or to increase vendor profits. We must shape, develop and demand vendor products that meet 100% of our needs. Our customer database needs to be as slick as American Express. We need to be able to data mine our customers so we can better meet and predict customer needs. We must stop pussy-footing about false privacy issues that do not exist. A dot on a map, signifying address, does not tell you what they read, how, and with whom. It is a spatial guidepost of a market.

**Truth #4:** Technology is misused if it hinders calculating all the results. While automated circulation systems greatly enhanced knowledge of library use and user characteristics – e.g., number of juveniles checking out science fiction, number of adults utilizing genealogy services, and circulation per capita of various services and materials – it took the emphasis off important hand-counts such as reference transactions, program attendance and in-library use. Without full counts of all use, we are shortchanging ourselves. My analogy – what if McDonald’s only counted all the hamburgers sold through the drive-through and none eaten in the restaurant?

As we rush from inputs to outputs, outputs to outcomes, web hits to web use, we must be vigilant that technology is our tool, not our master. We must be technology’s bully, and technology’s Pied Piper. Technology should never serve either of those roles. We must join together as a profession, unify, and create standardization of important library use counts. Some counts are more important for some markets than others, and not everything must be counted every day; some use can be sampled. With the help of technology we must keep our data disaggregated and develop reliable accurate standardized databases and base maps to build our research upon. We must shove aside false ideas regarding the parameters of privacy of users and demand that vendors supply us with software that will provide top quality customer data. Then, and only then, will we be the true Pied Pipers of our villages, bringing all those good folks to the library to find their (customized!) pot of gold.

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E-Metrics: measures for electronic resources

Rush Miller
University Librarian and Director, University of Pittsburgh, USA

Sherrie Schmidt
Dean of University Libraries, Arizona State University, USA

Abstract

A major problem facing research libraries today is the lack of data about electronic resources and services. Problems and challenges in collecting and analyzing such data are many and obvious, including: there is a lack of clear and consistent definition of data elements; vendors do not “count” things in the same manner as one another; membership in a consortium can skew the statistics of the individual libraries in that consortium; libraries structure themselves differently in regard to electronic resources, making data gathering difficult; libraries do not control access to and use of important data about vendor-supplied resources; and the nature of electronic resources is changing rapidly and, therefore, data elements are shifting. The E-Metrics project, one of the ARL New Measures Initiatives, is an effort to explore the feasibility of defining and collecting data on the use and value of electronic resources. ARL has experience in tracking expenditures on electronic resources through the ARL Supplementary Statistics, but there is a widely held recognition that more work needs to be done in this area. A group of 24 ARL libraries funded and are participating in the ARL E-Metrics Project from May 2000 to December 2001. The project is under contract with Florida State University’s Information Use Management and Policy Institute and is directed by Wonsik “Jeff” Shim, Charles R. McClure, and John Carlo Bertot under the leadership of project co-chairs Sherrie Schmidt (Dean of University Libraries, Arizona State University Library) and Rush Miller (University Librarian and Director, University of Pittsburgh). This paper details the rationale and context for this project; it describes the issues identified, the lessons learned, and the possibilities and challenges that this set of issues brings to the research library community.

The research library today can be described as a “hybrid” library: a library in transition from a focus on print-based collections and services to an emphasis on electronic, or digital, information resources and services. The quickening pace of change in this field is evident in the supplemental statistics data gathered by the Association of Research Libraries (ARL, 2001). The percentage of acquisitions dollars that ARL member libraries devote to electronic resources has risen from 3.6% in 1992-93 to 12.9% in 1999-2000. Nine libraries spent more than 20% of their materials budget on electronic or digital materials and five libraries spent more than $2 million on such resources in 1999-2000, with University of Pittsburgh being at the top of the list spending $2,163,220 (ARL, 2001). One hundred and five ARL libraries reported spending a total of almost $100 million on electronic resources out of their materials expenditures budget. The cost of mounting digital information resources is far higher when infrastructure and personnel costs are factored into the picture. Clearly, the total expenditures related to electronic resources and services within ARL libraries would be measured in the hundreds of millions of dollars if it could be counted accurately and consistently.

That, of course, is the problem. While libraries, particularly ARL libraries, have 60 years of consistently defined and collected statistics related to budgets, collections, services, and personnel (3), no such data is available for the electronic resources that are becoming ever more important. Problems and challenges in collecting and analyzing such data are many and obvious, including: there is a lack of clear and consistent definition of data elements; vendors do not “count” things in the same manner as one another; membership in a consortium can skew the statistics of the individual libraries in that consortium; libraries structure themselves differently in regard to electronic resources, making data gathering difficult; libraries do not control access to and use of important data about vendor-supplied resources; and the nature of electronic resources is changing rapidly and, therefore, data elements are shifting. Even as libraries are increasing their investment in electronic resources and the opportunities for information management are growing dramatically with the advent of the World Wide Web as a delivery vehicle, we know much less about this aspect of our collections and services than the traditional ones.

Questions related to the measurement of digital resources and services must be answered if libraries are to be accountable to their constituents and funders alike. Questions such as, “Who uses these resources?” or “Are these huge outlays of funds justified in terms of use, or value derived from use?” or “What difference do all of these resources make to students and faculty in universities?” must be answered if university administrators, trustees, students, and faculty are expected to support ever-increasing levels of funding for the acquisition and development of these resources and services.
Just as important is the need for reliable measures in order to make sound decisions about the acquisition or de-acquisition of electronic resources, selection of what to digitize, and development of criteria and benchmarks that can be communicated to stakeholders.

ARL has been concerned with performance measurement issues since the 1990s (Blixrud and Kyrillidou, 2001). The ARL Statistics and Measurement Committee and the ARL Leadership and Management Committee launched the New Measures Initiative in January 1999, following a retreat held in Tucson. The New Measures Initiative arises from two challenges facing research libraries: first, the need to demonstrate the impact research libraries have on areas of interest to their host institutions; and second, the need to respond to pressure to maximize resources through cost containment and reallocation, which in turn requires the identification of “best practices” (1). Coming out of the Tucson retreat, several representatives wrote white papers in areas of acknowledged interest (Baker; Franklin and Nitecki; Presser; Gargill et al; Kobulnicky and Stoffle; Deiss). Those attending the retreat addressed a set of questions regarding the data needed to describe research libraries in today’s environment, the need for new measures, and the means by which useful data and measurement tools could be developed. The retreat participants recognized that “any new measures must (a) be consistent with organizational missions, goals, and objective; (b) be integrated with an institution’s program review; (c) balance customer, stakeholder, and employee interests and needs; (d) establish accountability; and (e) include the collection and use of reliable and valid data” (Blixrud, 2001).

During 1999, the library leaders engaged in this set of activities decided that it was not enough to simply frame the issues—research libraries needed to move into testing new methods and experimenting with specific projects. With limited resources and many ideas to test and implement, a variety of projects have emerged as outlined in the annual ARL Activities Report (ARL, 1999-2001). There are five major projects that are being pursued within the Association under the aegis of New Measures. These are: [1] an investigation into higher education outcomes assessment, with an examination of both learning outcomes (Smith, 2000) and research outcomes; [2] measurement of library service quality (Cook et al); [3] cost studies; [4] interlibrary loan and document delivery investigation; and [5] an examination of measures for networked statistics and electronic resources (2).

The examination of measures for networked statistics and electronic resources has evolved into the ARL E-Metrics Project. The E-Metrics Project began in February 2000 at a retreat in Scottsdale, Arizona, attended by representatives from 36 ARL libraries. This retreat focused on the challenges involved in measuring the commitment to and impact of electronic resources and services in ARL libraries. Due to his extensive funded research in this area (McClure, 2000; Bertot et al, 2000; Bertot and McClure, 2000), ARL employed a consultant for the meeting—Dr. Charles McClure, Francis Eppes Professor and Director of the Information Management Use and Policy Institute at the School of Information Studies at Florida State University. Rush Miller, Hillman University Librarian at the University of Pittsburgh, and Sherrie Schmidt, Dean of Libraries at Arizona State University, agreed to serve as project co-chairs. Martha Kyrillidou, Senior Program Officer for Statistics and Measurement, staffs the project for ARL. Susan Jurrow served as facilitator for the retreat.

The Scottsdale retreat was essential for defining the scope of a project to be undertaken, since the project was to be self-funded as well as self-managed by libraries willing to put forth a significant commitment of money and staff time. Prior to the meeting, attendees were asked to submit answers to questions about their efforts to measure the impact of electronic services and resources and their decision-making process related to these materials. Also, some attendees provided examples of the statistics they were collecting; these examples reflected the lack of consistency in current practices, as well as the lack of adequate data provided by vendors. After a full day of intensive discussions, a project began to take shape. The group identified four major areas that should be explored in the project:

1. Study of users and uses.
2. Cost and benefit analysis.
3. Study of staff impact and needs.
4. Engagement with information providers and their usage data services.

The project co-chairs worked with McClure and his staff to develop a project prospectus (McClure). In the meantime, the level of commitment in terms of the number of ARL libraries electing to participate in this project doubled initial expectations, for a total of 24 libraries agreeing to support and participate in the project:

- University of Alberta
- Arizona State University
- Auburn University
- University of Chicago
- University of Connecticut
- Cornell University
- University of Illinois-Chicago
- University of Manitoba
- University of Maryland-College Park

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The project was formalized as the E-Metrics Project and a formal contract was negotiated with the Information Use Management and Policy Institute at Florida State University to accomplish the three phases of deliverables outlined below:

Phase One: A knowledge inventory of ARL libraries and the organization of a Working Group on Database Vendor Statistics.

Phase Two: Statistics and performance measures to collect and analyze data collected within libraries or provided by vendors.

Phase Three: An outline of a proposal for measuring outcomes of electronic resources, to be funded separately.

The Phase One Report (Shim et al, 2000) was submitted to ARL on 7 November 2000. In this report, McClure and the Institute staff report their findings from their collection of data related to the current state-of-the-art within ARL libraries in measuring electronic information resources and services. Their data was gathered using survey questionnaires as well as site visits to several libraries that were considered advanced in this area after an analysis of the surveys.

The survey responses revealed a wide range of data collection and use activities among the 24 project participants. The most consistently collected and used data related to patron-accessible resources and costs. Data related to use and users was collected less often since vendors provide much of the data collected and it is not kept in-house. Collected data was used primarily when making acquisitions decisions. Not surprisingly, the largest impediment to survey respondents lay in the lack of consistent and comparable statistics from database vendors.

Site visits were conducted at Virginia Tech, the University of Pennsylvania, Yale University, and the New York Public Library. These visits documented current practices and clarified survey responses. Again it was clear that a lack of standardized reporting practices makes it difficult to collect and analyze data.

Another aspect of Phase One was the organization of a working group to deal with vendor-supplied statistics. This working group met with 12 major vendors for ARL libraries in order to explore issues related to the perceived lack of consistency in vendor statistics and to solicit vendors' assistance in developing and field-testing standard data elements. The vendors who accepted the invitation to participate in the meeting include:

- Academic Press/IDEAL
- Bell & Howell
- EBSCO
- Elsevier/ScienceDirect
- Gale Group
- JSTOR
- Lexis-Nexis
- OCLC/FirstSearch
- Ovid
- SilverPlatter
- netLibrary

As the project entered Phase Two, the focus shifted to the definition and testing of data elements. Without solid and comparable data, measurement would be less helpful and meaningful in the long run. It was becoming clear that the project framers had underestimated the complexity of the issues and challenges. It also became clear that this project was one of many being undertaken in the United States and in other countries to accomplish similar if not the same goals.

A number of projects designed to improve the availability of consistent and comparable statistical data about electronic resources and services have been undertaken over the past several years. All of these projects are related, in one way or another, to the E-Metrics Project. However, none of them duplicated the ARL effort in terms of goals and timeframes. The project co-chairs undertook close communication links and collaboration with these projects. These projects are:

- European Commission EQUINOX Project (3)
- Publishing and Library Solutions Committee (PALS) Working Group on Online Vendor Usage Statistics (UK)
- International Coalition of Library Consortia (ICOLC) review of ICOLC Guidelines for Statistical Measures of Usage of Web-based Indexed, Abstracted, and Full-Text Resources
- National Commission on Libraries and Information Science (NCLIS) project to standardize online database usage statistics and reporting mechanisms (public libraries)
During Phase Two of the project, statistical data elements were discussed within the Vendor Statistics Working Group and with participants at various meetings held at CNI, ALA, and other meeting opportunities. The consultants worked with participants to develop a set of measures to be tested in the field. These included statistical elements from vendors – worked out as a separate trial with 12 vendors – and internal library statistics to be collected by library staff.

A total of 18 measures were agreed upon for adoption as a field test. These elements were grouped into categories and included:

1. **Information Content.** This category includes elements such as the number of electronic full-text journals or reference sources to which a library subscribes. It also includes virtual “visits” to the library’s electronic resources and the percentage of all monographs represented by electronic books, among other elements.

2. **Information Services.** These elements measure usage of library digital collections as well as the percentage of reference and other transactions that are digitally based.

3. **Technical Infrastructure.** Technical infrastructure is measured in terms of the cost of digital collections along with support costs and management information, such as the expenditures for electronic journals and books and other components.

An effort to field-test vendor statistics in selected libraries was also underway. This effort was designed not only to collect and analyze data elements that are agreed upon and consistent with the ICOLC Guidelines (ICOLC, 1998), but to gather information related to the vendor’s definition and compilation of these data. Judging from the work so far, vendors have varying methodologies and internal processes, which affect the consistency and standardization of data provided. Each vendor defines a search and retrieval set differently, which dramatically affects the statistics provided. It is safe to say that, until now, comparing the data from one vendor with that of a second vendor was unreliable and misleading. One benefit of this project will be to assist vendors and libraries alike in standardizing data element definitions to gain more consistency across the data.

Internal data elements were field-tested in 13 libraries (including the University of Texas, which is not a participant in the project, but agreed to assist with the field testing, as Sue Phillips was serving in a liaison role between the ARL project and the ICOLC revision of the related guideline). Along with the data itself, these libraries were asked to track the amount of effort expended in providing the data. There was little consistency in the number of staff hours reported—it ranged from 3 to 167 hours. Much of the variance can be explained by the variability of infrastructure and experience within ARL libraries in maintaining data such as these. Libraries that are already engaged in collecting and analyzing usage and management data related to electronic resources found it easier to adapt to this field-test; those with little history or experience found it much more difficult to comply.

Libraries in the field test were also asked to analyze how useful they felt the collected data would be to them. Overall, libraries clearly saw these measures as good things to have in the absence of more detailed data.

The field-testing of these data elements was critical to a better understanding of the challenges and issues facing research libraries in systematizing e-metrics. This kind of data collection does not derive from traditional library structures, such as acquisitions, accounting, and cataloging, or from other information systems in place in libraries. Few ARL libraries have a system in place for managing electronic resources, although the number is growing. Additionally, many of the definitions and procedures for collecting this data during the field test varied from current practices within the participating libraries, although one major outcome of the project will be to develop a more standardized mechanism for gathering data. Defining changing concepts such as electronic books or full-text retrievals is painfully difficult and the distinctions among various resource types can often be arbitrary and fluid. And, of course, in ARL libraries, electronic resources are often dispersed throughout a large institution and are not centrally managed, making data difficult to collect centrally.

The field test allowed the project managers and consultants to refine the data elements further. The Phase Two report proposes a refined set of measures for implementation on an ongoing basis (Bertot et al 2001). These elements include measures of the nature and size of the digital resources available within an institution, the cost of providing these resources by category, and the amount of activity documenting the use of these resources. The report from Phase Two is available on the Web and has been distributed to all ARL member libraries. It includes a procedures manual that provides ARL libraries with definitions and techniques for collecting standardized data related to electronic resources; these definitions and techniques will guide ARL libraries in the implementation of ongoing data collection relating to electronic resources measures. It is anticipated that these data elements will not be static – as the traditional ones have tended to be –
but subject to continuous change. This is, after all, the nature of the networked environment.

From the outset of the E-Metrics Project, libraries looked beyond the development of metrics to the development of outcomes measures. Simple data is not sufficient to answer the question, “What difference does this tremendous outlay of resources make to the users of libraries?” Phase Three of the project is envisioned to study and recommend strategies and a framework for measuring outcomes, i.e., assessing the impact and value of electronic resources on user behavior and effectiveness. We all want to know what difference electronic resources make, not in terms of inputs, but in terms of outputs. Some people are asking, “Are we determined to get it right this time in terms of measuring important things rather than just convenient things?” The answer is probably that we always wanted to get it right and we always did what we thought was the right thing; yet, what is right may differ from context to context. There is often a scientific positivism associated with statistics and measures that can sometimes blind us to the emerging context and uniqueness of specific environments. Vice versa, one could argue that too much emphasis on the uniqueness of a local context fosters an isolationist attitude that may not be appropriate for a highly interconnected information environment with global dimensions that are changing, shifting, and affecting all libraries in similar ways.

The consultants working on this project have presented the results of Phase Two with some analysis of the strategy ARL might follow to achieve this higher level of institutional outcomes investigation. However, outcomes assessment is viewed as being a separate project, for which additional funding and time will be required.

Conclusion

The ARL E-Metrics Project is a key development in the ongoing effort to quantify and better understand the impact of emerging information technologies on library collections and services. It has provided the Association with a new measurement model – to which individual libraries have committed significant resources and effort beyond the Association structure and budget – to further develop and test in Phase Three of the project.

It is difficult to overstate the hurdles encountered in carrying out what appeared at the outset to be a rather simple idea – collecting statistics on the effort ARL libraries are making to mount electronic resources and services. The problems of definition, reliability, and consistency of data provided by the vendor community alone are daunting. But they are matched equally by librarians’ lack of agreement on what is important to collect, how to collect it, and how to use what is collected. Most libraries lack experience with the collection and analysis of data related to their investment in electronic resources. This is a new, emerging, and changing field and these issues are very complex and difficult to get a handle on.

However, in less than the two years to which participants committed their funds and support, the project is producing a viable and implementable program of data collection related to electronic networked resources in ARL libraries. This accomplishment is to the credit of the directors and staff of these 24 libraries; it is also largely due to the expertise and hard work of the director and staff of the Information Use Management and Policy Institute at Florida State University.

In developing e-metrics, libraries are only part of a larger networked community concerned with similar issues. Some libraries are concerned with the competition presented by Internet search engines, gateways, and portals. Some libraries feel the need to demonstrate large numbers of web hits and other e-metrics to justify their investment in electronic resources. Yet, no matter how large an electronic library is, it is doubtful that it will ever receive more web hits than popular search engines, gateways, and portals. Libraries, though, have much more valuable resources to offer than do any Internet search engine – it is our challenge to try to measure these contributions.

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Notes

1. See: <http://www.arl.org/stats/newmeas/newmeas.html>


3. EQUINOX Homepage: <http://equinox.dcu.ie/index.html>

4. National Information Standards
Abstract

Firenze University Press (FUP) started in 2000 as the Digital Press of the University of Florence (Italy). It is focused on authors/readers, attempting to eliminate obstacles and barriers to effective scholarly communication. The performance indicators chosen for monitoring the service were: 1) customer satisfaction, 2) impact, 3) time, 4) cost. Quantitative and qualitative data were collected during 2000-2001 for improving the services and the products of the Digital Press. In a survey, the existing authors/readers were asked why they had chosen FUP; the potential authors/readers were asked what would persuade them to print/buy from FUP.

When considering the economics of a digital press it may be tempting to focus on financial factors that are directly related to digital press products and services, for example the price of publications and the services of the infrastructure. It is important, however, to be aware of other economic factors. Results of the evaluation indicated that a system-wide view of the costs and benefits of producing and delivering scientific publications must acknowledge the costs and benefits to users and the total costs to the institution. These include, for the user, the elimination of such obstacles as the lengthy editorial process, the cost of downloading bandwidth-hungry images, and the time spent filtering information; while for the university, they include the cost of collecting books in libraries and the cost of the infrastructure needed for the research. As well as facilitating the fixing of exact price, i.e. basing the price of information on the actual cost of publication, the electronic environment facilitates the communication between scholars.

Introduction

Firenze University Press (FUP) is a digital university press, started as a project at the beginning of 2000, inside the University Library System of the University of Florence, with the aim of supporting teachers in publishing and users in accessing the publications. The project was submitted by the University Library Coordinator to the Administration Committee of the University of Florence and since its beginning, the Firenze University Press has been inside the Library System but with budget autonomy. The staff was formed of part-time librarians and technicians.

The objectives of FUP are:

1. Protecting the Intellectual Property Rights (IPR) of both scholars and the University of Florence

   The University should revisit the current model in which it ignores its ownership of intellectual property rights of its scholarly output. The new model of agreement between the University of Florence and its authors requires automatic granting of exclusive or non-exclusive licences for using the intellectual property of University teachers within the University, within a group of institutions, or within the national or international scholarly community. An agreement with the National Library of Florence has set the basis for voluntary legal deposit of electronic publications and long-term preservation of publications.

2. Providing assistance to create, convert, and access the publications of FUP

   We chose to build a digital press that offered the option of printing the electronic publications on demand. At the start of the FUP project, the number of publications already published by University of Florence, using external publishers, was about 100 each year, with 30 journals in paper and with online tables of contents. In the first year, FUP has published two University journals, converting them into electronic journals, and about 30 other publications.

3. Basing quality on Peer Review

   Peer review is greatly valued in the current system of scholarly communication as a mechanism for both quality and quantity control. However, it might be possible to see it less as an absolute prerequisite for publication, and more as a value that can be added after the publication of a scholarly work as it progresses through the new system of electronic publication.

4. Calculating prices on the actual direct costs to the FUP, and being predictable in costs both to authors and subscribers

   The new system of electronic publication of FUP will not be free, but we must be self-financing. Significant costs can be removed in the electronic environment (e.g. paper, printing, packing, postage and, in the case of University of Florence, profit). Since neither volume of material nor volume of subscribers will significantly drive costs, there should be higher predictability in costs and pricing.
5. Assuring ease and speed in publication

A scholar-controlled, networking-based scholarly communication system should significantly avoid current delays between the submission of a paper and its appearance in final form. There will be no artificial gathering of information in ‘issues’ or ‘volumes’; submissions can be ‘published’ when ready; and delivery will be almost instantaneous.

Given that background, what does FUP produce? The first thing it produces is access to FUP publications. Our aim is to improve the diffusion of publications, using the Web and all other channels of the communication chain, such as databases, catalogues, reviews and publicity. Secondly, we produce support for publications. We provide help to authors for conversion of format, editorial services and user guidance. Next, we provide learning resource materials for students. There is, in fact, a reorganisation of teaching in Italian universities in which students must take responsibility for independent study, planned by teachers, with the realisation of learning resources.

Finally, I include two important activities of FUP that contribute to the visibility of publications. The first is the certification process that we guarantee for copyright and identity of copy for the long term and second is the metadata, both in Italian and English, that we produce for the indexing of electronic publications for better retrieval from search engines. Each publication record is sent to the national union catalogue at the National Library and input into the University of Florence Libraries’ catalogue and the specialised databases. All of the activities of FUP are illustrated in Fig. 1; I will return to them later, when speaking about cost centres.

The objectives of FUP and the activities that we engage in cannot be described in isolation but should be seen in the context of our institution (University of Florence) and in the framework of the scholarly communication flow. We have different stakeholders to whom we relate and our outcomes need to support both University outputs (simply saying teaching and research) and the facilitation of scholarly communication.

The principal stakeholders involved in the Florence University Press are:

- academics as authors, editors and referees, teachers and recommenders of texts;
- end users (including academics as researchers, students, and clinical, professional and industrial users of electronic academic information);
- higher education administrators;
- higher education librarians;
- higher education computing support departments;
- publishers of both primary and secondary literature (commercial, not for profit, other University presses)

Academics and end users’ needs have been investigated with the aim of informing the priorities of FUP services.

The impact of ICT on scientific information exchange and on reading habits, in terms of keeping current with the literature, is changing scholarly communication. New models of publishing are emerging and new effective means of communication, using the Internet as a channel. Quality of publication, in this scenario, needs new standards and measures. Publishers retain impact factor control and our authors prefer them for career advancement reason. Attempts to
address the problems associated with the scholarly information explosion tend to focus more on alternative and cheaper formats for publication (Bot, et al. 1998; Fishwick et al. 1998; Harnad 1996; Harnad and Hemus 1997, O'Donnel 1996) than on reducing the quantity of published research output. We try to educate users on the trends and issues of the broader scholarly communication context.

Aspects of FUP performance

The outcomes of FUP should first of all give evidence of being relevant to the University of Florence. These include:

Financial soundness: the University administrators are much more concerned with this than others. Every year there is less money and publications are an expensive cost centre: about Lire 800.000.000 (euro 400.000) is spent each year by departments, paying external publishers for teachers publications.

Quality audit: the Nucleo di Valutazione (Evaluation Pool) is the University’s internal self-evaluation working group, interested in collecting quality data. Recruitment of students and competition between universities keep the money coming in.

Research quality assessment: this is clearly important and is based on a set of indicators, determined by the government, as: impact factor; internationalisation level; cost for publication; and self-financing capacity.

Teaching quality assessment: this preoccupies institutional managers particularly in this moment when higher education in Italy is restructuring teaching.

Are users satisfied with the services? Is FUP cost efficient? Is FUP doing what it has claimed to do?

Then there are various aspects of FUP performance to consider.

FUP quality assessment

Let us think about quality predominantly in terms of outputs rather than inputs. It is very clear the primary focus is on customers. Listening to the customers, looking at the services they need, measuring performance and then making continuous improvements. Are we doing what is needed? How well do we do it?

User requirements

Focusing on what our customers actually want from us should be the starting point for any effective service. To find this out, we tried to obtain, through an e-mail survey, input from users on service priorities. E-mail surveys are not very popular, so people have to be attracted by the potential positive returns. For our users it was an opportunity to influence, through their own feedback, the formation of priorities. We gave them the opportunity to let us know their expectations more clearly in relation to FUP and, ultimately, we hope, a more focused use of FUP services.

During the years 2000 and beginning of 2001 three different users surveys were done, one of which is near completion (the survey to all the Departments). The surveys’ objectives were:

Retrospectively assessing our performance in meeting requirements: the problem with user satisfaction, in addition to the problem of expectations, is that we are asking people about their attitudes towards FUP. We want to enable FUP to respond to user requirements effectively and to articulate to the University management what is required and how we intend to meet requirements.

Defining strategic and service goals to be targeted for the future: what is the impact of surveys and performance measurement on people? Some evidence that our efforts are well directed or, at least, a course of action is needed, leading to a clearer remit from our users.

Public relations (this is a less idealistic but equally valid reason for the survey): simply to be seen doing a user survey gives the right signals to our customers. If we are able to then act on the results of the survey, this is even better.

Coverage of satisfaction survey

The first e-mail survey was sent to authors who have used FUP services (Bertini 2001). The results obtained about the areas of investigation covered are:

What is FUP 60% Visibility, 30% Speed, 30% Ease, 30% Extended access

What does FUP need to improve? 30% Checking of draft papers, 20% Peer review

What types of publications are preferred? 90% Scientific publications, 60% Learning materials

What is the overall satisfaction with FUP? 100%

I should note that there is a strong interest on learning resources. About 30% of the survey respondents want to publish them and another 30% are contemplating such publications.

Satisfaction is high: all authors will consider publishing with FUP again; one author said he was happy to “leave a sign inside the University” noting his satisfaction.

What respondents preferred from FUP services is electronic visibility (with its extended access), together with speed and simplicity in publishing with FUP. What they think should be improved is: (30%) assistance in editing (proof checking) and (20%) an improvement in the peer review process. Until now we have not checked the proofs because it is very expensive, leaving this responsibility to authors.
User requirements surveys

Another investigation was focused on potential authors/readers to find out what would persuade them to publish with us. Two surveys were conducted: one limited to the scientific community of Sesto (a place close to Florence where the campus of the Faculty of Science is located), and one extended to all the Departments of the University of Florence. The Sesto community survey (Cotoneschi 2001) has been analysed and was reported on at the time of being conducted, initially by discussion inside the “Comitato editoriale” (Editorial Board) of FUP. The prime mechanism for consideration of survey outcomes once the second survey is also completed will be the “Nucleo di valutazione”, an internal working group, which is concerned with liaison and quality assurance issues. It includes representation from the faculty teams and other areas and is the internal group most concerned with the quality enhancement process.

Methodology

We selected a traditional questionnaire approach, offering easy and quick responses using tick boxes where appropriate. Survey respondents were encouraged to write as many comments as they would like. Within each of the questions, the opportunity for extended, unstructured explanatory responses was available.

One of our goals is to get users to make as much use as possible of the actual FUP services. This objective was the leading factor in questionnaire preparation. The management of FUP, however, is prepared to change when the outcomes of the surveys are analysed in the case that the users’ responses suggest that change is necessary.

Areas of investigation covered in the surveys:

1. information about respondents;
2. respondents’ area of study;
3. knowledge of the availability of the FUP services;
4. opinions on aspects of services (types of publications desired, quality review, e-print archives, impact, etc.);
5. opinions on new roles of publishers, university presses, and libraries in electronic publishing;
6. free-form comments.

The work is still in progress and, at the moment, we have collected the data from the first survey of the scientific community in Sesto (Faculty of Science). In particular, we have learned from teachers who had never used FUP services before which promotional factors actually influenced them to try the FUP.

Survey findings

These are the main findings:

**Primary promotional factors:**
- 43% Quality of peer review
- 40% Access control and copyright management
- 35% Published by a recognised publisher

Peer review was identified as the most important factor in overcoming the reluctance of scholars to publish electronically with FUP. Peer review is a process that has evolved over many generations of scholars; it has become the cornerstone of academic publication and is something that is highly valued in all scholarly activities (among them the pragmatics of academic review). We must recognise that peer review is necessarily, and appropriately, a conservative process and that any new scholarly endeavour will take time to gain general acceptance.

The two other factors in the table above are related to traditional print publications, with a well-managed flow of activities and certification of printing. This reveals the misunderstanding that authors continue to have about the relationship between impact (impact factor in particular) and the access control governed by publishers (in particular, a few of them in a globalised arena). The discussion of this problem could be very long and, for the objectives of this presentation lead us outside the borders I have fixed of the FUP evaluation; let me cite Harnard as the most important author who is trying to convince scholars to change their most traditional publishing behaviours (Harnad, 1991). There is awareness among the University of Florence faculty that copyright is the main obstacle to the diffusion of electronic publications. SPARC is focused on educating authors about these issues.

Secondary promotional factors:

The other factors identified by this survey are the same factors identified in the author’s survey:

- Visibility
- Ease of publication
- Speed

All these factors are considered important opportunities for electronic publications and we know that these are the strengths of the availability of FUP services. The principal advantage of electronic publishing is rapid availability.

Respondents’ opinions of other aspects of services include:

1. **Credibility of electronic publications**

The choice of an electronic medium for the FUP project was not based on cost savings but on improving access. Our users, as readers who have become accus-
tomed to using the Internet, should also be convinced to use the Internet for publishing. It is important to realise that the problem of establishing the credibility of electronic publications is, in one sense, circular. Since established scholars are suspicious of the medium, they are unwilling to publish in it; and because they do not publish in it, the medium will continue to lack credibility. This result was in some sense surprising for us, because we had expected that the scientific community would have had a more positive opinion of electronic publications. We also found that young scholars are unlikely to take the risk of publishing in an electronic format.

A second concern was over the value that is ascribed to electronic scholarship. Most members of academic staff at Italian universities go through a periodic (often annual) assessment of their academic performance, largely based on “impact factor”. For many, this assessment is tied to the process of granting merit awards. Impact factor is an indicator related to print publications and to the traditional communication flow. Once again, the process is circular: the impact of an established publisher of print on paper publications is more highly valued and this situation is an obstacle to the credibility of electronic publication. We should remember that 20% of the journals have 80% of the impact factor. As this indicator is currently calculated, FUP has little chance of competing with these big publishers. Concern over the perceived value of electronic publication will inevitably lead to decreased usage of this method of dissemination.

2. Roles in electronic publishing

This part of the questionnaire was aimed at understanding what the community of Sesto envisioned as the roles and relationships along the information chain in the electronic publishing environment. The respondents identified, in addition to the authors, three traditional roles with a more or less equivalent weight: libraries, university presses, and publishers. They see that there is some need for the specific characteristics of each of them. Our findings are as follows: 43% of respondents think that the university press has a role, while 36% continue to believe in the role of publishers. Considering that in Italy the academic presses do not traditionally have an established role as publishers, we think that this result is very good for us. The role attributed to libraries is important too: 53% of the respondents thought that libraries had a role in publishing. In particular, 92% of the respondents recognised a role in e-print management among the traditional tasks of cataloguing, conservation and circulation.

3. Types of documents

Electronic journals are of major interest; they represent reliable, selected and quality-controlled sources of knowledge and are also an important factor in career assessment and funds assignments. The concept of publishing is identified with journal articles, selected by peer review and published by a recognised publisher. The e-prints produced are submitted for publication in journals or in conference proceedings, or are part of project reports and deliverables. There is also great interest in production of course notes for the community of Sesto; these are now generally diffused on the Web.

FUP performance indicators

It is evident that not only are we evaluating FUP outputs to improve our services, we are also hoping to influence managers to provide financial support and to influence people in their behaviour in electronic publishing. The FUP is not trying to produce academically impressive reports on our performance. We must keep in mind that there are a lot of different audiences for FUP performance indicators and that they each have different requirements.

Another complicated factor is the number of things that go on at the FUP, completing the full life cycle of electronic documents. We have to make the effort of evaluating and reporting proportionate to the possible benefits, and go for the broad picture. For example, we must measure the cost of publishing, while also considering the cost to libraries in acquiring resources or the cost of doing research work, bringing a work to publication, and finally, the cost of readers for assessing the publications. As the first step, we need to limit the measures to actual costs incurred by the FUP.

What subjects should we put down for our list of measures? FUP started with four key measures:

- customer satisfaction, including both authors and readers;
- impact, intending services and publications usage;
- cost efficiency (relevance to University outputs);
- time, considered as time until publication and time spent accessing publications.

From the surveys, we have learned that the quality of scientific communication is very important for the credibility of FUP services. In Italy, quality is confused with impact factor at the moment. We want to stress that there should be at least two quality indicators:

- Impact; and
- Peer review.

The impact of electronic publications is reliant on easy and constant access to the materials because in the electronic environment, access issues are as important as the content of information. We decided to measure impact by monitoring the use of FUP publications. This is again a quantitative indicator, extended to citation linking between articles and to usability surveys.
If we equate quality of scientific communication with quality of content, impact measures are not enough. Once, only peer review could be an indicator of content assessment. In the electronic environment, peer review could continue to be the traditional anonymous process preceding the publication, but we could instead rearrange the process so that review happens post-electronic publication, that is, after the publication is put on a server of the Web. Pre-peer review has the important result of limiting the quantity of publications; however, FUP wants to give authors the opportunity to publish immediately on an e-print server, leaving the peer review for later.

To date, only ten indicators have been calculated:

**IMPACT INDICATORS**

We are currently trying to distinguish between the impact indicators related to access and those related to use. We define access as accessibility, as traditional libraries usually organise their collection. At the moment, access to FUP publications is a “just in case” way of accessing an electronic collection, similar to a print collection, because we have not yet used all the possibilities of the Web. For FUP, this means producing and making quality publications accessible online, with the easiest interface we can offer. The use of our publications can be related to the output measures traditional libraries adopt. In particular:

**ACCESS INDICATORS**

- number of publications accepted / received;
- number of publications produced per type of publication, divided by subject;
- number of citations in databases and catalogues;
- number of reviews;
- number of links to publications.

**USE INDICATORS**

- total use (number of times FUP site was hit);
- number of searches for title;
- number of unique IP addresses that accessed the title;
- number of articles downloaded;
- number of subscribers, orders received.

We would like to begin with one set of measures available for some Highwire Press titles and determine what they tell us about our own performance. The Highwire statistics provide some basic data as well as some meaningful novel data. What is particularly useful is the number of unique IP addresses that access this site. From this data we can conjecture that a wide range of researchers frequently use this resource. Thus, this type of reporting not only provides a sense of the volume, but also of the breadth of use for a particular title.

**TIME INDICATORS**

Timeliness is an important factor for our authors/readers and so we try to measure:

- Average time from submission to publication on the Web;
- Average time spent on research sessions.

Time is also an important factor because it is related to cost, both for FUP and for its customers. The cost measures are very important for FUP because we have to give clear accountability of what we do.

**COST MEASURES**

The cost measures are the only indicators we have already calculated. In particular we measure:

- cost of publication and the related: cost savings
- self-financing capacity and the related: cost recovery
- cost of publication / use and the related: cost/benefits to users

The cost for publication was calculated as:

\[
\text{Total direct costs + total indirect costs divided by total publications} = \text{cost per publication}
\]

We have considered all the costs involved, internal costs of structure and direct cost related to production of publications. At the moment we cannot measure the cost to libraries in acquiring resources, doing the research work, or for readers in accessing the publications. However, from the University of Florence’s point of view, this kind of consideration of all the costs involved in scientific communication would be of great value.

The direct production costs of the first copy of the publication have been considered for the activities of: editing, digitisation, conversion of format, indexing, management of digital document, distribution and promotion, management of access and administration of orders. Print on demand and distribution of print copies should also be added as a direct cost of publication. The indirect costs are staff time and FUP infrastructure (building, equipment, heating and so on). We have also considered the staff time spent in all the FUP activities (as illustrated in Fig. 1). It should be noted that FUP has used only facilities of the University of Florence, so these indirect costs would be, in any case, sustained.
The cost indicator has been used for calculating:

- **cost savings** gained by: (1) automating the editorial function, dispensing with editorial desk work such as marking up and proof reading; and of course, (2) distributing the material electronically;

- **cost-recovery mechanism**: it is important that journals and publications are priced at a level sufficient to recover costs. We are considering a form of charges for print on demand and making online publications available to users free for viewing.

It is interesting to examine how the costs for publication are distributed:

<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creation of publications</td>
<td>80%</td>
</tr>
<tr>
<td>Publication on the Web</td>
<td>3%</td>
</tr>
<tr>
<td>Promotion</td>
<td>7%</td>
</tr>
<tr>
<td>Administration</td>
<td>10%</td>
</tr>
</tbody>
</table>

It is evident that in the future, costs should be balanced among our priorities; that is, access on the Web and the creation of publications that now absorbs most of our efforts. However, we have obtained good cost savings compared to the cost of the print edition of the University of Florence journals we have converted into electronic editions. For example:

- **Global Bioethics**: Cost per year of electronic edition: L. 9,000,000; % savings on paper edition: - 56%.
- Without the cost of print on demand: L. 3,000,000; - 75%.

A system-wide view of the costs and benefits of producing and delivering journal articles must acknowledge the costs and benefits to users. For example, the time that it takes to identify high-quality information and to download it to the desktop is a cost, as is the time spent learning to use a new interface. This is what we are trying to do now, by adding to the **Cost for publication** indicator the other **Cost for publication for impact indicator**.

### Conclusions

Finally, let us quickly look into the future and see how new developments will affect the need to measure the FUP, in the broad context of higher education and scholarly communication change.

Higher education in Italy is changing rapidly. Above all, we shall not have large amounts of money to play with; there is therefore no use putting up projects that require spending lots of money. FUP is looking to the international market for a cost recovery mechanism while maintaining the quality of our services. We shall need to ensure that our measures are valid for every new and changing situation.

So, what are my final conclusions relating to performance measures for FUP? Firstly with all this change going in scholarly communication, it is foolish for us to try and do everything individually. When we do measure, it is particularly important to use a standard methodology so that results can be compared through benchmarking. This is why we want to share our experiences with other University Presses, to collaborate in finding a set of core measures where agreement can be found. Much of what we have done is an effort to find new measures for new University services with the point of view not of traditional publishers, but of librarians trying to facilitate communication, not looking for profit but limiting these attempts to cost recovery.

### References


Notes

1. Unimarc format is used for the record to be sent to the National Library and University central catalogue; Dublin Core for the record used for Web search.

2. Government indicators are listed in: Metodo di valutazione della ricerca svolta presso strutture scientifiche universitarie nell’ambito del macro-settore scientifico-disciplinare prevalente, Roma, CRUI, 1999, p. 9 and following.

3. The statistics provided by Highwire Press are among the most extensive on the market. The statistics include:
   • total use (number of times site was hit)
   • use of various parts of the journals including the table of contents, the abstracts, and the full-text articles
   • format of full-text, either HTML or PDF
   • number of searches
   • number of unique IP addresses that accessed the title
   • number of articles by section (e.g., Mini-Reviews, Communications, Enzymology, etc.)
   • top 10 articles viewed including how the article was accessed (HTML vs. PDF) and age of article in days
Electronic services and library performance measurement: A definitional challenge

Peter R. Young
Library of Congress, USA

Abstract

Recent global advances in communications infrastructure, digital media, network services, and electronic commerce present transformational opportunities and fundamental challenges for libraries. Developments in these areas appear to offer opportunities for increasing and enhancing library service offerings, reducing costs, and for improving organizational performance. But the transformation to an integrated digital future is also generating uncertainty for libraries. New electronic services challenge libraries to differentiate transient developments from those with lasting impact. The ability to discern these transformational changes and to respond to changing requirements depends, in large part, on the concepts, tools, and structures needed for measuring these changes over time. Library statistics and measurements provide a framework for planning and tracking change.

Over the past several decades, American libraries have developed and refined procedures for reporting descriptive statistics collected by census and survey at the state and national levels. These efforts include development of common data elements with standard definitions and uniform data collection/reporting procedures required to assure reliable and comparable data. In conjunction with these developments, library managers are increasingly called on to demonstrate organizational performance through standard measurement techniques. Development of standard definitions and terms, procedures, and measurement methodologies related to library performance requires that librarians rethink how to describe and demonstrate value. Performance measurement of libraries requires librarians to transform quantitative input and output data collection concepts and structures into a qualitative outcome assessment framework. This complex transition is central to understanding the rapid pace of library change within the commercial realm of Web/network services development.

The digital services commercial marketplace is developing standards and procedures for defining, characterizing, and measuring digital media and electronic services. At the same time, libraries are also evolving language, definitions, terminology, and methods for characterizing and describing the impact of network-based services and digital media in performance-based terms, often with reference to customer relationship management. This effort requires a re-conceptualization of the way libraries define, collect, and apply management information. It requires the development of a performance measurement perspective from which standard indicators, operational definitions, procedures, and methodologies can develop and evolve. As an initial component of this development, standard definitions are required for new terms such as: electronic resource, digital library collection, computer file, database, page view, web site, web resource, web page, web collection, online service session, portal, aggregator, gateway, remote login, download, etc.

Until standard definitions for these terms are available, refined, and generally adopted, progress in measuring library involvement with digital media and electronic services within a standard performance measurement context will be limited.

Based on recent developments, libraries face opportunities to define and develop new criteria for measuring performance through the development of indicators related to network services and electronic media. The development of these performance indicator criteria requires that libraries focus on metrics and performance indicators related to the following categories:

- **Network technology infrastructure**: the component hardware, equipment, software, communication conduit, network resources, and associated technical aspects related to electronic network media and services;
- **Information resource content**: networked electronic information resources accessible and preserved locally or remotely, and the means by which search, retrieval, and activation is achieved through administrative, descriptive, and structural metadata and coding;
- **Extensiveness**: extent of network provided services as measured by standards such as the number of Web page accesses, number of remote logins and sessions, etc.;
- **Efficiency**: those resources required to provide access networked information services and digital media resources as measured by standards such as peak-hour connections to servers, bandwidth, etc.

These general categories provide a framework for considering the different ways that libraries are developing indicators for measuring performance based on...
electronic service offerings. It is likely that future work in the development of performance indicators for library implementation of electronic media and network services will focus on demonstrating and justifying the technology investments required for libraries to provide these services to patrons. Standard definitions are needed to provide context for customer performance measurement in an increasingly network library context. The development of basic definitions for terms related to these services is intended to facilitate progress in these areas.

This article is based on a Keynote presentation at the Fourth Northumbria International Conference on Performance Measurement in Libraries and Information Services: “Meaningful Measures for Emerging Realities”. Pittsburgh, PA - 13 August 2001. The views and opinions expressed in this paper are those of the author and do not necessarily reflect the policies or positions of the Library of Congress or the U.S. federal government.

Introduction

ISSUES AND TRENDS

Electronic service measurement and network statistics for libraries are topics of increasing interest as evidenced by presentations at the Fourth Northumbria International Conference on Performance Measurement in Libraries and Information Services held 12–16 August 2001 in Pittsburgh, PA. This increasing interest in library performance measurement is evidenced by a series of rapidly changing developments and a series of recent international initiatives. This paper summarizes the central issues emerging from an interest in measuring the performance of libraries through the application of statistical and other qualitative techniques. It frames the quantitative aspects of library statistics, reviews qualitative issues, and itemizes concerns, challenges, problems, questions, directions related to the development of performance measures and indicators for libraries. Finally, the paper concludes with a brief view of the development of customer-centered performance measurement tools.

An assumption underlying these topics is that there is no one “right” correct method for collecting, reporting, and using statistics in developing performance indicators for libraries. Rather, it is the intent of this paper to provide a context and to clarify a direction for evolving new approaches to library management needed to assist libraries in the conduct of business in a networked environment.

A draft glossary of library statistics and performance measurement terms is included as an appendix. This draft consists of terms and definitions drawn from multiple sources. This draft glossary was developed in conjunction with colleagues engaged in planning for an invitational National Information Standards Organization (NISO) Forum on Performance Measures and Statistics for Libraries: Issues for Libraries in Measuring the Information Age which was held 15-16 February 2001 in Washington, DC. The NISO Forum planning group consisted of: Pat Harris/NISO, Martha Kyrillidou/ARL, Karen Motylewski/IMLS, Michael Gorrell/Ebsco, Denise Davis/NCLIS, Barbara Perry/World Bank, Pat Wand/American Univ., and J.D. Waggoner/WVA Library Commission.

The initial draft glossary was amplified and extended by the inclusion of definitions drawn from standard reference sources, including several outside the scope of the library statistics and performance measurement fields, including those in the areas of digital library standards, metadata framework development, network services, intellectual property ownership, computer science, and descriptive cataloging rules. Inclusion of definitions from multi-disciplinary sources reflects a conviction that electronic services and digital media present transformational opportunities for re-framing library missions. From a variety of perspectives, progress in library statistics and performance measurement requires that the library community participate in multi-disciplinary efforts involved with transitioning from cataloging to metadata, moving from traditional reference to digital reference services, and evolving traditional library research tools such as indexes, bibliographies, guides, and abstracts to Web portals.

CONTEXT OF CHANGE

The forces of change affecting libraries are the focus of a recent National Academy of Science study, LC21: A Digital Strategy for the Library of Congress. This landmark report begins with the following statement:

“No stereotype of libraries as quiet, uneventful places could survive the 1990s. Whatever stability and predictability libraries once had as ordered storehouses of the treasures of the printed word were shattered by the digital revolution. The intellectual function of libraries – to acquire, arrange, and make accessible the creative work of humankind – is being transformed by the explosion in the production and dissemination of information in digital form, especially over global networks.”

(Library of Congress, 2000)

Nowhere are the consequences of this digital revolution and transformational explosion more succinctly stated than in Clayton Christensen’s The Innovator’s Dilemma, which explores why even good corporate managers may find their companies losing market dominance with the adoption of new technology. Christensen outlines the concept of disruptive technologies in the following passage:

“Most new technologies foster improved product performance. I call these sustaining technologies.
Some sustaining technologies can be discontinuous or radical in character. Most technological advances in a given industry are sustaining in character. Occasionally, however, disruptive technologies emerge. [These] disruptive technologies bring to market a very different value proposition. In the future, "Internet appliances" may become disruptive technologies to suppliers of personal computer hardware and software." (Christensen, 1997)

Just as certain new emergent technologies can disrupt a corporation or industry by introducing a new value proposition, so the introduction of networked electronic services and digital media present challenges for libraries to differentiate transient trends from technology-related developments of lasting impact. This situation of constant change challenges the operational stability of information-intensive organizations. For libraries, transforming change is equivalent to 'permanent white water' where:

- Stable and predictable operations no longer appear possible
- Increasingly complex systems produce novel problems
- Issues become increasingly messy, ambiguous, and ill-structured
- Management encounters constant unplanned surprises
- Unexpected surprises result in significant costs
- The recurrence of problem issues present significant continuing challenges

The situation reflects a dramatic change in priorities and organizational goals that reflects a shift from an industrial era to a postmodern era. This shift is exemplified by the following contrasts and trends:

<table>
<thead>
<tr>
<th>Industrial Era</th>
<th>Postmodern Era</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchical chain of command</td>
<td>Self-governing teams/networks</td>
</tr>
<tr>
<td>with multiple management levels</td>
<td>with few management layers</td>
</tr>
<tr>
<td>Competitive advantage</td>
<td>Collaborative advantage</td>
</tr>
<tr>
<td>- Control</td>
<td>- Commitment</td>
</tr>
<tr>
<td>Managers maintain stability</td>
<td>Managers coach and lead</td>
</tr>
<tr>
<td>- Decisions announced</td>
<td>- Few rules and policies</td>
</tr>
<tr>
<td>- Bureaucratic rules/policies</td>
<td>- Power exercised over others</td>
</tr>
<tr>
<td>- Power exercised over others</td>
<td>- Information shared with others</td>
</tr>
<tr>
<td>- Information held by a few</td>
<td>- Information widely available</td>
</tr>
<tr>
<td>Risk averse</td>
<td>Risk tolerant</td>
</tr>
<tr>
<td>Focus on short-term gains &amp; interests</td>
<td>Focus on long-term gains &amp; continuous improvement</td>
</tr>
</tbody>
</table>

Although descriptive statistics relating to library activities have not always reflected these features, these characteristics have served as standard goals to which various data collection and reporting programs have aspired over the last several decades. In similar fashion, descriptive library statistics are traditionally collected and reported for the following four purposes and applications:

1) Managerial and administrative – data used for measuring economic efficiency, productivity, and change;
2) Research and analysis – statistics used to perform trend analysis, testing, model formulation, research and development, and identifying innovation;
3) Policy planning and development – statistical information and analysis used to plan for improvement, to determine grant allocation and support, to support advocacy, to justify legal reforms;
4) Market analysis and planning – data used to analyze demand, to identify, segment, and develop markets, for use in determining licensing contractual terms.

**EVOLVING LIBRARY POLICY ISSUES AND CONCERNS**

Over the last several decades, digital technology and networked systems have been integrated into the core operations of libraries. These developments are intended to improve library effectiveness and functional productivity. However, digital networks are affecting library missions and policies, as well as transforming specific functional capabilities within libraries. The adoption of digital technologies by libraries has not, as yet, generated standard measurement techniques that uniformly and systematically chart changes in library accomplishment and operational effectiveness. Facing increased pressure to demonstrate effectiveness by measuring performance, however, library managers are looking to information technology as a means for measurement of institutional effectiveness. This trend responds to the need for libraries to justify increased capital investments in technology-related systems and to respond to library patron demand for electronic service increases. Library managers are also interested in the development of performance measurements of the impact of digital media and network services in order to manage these new technologies effectively.

Increasingly, libraries are offering new services based on digital and network technologies in response to patron demand. These include patron requests for access to electronic media, technology support, training, and for access to network-based services. Patron expectations for access to digital content and electronic services raise a host of policy issues centering on remote access to resources not owned by the
library. Such patron demands are requiring libraries to adjust activities related to collection development, preservation, archiving, and access policies and procedures. By offering new value-added services, libraries are required to adopt standards relating to digital identifiers and digital repositories. At a fundamental level, these new services challenge library involvement with complex intellectual property and rights management issues related to content licensing agreement terms. Additionally, patron demand for custom-mediated digital-reference guidance support require libraries to address needs for new interpretative tools to perform selection, evaluation, analysis, technology, training, and support function, as well as for policies related to the integration of print and digital media services and resources. In a very rapid fashion, issues and policies that challenge existing paradigms and procedures have attracted the attention of library managers and governing officials. In summary, libraries are encountering transformational adjustments in facing the challenges of a new digital reality.

This transformational challenge is clarified by reviewing attributes of traditional library catalog and index functions with the functions of a dynamic WWW portal in the following comparison:

<table>
<thead>
<tr>
<th>Library Catalog – Index</th>
<th>Web Portal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective</td>
<td>Comprehensive/inclusive</td>
</tr>
<tr>
<td>Consistent</td>
<td>Semantic interoperability</td>
</tr>
<tr>
<td>Predictable</td>
<td>Heterogeneous domains</td>
</tr>
<tr>
<td>Trustworthy</td>
<td>Self-correcting</td>
</tr>
<tr>
<td>Credible</td>
<td>Multidimensional</td>
</tr>
<tr>
<td>Familiar – Conventional</td>
<td>Integrative topology</td>
</tr>
<tr>
<td>Linear</td>
<td>Distributed</td>
</tr>
<tr>
<td>Historically derived</td>
<td>Fluid-Evolving-Relational</td>
</tr>
<tr>
<td>Syntetic</td>
<td>Ontological taxonomic</td>
</tr>
<tr>
<td>Static-Fixed-Dependable</td>
<td>Incrementally dynamic</td>
</tr>
</tbody>
</table>

Electronic Services and Network Technology

The recent rapid adoption, incorporation, and support of digital media and network services into the library environment have few precedents. The rate of change within libraries reflects similar growth trends in the broader electronic services industry as projected in the following comparison:

<table>
<thead>
<tr>
<th>2001</th>
<th>2003 (projected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>205 M Internet Users</td>
<td>290 M Internet Users</td>
</tr>
<tr>
<td>$4.5B Net Commerce</td>
<td>$7.3 Trillion e-commerce (revised to $6 Trillion by Gardner Group March 2001)</td>
</tr>
<tr>
<td>15 Terabytes online</td>
<td>180 Terabytes online</td>
</tr>
<tr>
<td>4.7 M Web Sites</td>
<td>7.1 M Web Sites</td>
</tr>
<tr>
<td>25 M Domain Names</td>
<td>60 M Domain Names</td>
</tr>
<tr>
<td>2.5 B Documents</td>
<td>30 B Documents</td>
</tr>
<tr>
<td>800 M Web pages</td>
<td>1.2 B Web pages</td>
</tr>
<tr>
<td>4 B IP Addresses</td>
<td>&gt;4 B IP addresses (?)</td>
</tr>
<tr>
<td>10 B e-mails/day</td>
<td>35 B e-mails/day</td>
</tr>
<tr>
<td>70 day site life</td>
<td>&lt;1 Month site life (?)</td>
</tr>
<tr>
<td>44% dead IP links</td>
<td>&gt;44% dead IP links (?)</td>
</tr>
</tbody>
</table>

This projected rate of development and rapid pace of digital media and network service deployment is background for clarifying the challenge libraries and other information intensive organization face in developing strategies for managing future challenges. This strategic challenge involves the adaptation of descriptive statistics into relevant standard measures that will reflect the scope and scale of electronic services within the context of institutional performance.

STATISTICAL MEASUREMENT QUESTIONS AND APPROACHES

Difficult questions arise from library adoption of electronic media and digital services. The issues reflect the conceptual basis for library operations. They include the following:

- Why should libraries measure electronic services and networked resources?
- How should libraries measure electronic service access, media content collections, costs, support requirements, and Web usage?
- What statistics should a library collect for access to remote electronic services and digital content?
- Can electronic service measurements facilitate development of library output measures and performance indicators?
- Can electronic services be added to existing library statistical categories or are new measures needed?

In addressing the issues arising from these questions, a variety of approaches are possible. Each of these traditional distinct approaches to measurement reflects a slightly different approach to electronic service measurement, as can be seen from the following, it is possible to use:

- Transaction-based measures that measure such things as interactive sessions, downloads, hits, terminals/patron, domain and host addresses, images, or files by sampling or transaction logs
- Time-based measures that measure such things as available service hours, session length/duration, system/server peak levels
- Cost-based measures that measure such things as cost/expenditures for telecommunication bandwidth, terminal workstation equipment, staff, training, maintenance, site licenses
- Use-based measures that measure such things as user activities, anticipated demand, simultaneous users, group use, hits/patron, user satisfaction, local or remote resource usage
Regardless of the measurement approach selected, however, there is fundamental need to adapt and rethink measurement issues related to library involvement with new electronic media and network technology. In order to address new service measurement issues adequately, libraries require standard terms and definitions that can be applied consistently and uniformly to describe electronic services and resources. The need for carefully devised and developed language, terminology, and definitions related to these services is illustrated in the host of digital library challenges appearing in the traditional library research literature. While the Digital Library Federation has offered a clear standard definition of a digital library, the community lacks agreement on definitions detailed the specific meanings of associated terms and definitions for those functions and services offered in the digital realm. Digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities. (CLIR, 1999)

STANDARDS, TERMS, AND DEFINITIONS

Definitional challenges related to standard terminology for digital library measurements do not admit of easy solutions. The current state of library technology infrastructure development reflects complex configurations in which service mix, patron demand/use, and system implementation vary widely. These varying conditions make it extremely difficult to set standard structures and definitions. These variances and differences also make it difficult to collect comparable data from different libraries using traditional mechanisms and instruments. Libraries recognize the lack of clarity in collecting and reporting information related to electronic services. There is broad agreement about the:

- Lack of common accepted conceptual framework;
- Lack of clear, standard, and unambiguous definitions;
- Lack of standard procedures and methods for gathering data in the same way under similar conditions;
- Lack of integrated set of fully developed network infrastructure design principles; and
- Lack of tools that respond to rapid pace of change in networking technologies.

These challenges are also reflected in the difficulties encountered for development of standards related to measurement of electronic resources and services. The rapid pace of change and development in this area makes it difficult to keep current with rapid and fluid developments in Web services expansion. A lack of agreement on standard definitions of electronic data element service measures, or for a “unit” count presents particularly difficult challenges. When terms such as “document” or “Web site” do not carry the same definitional foundation and agreement of terms like “title” or “item” in a more traditional library environment, problems arise. In addition, there is need for libraries to work cooperatively with network service vendors and commercial electronic service suppliers to provide consistent and reliable transaction usage log information related to library and patron use. The need for generalized software tools to automatically record meaningful standard data regarding usage requires sophisticated programming competence that is not readily available within the library community. Extensive collaboration with aggregators, network service providers, and electronic publishers is critical to progress in this area. In general, a complex mix of interests and concerns presently cloud agreement about how to proceed in developing standards in this area. Also, with the pace of change and development continuing, it is likely that standards for network service measures will follow an evolutionary and developmental approach. In any event, these efforts require the careful development of language, terminology, and definitions appropriate for the new electronic realm.

CONCEPTUAL MODEL FOR LIBRARY STATISTICS

Drawing on developments in a host of allied areas helps clarify library measurement concepts and terminology. Such an approach allows library statistical concerns to build on the progress achieved in areas related to metadata standards development. One such area of development involves preliminary concepts and definitions emerging from the World Wide Web Coalition (W3C). Definitions from this global industry-research group working on standards include the following terms:

Web resource (Uniform Resource Identifier/URI specification): the manifestation of a retrievable network object characterized by consistent conceptual mapping (e.g., electronic document, image, or service).

User: the principal using a client to interactively retrieve and render resources or resource manifestations.

User session: a delimited set of user clicks across one or more Web servers. An episode is a subset of related user clicks within a user session.

Web page: a collection of information, consisting of one or more.

Web resources: intended to be rendered simultaneously and identified by a single URI. A page view is a visual
rendering of a Web page in a specific client environment at a specific point in time.

**Web site**: a collection of interlinked Web pages residing at the same network location.

Similarly, developments in developing standards for the Open Archival Information System (OAIS) have generated preliminary concepts and definitions for the following terms that can be considered in developing standard terms and definitions for library measurement of digital media and electronic services:

**Digital object**: an object composed of a set of bit sequences.

**Search session**: a session initiated by the consumer with the archive during which the consumer will use the archive Finding Aids to identify and investigate potential holdings of interest.

**Representation information**: information that maps data into more meaningful concepts.

**Data dissemination session**: a delivered set of media or a single telecommunications session that provides data to a consumer. The dds format/contents is based on a data model identifying logical constructs used and represented on each media delivery.

**Information package**: content and packaging information used to delimit and identify digital objects.

Finally, another effort at the Library of Congress in developing core standard metadata elements for electronic media offers further preliminary concepts and definitions that may have application for statistical and measurement development:

**Set**: set-level metadata applies to a digital collection formed from aggregates that group digital items by content type.

**Aggregate**: an aggregate organizes digital objects by digital type and by digital custodial responsibility.

**Primary object**: the specific item identified by the online collection access aid as a coherent whole.

**Intermediate object**: a view of component of the primary object. Metadata for an intermediate object allows the gathering of digital files and metadata for the creation of presentations.

**Terminal object**: the digital content file or files that form the object.

Terminal object metadata provides structural information about digital attributes (file size, extension, bit-depth, etc.).

Borrowing the definitions for terms such as these from a variety of different areas, the appendix to this paper offers preliminary language used in the study, description, and analysis of library involvement with digital information resources, electronic services, and network applications. Similarly, terminology related to performance measurement and development of performance indicators is included in this draft glossary. Hopefully, this draft will provide motivation and guidance in the development of concepts and definitions for describing and framing these critical areas of library services.

Applying the terms and definitions to library statistics, the following four measures may serve as a reasonable starting-point, despite the fact that each measure identified may not adhere to strict requirements for meaningfulness, relevance, and comparability:

**Interactive Transaction-based Measure** – measure total annual interactive simultaneous network user sessions as recorded by transaction activity-logs or by sampling techniques

**Time-based Measure** – measure total annual network service hours available from public access workstations providing interactive simultaneous user sessions as recorded by transaction activity-logs

**Cost-based Measure** – measure total annual costs/expenditures required to provide network services (including costs of telecommunication/bandwidth, terminal workstation equipment, staff, training, maintenance, site licenses, etc.)

**Use-based Measure** – measure total annual aggregate digital web resource objects/sets delivered from user initiated search sessions involving archived digital resources during which users employ Finding Aids to identify and investigate potential holdings of interest

Library Performance Indicators

**Library Performance Measurement**

Indicators of library performance measurement differ from descriptive statistics related to libraries in emphasizing the following attributes:

<table>
<thead>
<tr>
<th>Validity</th>
<th>Goals</th>
<th>Objective</th>
<th>Quality</th>
<th>Impact</th>
<th>Oversight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcomes</td>
<td>Priorities</td>
<td>Accountability</td>
<td>Results</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Library performance indicators focus on the evaluation of library performance by measuring effectiveness and organizational performance, by assessing needs, testing, identifying gaps & high-risk areas, improving accountability, and by establishing benchmarks and baselines. Performance indicators focus on management using unbiased information to improve decision making, to reduce risks, and to solve problems. The emphasis of performance measurement includes drawing comparisons that are useful to coordinate, prevent duplication, to perform stakeholder consultations, and to focus on outputs and outcomes. Finally, performance measure-
ment enables managers to do comparisons, to plan strategy, to formulate budgets, to plan and evaluate program results, and to set goals required to achieve success.

While overlapping concerns affect each area, a useful comparison of the different emphasis of descriptive statistics and performance indicators is seen in the following:

<table>
<thead>
<tr>
<th>Descriptive statistics</th>
<th>Performance indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistent</td>
<td>Valid</td>
</tr>
<tr>
<td>Timely</td>
<td>Objective</td>
</tr>
<tr>
<td>Comparable</td>
<td>Quality</td>
</tr>
<tr>
<td>Reliable</td>
<td>Goals</td>
</tr>
<tr>
<td>Relevant</td>
<td>Priorities</td>
</tr>
<tr>
<td>Accurate</td>
<td>Impact</td>
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<tr>
<td>Useful</td>
<td>Results</td>
</tr>
<tr>
<td>Standard</td>
<td>Accountability</td>
</tr>
<tr>
<td>Reportable</td>
<td>Effectiveness</td>
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</tbody>
</table>

Similarly, the application of library statistics and performance measurement for libraries can be contrasted as in the following:

<table>
<thead>
<tr>
<th>Library Statistics</th>
<th>Performance Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management &amp; Administration:</td>
<td>Evaluate: organizational performance, identify</td>
</tr>
<tr>
<td>measure economic efficiency,</td>
<td>baselines, test, identify gaps &amp; high-risk</td>
</tr>
<tr>
<td>productivity, change</td>
<td>areas, improve accountability</td>
</tr>
<tr>
<td>Research &amp; analysis:</td>
<td>Manage: unbiased information, improve</td>
</tr>
<tr>
<td>trend analysis, testing, model</td>
<td>decisions, reduce risk, solve problems,</td>
</tr>
<tr>
<td>formulation, R&amp;D innovation</td>
<td>assess needs</td>
</tr>
<tr>
<td>Policy planning &amp; development:</td>
<td>Compare: coordinate, prevent duplication,</td>
</tr>
<tr>
<td>improvement, grant support,</td>
<td>stakeholder consultations, outputs,</td>
</tr>
<tr>
<td>advocacy, legal reform</td>
<td>outcomes</td>
</tr>
<tr>
<td>Market analysis &amp; planning:</td>
<td>Plan Strategy: formulate budget, plan program</td>
</tr>
<tr>
<td>demand analysis, market development,</td>
<td>results, set goals &amp; assure achievement</td>
</tr>
<tr>
<td>license contract terms</td>
<td></td>
</tr>
</tbody>
</table>

Performing this type of comparison as a meta-analysis of these two areas of concentration helps to highlight the different approaches of statistics and performance measurement for libraries. The attributes and methodologies developed for library statistics collection, reporting, and analysis do not translate directly to performance measurement. Rather, comparison of the questions and perspectives for each area reveal differences in emphasis and approach.

**Performance Questions and Approaches**

Library performance measurement focus raises the following concerns:

- Why define a new framework for describing library performance and criteria for successful service?
- How should these new success criteria be developed?

- What performance indicator standards exist at the national and international levels?
- What performance indicators can be recommended?
- What are the future developments that will affect development of library performance measurements?
- Are performance-based indicators related to customer relationship management?

In many ways, development of an evaluative framework for measuring success is required in response to the dynamic, unstable, uncertain, and unpredictable changes occurring in libraries. Performance measures are needed to demonstrate value and to respond to changes in demand brought on by the introduction of new services that require the flexibility to create organic learning organizations that are: self-accountable and self-renewing, that involve continuous learning, and that are increasingly adopting team management principles. Libraries and researchers are beginning to focus on identifying what measures to collect and report, what indicators to recommend, and on what procedures to define, approve, collect, and what data elements to report. Developing standard terms and definitions presents challenges for understanding the various categories involved including the following:

**Network Technology Infrastructure**: the component hardware, software, communications conduit, network resources, and associated technological aspects related to electronic network media and service offerings

**Information Resource Content**: networked electronic information resources accessible and preserved locally or remotely, and the means by which search, retrieval, and activation is achieved through administrative, descriptive, and structural metadata and coding

**Extensiveness**: extent of network provided services as measured by standards such as the number of Web page accesses, number of remote logins and sessions, etc.

**Efficiency**: those resources required to provide or access networked information services and digital media resources as measured by standards such as peak-hour connections to servers, bandwidth, etc.

The Equinox (Telematics for Libraries Programme of the European Commission) project that is working on developing library performance measurement and quality management system has developed the following approach to performance Indicators:
• % target population reached by electronic services
• # electronic library services logins/capita/month
  local >> remote
• # electronic documents delivered/capita/month
• cost/login/electronic service
• cost/electronic document delivered/electronic library service
• reference enquiries submitted electronically/month
• library computer workstation use rate
  #/capita >> hours used/capita/month
• Rejected logins as % of total logins
• Systems availability
• Mean waiting time for access to library computer workstations
• IT expenditure as % of total library expenditure

In addition, McClure/Bertot IMLS1999 have proposed performance measures of capacity, use, and impact to describe the ability to make use of a network resource or deliver an network service. These include the following:

A conceptual model of library performance measurement can be constructed for each category of indicator in the following manner:

• Transaction-based Indicator – measure total annual interactive simultaneous network user sessions as percentage of total annual users
• Time-based Indicator – measure total annual network service hours available through public access workstations providing interactive simultaneous user sessions as recorded by transaction logs as a percentage of total annual hours open
• Cost-based Indicator – measure total annual operating costs/expenditures for network services (including: library materials, site licenses access fees, telecommunication/bandwidth, terminal workstations, maintenance, staff, training, etc.) as a percentage of total annual operating expenditures
• Use-based Performance Indicator – total annual aggregate digital web resource objects/sets delivered from user search sessions as a percentage of total annual interactive simultaneous network user sessions as recorded by transaction activity-logs or sampling

**CONCEPTUAL MODEL FOR LIBRARY PERFORMANCE MEASUREMENT**

Combining the different perspectives into a conceptual model of performance measurement categories provides the following comparison which illustrates the differences between the various approaches:

**Transaction-based Measures**
- Measure interactive sessions, downloads, hits, terminals/patron, domain and host addresses, images, or files by sampling or transaction logs

**Time-based Measures**
- Measure available service hours, session length/duration, system server peak levels

**Cost-based Measures**
- Measure cost/expenditures for telecommunication/bandwidth, terminal workstation equipment, staff, training, maintenance, site licenses

**Use-based Measures**
- Measure user activities, anticipated demand, simultaneous users, group use, hits/patron, user satisfaction, local or remote resource usage

**Network Technology**
- Infrastructure
  - The hardware, software, communications conduit, and associated technology related to electronic network media and service offerings

**Information Resource Content**
- Networked electronic information resources accessible and preserved locally or remotely; and the means by which search, retrieval, and activation is achieved through administrative, descriptive, and structural metadata

**Extensiveness**
- Extent of network provided services as measured by standards (number of Web page accesses, number of remote logins and sessions, etc.)

**Efficiency**
- Resources required to provide or access networked information services and digital media resources as measured by standards such as peak-hour connections to servers, bandwidth, etc.
A growing emphasis on the need to measure library performance, especially in those areas impacted by electronic services, requires the development of standard definitions, procedures, and instruments. The trend forces librarians rethink the forms of data used to describe and demonstrate what specific value libraries provide to individual patrons, customers, and to society at large. Development of a library performance measurement perspective has significant public policy implications for library managers, governing officials, and for citizens.

Digital network services and electronic media offer promises of unprecedented potential to supplant or supplement print-based communication modalities. The disruption potential of new technology challenge libraries to reframe concepts of organizational performance. For academic institutions, technological innovation and changing information economics threaten radical changes in knowledge communication processes, access to resources, and the nature of learning. More broadly, rapid growth in interactive global networking promises new opportunities for all types of libraries, as well as for a full spectrum of knowledge institutions involved with learning, information transfer, and the preservation of resources. Together, these challenges present opportunities to rethink the library’s role in support of the evolving knowledge needs of an increasingly networked global community.

Customer Relationship Management

Customer performance management for a networked environment

In today’s world of e-business management, there is growing recognition of the need to measure customer satisfaction through Customer Relationship Management (CRM). This rapidly developing area focuses on developing, improving, and maintaining relationships with customers. CRM enables a company to protect against customer infidelity in light of the expanded range of competitive choices that are available to consumers. This is particularly important for those companies opening e-commerce channels for meeting customer requirements. The CRM field is expected to grow to $150 billion annually within the next decade. (Chartrand, 2001) Driven by the rapid pace of change and innovation within an increasingly competitive global e-marketplace, customer preferences and priorities are increasingly determined by loyalty. CRM concentrates on managing, strengthening, and enhancing relationships with customers. Such customer-focused enterprise program activity requires a comprehensive technological and organizational reorientation which acknowledges that knowledge of customer preferences, priorities, and potentials are essential for managing customer relationships through multiple channels. Much of the CRM movement is dependent on rapid prototyping and ongoing performance testing common in Web-networking communities.

Adaptation of CRM techniques and approach to the library environment could shift concentration from a more traditional collection-centered view to a customer-service perspective reflecting a performance management transition. The increasingly networked library environment can adapt the CRM tools needed to facilitate, mediate, and integrate customer access to electronic services and networked resources. These customer-centered services can form the basis for value-added selective dissemination capabilities that are increasingly common for commercial network services like Amazon.com. However, it is particularly important for libraries, as non-commercial service providers offering unbiased network access free of advertising, to examine the application of customer relationship management tools and techniques to those services provided by publicly supported institutions. Adjustments are required to address concerns related to patron privacy and confidentiality. But, nevertheless, the potential for libraries to adapt CRM techniques to amplify and increase the value of non-threatening learning spaces to their communities is great. These services are especially important for the “technology-challenged” and disadvantaged patron segments.

In offering patrons training in use of network technologies and guidance services for searching, evaluating, and interpreting multi-format resources, libraries have the potential for offering customers additional value. Managing relationships with specialized categories of patrons could provide customers with CRM-type services. Similarly important are the evaluation and interpretation services libraries provide patrons, especially since only 16% of Web resources are indexed by any single Web-browser and in light of the fact that 83% of sites indexed contain commercial content 6% of Web sites are educational or scientific in nature. With this situation, many commercial search engines are biased toward popular sites. In some instances, it is only through library-mediated customer-centered services that patrons are provided with relevant information. Application of CRM techniques by libraries could reposition their services in relation to the needs of the public community market segment served by these institutions.

In short, networked and electronic services are extending & enhancing libraries. But providing both traditional and digital space for patrons is essential:

- To aggregate, integrate, interpret, and preserve analog, digital, and digitized content resources
- To support system infrastructure migration, generation, and evolution
- To maintain content and collection conversion, maintenance, and integrity
• To continue to provide “open” community information resources and services
• Integration of traditional resources and electronic media services are essential
• To respond to demand access, value-added services, interpretative tools, technology support, and training
• To focus on establishing patron relationships
• To redefine the relationship between libraries, content providers, and “authors”

The historic gifts of power, talent, and energy that characterize librarianship over the last century are evidence that libraries will continue to evolve in response to the challenges of the global digital age. These traditional values offer perspective for librarians to use the potential of network technologies to build global learning communities and knowledge institutions. Peter R. Lyman writes that:

“Digitized documents may lower the costs of reproduction and distribution of print journals, and perhaps some first copy costs, but they also create new kinds of value in faster models of access to information, new techniques for searching, and more customized content. And in the long run, true digital documents will produce new genres of scholarly discourse, new kinds of information markets, and perhaps, new kinds of educational institutions to use them.” (Layman, 1997)

The library of the future is emerging. The missions and policies of these newly reframed institutions are consistent with those of the last century; but libraries of the 21st century will also be involved with the evolution of new genres and new services. Their development presents new opportunities to evolve in the directions that patrons and communities require. The value these postmodern libraries contribute to knowledge and learning must be measurable for these reframed institutions to carry out the evolving historic mission of society’s greatest gift to humanity. Our history of cooperation requires that librarians address the strategic and global opportunities of the future by constructing standard language for addressing a culture dominated by the need for measuring institutional performance.

References


Appendix 1
Draft Glossary of Library Statistics and Performance Measurement Terms
Peter R. Young

Library of Congress
Prepared for
Electronic Services and Library Performance Measurement:
A Definitional Challenge
At the
4th Northumbria International Conference on Performance Measurement in Libraries and Information Services

This draft glossary of library statistics and performance measurement terms responds to the need for development of appropriate standard definitions for terms used in the study, description, and analysis of library involvement with digital information resources, electronic services, and network applications. Initial work on this draft glossary of terms was done for the National Information Standards Organization (NISO) Forum on Performance Measures and Statistics for Libraries: Issues for Libraries in Measuring the Information Age which was held 15-16 February 2001 in Washington, D.C.

Access: to seek, retrieve, and use information and the successful fulfillment of this act. Access often means to read data from or write data to a mass storage device or to a network resource. Sustained access is the objective of continued usability of a digital resource, retaining qualities of authenticity, accuracy, and functionality deemed essential by a custodial entity or designated community.
Access aids: Catalogs, finding aids, or indexes that allow patrons/consumers to discover and retrieve archival information packages of interest. These may take the form of software, databases, or documents, and may be external to the repository in which the package is stored, referring to the package by an identifier. Examples include a library catalog (OPAC) and finding aid documents marked up according to the Encoded Archival Description DTD.

Aggregator: 1) a commercial or non-commercial service that gathers together electronic information resources (e.g., in the form of electronic journal titles) into a single assemblage massed together to facilitate access; 2) an aggregate organizes digital objects by digital type and by digital custodial responsibility.

Archival information package: From a physical perspective the AIP consists of three components: metadata, data, and packaging. Each component consists of one or more files. The metadata component consists of XML Schema containing information describing the archival object. The data component consists of all the data files (essence bit streams) that comprise the archival object. The packaging component encapsulates the metadata and data components, creating a single entity or a self-extracting archive that is the AIP. An AIP contains both data files (essence bit streams) and metadata. Once transmitted, an AIP may be deconstructed or otherwise treated to meet the needs of data management and the user community. (see Digital object)

Authentication: the process of identifying an individual, usually based on a username and password. In security systems, authentication is distinct from authorization, which is the process of giving individuals access to system objects based on their identity. Authentication merely ensures that the individual is who he or she claims to be but says nothing about the access rights of the individual. Authentication verifies that a user is who he claims to be or a client computer system is what it represents itself as. Combined with authorization to support access management. Authentication is also a mechanism that attempts to establish the authenticity of digital materials at a particular point in time. For example, creation and verification of digital signatures to establish that files or bit streams have not been modified.

Author: the individual, organization, or other entity chiefly responsible for creation of the intellectual or artistic content of a work or other expression.

Authorization: the process of granting or denying access to a network resource. The first step in security assurance is authentication to ensure a user is who he or she claims to be and the second stage is authorization that allows the user access to various resources based on the user's identity.

Bandwidth: 1) the transmission capacity of an electronic medium, such as network wiring, fiber-optic cable, or microwave links; 2) the amount of data that can be transmitted in a fixed amount of time. For digital devices, the bandwidth is usually expressed in bits per second (bps) or bytes per second. For analog devices, the bandwidth is expressed in cycles per second, or Hertz (Hz).

Born digital: Describes digital materials with no analog equivalent. Used to differentiate them from 1) digital materials which have been created as a result of converting analog originals; and 2) materials that may have originated from a digital source but have been printed to paper.

Browser: (short for Web Browser): a client software application that enables a user to view HTML documents on the World Wide Web, another network, or on the user's computer; follow the hyperlinks among them, and transfer files. Browsers are used to search, locate, and display information on a server. They require a connection that can handle IP packets but will also display graphics that are in the document, play audio and video files, and execute small programs such as Java applets, that can be embedded in HTML documents. The two most popular universal browser applications are Netscape Navigator and Microsoft Internet Explorer. Both are graphical browsers that can display graphics as well as text. In addition, most browsers can present multimedia information, including sound and video, though they require plug-ins for some formats.

Catalog: A list of library materials contained in a collection, a library, or a group of libraries, arranged according to some definite plan.

Computer files: digital encoded works that exist in media such as CD-ROM’s, magnetic tapes, and magnetic disks that are encoded and designed to be processed and manipulated by a computer. Examples are U.S. Census data tapes and reference tools on CD-ROM, tape, or disk. This definition excludes library systems software and associated files used to manage the collection. (NISO Z39.7-1995)

Container: Any housing or vehicle for an object or item, group of object or items, or part of an object or item that is separable from the content which facilitates identification and use of the object or item(s) by users.

Copies: material objects, other than phonorecords, in which a work is fixed by any method now known or later developed, and from which the work can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device. The term “copies” includes the material object, other than a phonorecord, in which the work is first fixed.
Digital: 1) describes anything that uses a set of discrete numerical values to represent data or signals, as opposed to a continuously fluctuating flow of current or voltage, which is analogous to the data it represents; 2) computer processes digital data that may represent text, sound, pictures, animations, or video content.

Digital image: an electronic version of a bit-mapped image of a document or other information format that allows text to be searched at the character level; “digitize” is to encode images or sound in a format that may be processed by a computer; to convert analog information into data. To “digitalize” means the process and accompanying technologies required to effect the conversion from bit-mapped (e.g., a fax) to searchable format.

Digital library: digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically for use by a defined community or set of communities.

Digital object: 1) an object composed of a set of bit sequences. 2) Set-level metadata applies to a digital collection formed from aggregates that group digital items by content type. 3) An aggregate organized digital objects by digital type and by digital custodial responsibility. 4) A primary object is the specific item identified by the online collection access aid as a coherent whole. 5) An intermediate object is a view of component of the primary object. Metadata for an intermediate object allows the gathering of digital files and metadata for the creation of presentations. 6) A terminal object is the digital content file or files that form the object. Terminal object metadata provides structural information about digital attributes (file size, extension, bit-depth, etc.). A generic, abstract concept, it is used to designate a single unit of digital content, which may have been acquired by a library in digital form or which may be the digital reproduction of a physical original. It will often correspond to a unit at the level at which intellectual access or bibliographic description would be normal or desirable, or at the level at which selection or acquisition would occur. Examples are books and maps. For digital reproductions, it may correspond to a unit at the level at which physical control of the source item is managed, for example, a folder of correspondence. Conceptually, a digital object consists of content and the metadata necessary to support its storage, management, and access, now and in the long term. A digital need not be manifested as an object in the object-oriented sense (incorporating its own methods to support access and presentation). The term does imply that a digital object can be instantiated, represented, and transmitted as a complete and self-describing package. In the OAIS model, the digital object is manifested as an archival information package.

Digital repository: an organization responsible for digital preservation activities which may be a separate, independent organization or one managed by an library or archive which engages in preservation activities for managing long-term maintenance of a digital byte stream and the continued accessibility of its contents.
**Digital resource**: A generic term for digital content, reflecting the viewpoint of the user looking for resources relevant to a particular task. A resource may be a single digital object or a group or collection of related digital objects.

**Digital transmission**: a transmission in whole or part in a digital or other non-analog format.

**Digitization**: The process of creating digital files by scanning or otherwise converting analog materials. The resulting digital copy, or digital surrogate, would then be classed as digital material and then subject to the same broad challenges involved in sustaining access to it, as “born-digital” materials.

**Dial-up Internet connection**: Internet connection using a modem and a phone line.

**Direct Internet connection**: Internet connection using a dedicated connection such as a leased line (e.g., T-1, 56 kbps, ISDN, DSL) or cable.

**Dissemination**: The process of delivering digital objects or metadata through an Access Subsystem to a Consumer. Examples of disseminations include rendering individual objects for end users and batch exports to other repositories (including any repository built to replace the current repository).

**Document**: 1) a file of data containing, text, graphics, images, and/or other objects. 2) any file produced by an application.

**Document delivery**: the provision of copies of journal articles or other documents or works by digital or analog means to a patron in response to a specific request. Document delivery and interlibrary loan activities may involve fees paid for photocopies, costs of telefacsimile transmission, royalties, and access fees paid to bibliographic utilities, networks, or commercial service providers, including aggregators.

**Domain**: in an Internet address, the part of the naming hierarchy that consists of a sequence of characters separated by dots. A group of computers and devices on a network that are administered as a unit with common rules and procedures. Within the Internet, domains are defined by the IP address. All devices sharing a common part of the IP address are said to be in the same domain. A domain name identifies one or more IP addresses and is used in URL’s to identify particular Web pages. A domain name service (DNS) is an Internet service that translates domain names into IP addresses.

**Download**: to copy data (usually an entire file) from a main source to a peripheral device. The term is often used to describe the process of copying a file from an online service to a local computer. Downloading can also refer to copying a file from a network file server to a computer on the network.

**DVD**: Digital Versatile or Video Disc DVD is a type of CD-ROM that holds a minimum of 4.7 Gb of data.

**Economic measures**: the measurement of library and information services that concentrate on the relationship between investments and the resulting value of library services. Economic measures involve the documentation of costs and assignment of dollar value to library products and services. Quantitative economic measures include measurements of transaction costs, costs per use, costs per category of service, relative costs of analogous electronic and on site/in person services or transactions, etc. Qualitative economic measures include willingness to pay, projected costs of analogous services or products (when available) in the commercial sector, projected economic implications of unavailable service or resource, etc.

**Edition**: All copies embodying essentially the same content or produced from the same master copy and issued by the same entity.

**Editor**: One who prepares for publication an item not his or her own. The editorial work may be limited to the preparation of the item for the manufacturer, or it may include supervision of the manufacturing, revision (restitution), or elucidation of the content of the item, and the addition of introduction, notes, and other critical matter. In some cases, it may involve the technical direction of a staff of persons engaged in creating or compiling the content of the item.

**Efficiency**: those resources required to provide or access networked information services and digital media resources as measured by standards such as peak-hour connections to servers, bandwidth, etc.

**Electronic journal**: a serialized electronic publication.

**Electronic resources**: digital or digitized resources that are accessible locally or remotely to library patrons.

**Electronic services**: services provided to library users based on access to electronic resources held locally or accessed remotely.

**Extensiveness**: extent of network provided services as measured by standards such as the number of Web page accesses, number of remote logins, and sessions, etc.

**Format**: a particular physical presentation of an item or work. Also, the manner in which data, documents, graphics, images, video, animation, or text is organized, structured, named and described in order to prepare the information for use.
FTP (File Transfer/Transport Protocol): the protocol based upon which digital files are transferred via the Internet.

**Graphical workstation:** A workstation and/or computer that is capable of displaying graphical images, pictorial representations, or other multimedia formats.

**Information package:** content and packaging information used to delimit and identify digital objects.

**Information resource content:** networked electronic information resources accessible and preserved locally or remotely, and the means by which search, retrieval, and activation is achieved through administrative, descriptive, and structural metadata and coding.

**Internet:** 1) a global composite decentralized communications infrastructure network composed of tens of thousands of individually owned and operated interconnected networks. The Internet is based on a common architecture and protocol standards governing the interchange of data. The Transmission Control Protocol/Internet Protocol (TCP/IP) standard Internet suite of route host messaging connecting millions of computers to one another around the world gives the user the illusion that they are using a single network; 2) the Internet can be accessed through an Internet Service Provider (ISP) offering Internet services by connecting to this network of networks; 3) the networks that make up the Internet are composed of communications links, which carry data from one point to another, and routers, which direct the communications flow between links and thus, ultimately, from senders to receivers.

**Interlibrary loan:** a transaction in which library material, or a copy of the material (including materials sent by telefacsimile or other form of electronic transmission) is made available by one library to another upon request. It includes both lending and borrowing. The libraries involved in interlibrary loan are not under the same administration or on the same campus. Interlibrary loan also includes transactions for materials obtained through the interlibrary loan process that are supplied from non-library sources. (NISO Z39.7-1985)

**Issue:** Copies of an edition forming a distinct group that is distinguished from other copies of that edition by minor but well-defined variations.

**Item:** A document or set of documents in any physical or digital form, published, issued, or treated as an entity, and as such forming the basis for a single bibliographic description.

**License database subscription:** a subscription to a commercial (or non-commercial) database service provider that allows library users to access digital resources and works (e.g., article index/abstract information, full published texts, numerical data sets, etc.) under specified terms and conditions typically contained in an annual license.

**Library:** an entity that provides all of the following: a) an organized collection of printed or other library materials, or a combination thereof; b) a staff to provide and interpret such materials as required to meet the informational, cultural, recreational, and educational needs of a clientele; c) an established schedule in which services of the staff are available to the clientele; and d) the facilities necessary to support such a collection, staff, and schedule. (NISO Z39.7-1985)

**Logon:** the process of identifying a user to a computer after connecting over communications lines. During the procedure, the computer usually requires the user’s name and password.

**Metadata:** structured information about information. Metadata describes how and when and by whom a particular set of data was collected, and how the data is formatted. Metadata is essential for understanding and using information stored in data warehouses. A general term for information needed to support repository administration and digital object management, consistent with an organization’s policies, programs, and practices for content management, including preservation. This includes (but is not limited to) information about the creation or acquisition of the digital object, about ownership and rights, about past transformation or reformatting activities, current storage details; and information deemed important to support future preservation decisions or actions.

**Descriptive metadata** is used in the discovery and identification of an object. Examples include MARC and Dublin Core records. A content metadata standard is defined as an open specification that itemizes a set of elements and their meanings. Each element is tagged with an identifier (e.g., “Title”, “Author”) that distinguishes the element from other elements within the standard. Descriptive metadata provides basic identifying information including author, title, subjects, etc. Information that primarily describes content in intellectual terms and principally exists to support content discovery, sometimes synonymous with bibliographic information. Some descriptive metadata will be stored with each digital object in a repository. However, descriptive metadata to support discovery (through searching, browsing, and navigation) may also be held in finding aids or catalog records stored elsewhere. Links from those access aids to the digital resources they describe will be through persistent identifiers.

**Structural metadata** describes layout and organization of data to provide guidance on how to use an information work. It defines the object’s internal organization and is needed for display and navigation of that object. Structural metadata is used to display and navi-
gate a particular object for a user and includes the information on the internal organization of that object. Structural metadata could exist in various levels of complexity.

Administrative metadata provides information about a work's ownership and production. Administrative metadata represents the management information for an object that is needed to keep the object over time and identify artifacts that might have been introduced during its production and management (e.g., the date it was created or digitized, at what resolution, its content file format (JPEG, JTIP, etc.), who can use it, rights information, etc.

Network: 1) a specialized type of library cooperative organized established for the centralized development of cooperative programs and services, including use of computers and telecommunications. It requires the establishment of a central office and a staff to accomplish, rather than merely coordinate, network programs. (NISO Z39.7-1985); 2) a group of two or more computer systems linked together using a common protocol to communicate with one another. Computers on a network are called nodes, while computers and devices that allocate resources for a network are servers.

Network technology infrastructure: the component hardware, software, communications conduit, network resources, and associated technological aspects related to electronic network media and service offerings.

Online service: a business service that provides subscribers with a variety of data transmitted via networks. Online services provide an infrastructure that allows subscribers to communicate with one another and to connect with third-party information providers.

Outlet: A library facility. In the case of some public libraries, there is only one facility or outlet. Other public libraries have several outlets or facilities sometimes referred to as branches.

Outcome measure: an assessment of the results of a program activity compared to its intended purpose. Outcome/impact measures relate to observable benefits provided to individuals or groups, in the originating human services and education fields, “changes in knowledge, skills, behavior, attitudes, status, or life condition.” Quantitative outcomes are measured by grade-based performance on standardized tests, quantifiable changes in performance on pre- and post-service tests, records of behavioral change (crime rates, school attendance, etc.), records of status change (school drop-out, graduations, employment, income, etc.), type of examples are performance on academic and literacy instruments. Qualitative outcomes are measured by observation of indicative behaviors (e.g., ability to locate high-quality, pertinent information for a query, self-reports of level of skill, knowledge, behavior, attitude surveys (interest in a specific discipline, relative valuation of targeted phenomena such as reading, etc.

Output measure: the tabulation, calculation, or recording of activity or effort that can be expressed in a quantitative or qualitative manner. The quantitative measurement of services resulting from library activities such as ILL, items circulated, titles cataloged, volumes added, titles held, reference queries, gate counts, users in legal service area, database searches, FTE staff, etc. Includes e-Metrics, for which meaningful data elements are beginning to be established.

Page: a fixed amount of data or information, arranged in bytes recognized by the operating system. A page is equal to the amount of data that can be displayed on a screen.

Performance indicator: a particular value or characteristic used to measure output or outcome. Measures of service quality, performance efficiency and customer satisfaction. Quantitative performance indicators may include volume of backlogs, processing time, reference response time, ILL delivery cycle, FTE to user ration, availability of information needed, etc. Qualitative performance indicators include user perception of service quality, user satisfaction with reference response, types or levels of service available, etc.

Portal: 1) usually used as a marketing term to describe a Web site that is or is intended to be the first place people see when using the Web. Typically, a Portal Site has a catalog of web sites, a search engine, or both. A Portal site may also offer email and other services to entice users to the site as their main point of entry (e.g., portal) to the Web; 2) a Portal maintains data access and retrieval structures that facilitate access for specific research or user communities by locating, gathering, and maintaining Web content resource addresses according to specified criteria and organizes these resources for easy user search, access, retrieval, interpretation, and use. Portals provide selectivity and functionality at a different level than Web Browsers and search engines, which do not offer the specificity and evaluative details available through a portal. A portal site can attract visitors by offering free information, or free services on a regular basis. Some portals provide indices of Web pages that are maintained by editors that manually classify web documents into a tree-like taxonomy of topics or categories, and provide rich links between sites, works, and citations. The best know portals are available through the major search engines: AltaVista, Excite, HotBot, Lycos, InfoSeek, and Yahoo!.
Public access workstation: 1) a single-user computer consisting of a personal general-purpose processor linked to a communications device that allows data transmission; 2) a public access workstation is one made available for a member of the public to use; 3) those library outlet graphical workstations that provide public access to the Internet, including those that provide access to a limited set of Internet-based services such as online databases.

Publication: the distribution of copies or phonorecords of a work to the public by sale or other transfer of ownership, by rental, lease, or lending. The offering to distribute copies or phonorecords to a group of persons for purposes of further distribution, public performance, or public display, constitutes publication. A public performance or display of a work does not of itself constitute publication.

Representation information: information that maps data into more meaningful concepts.

Serial: a publication in any medium issued in successive parts bearing numerical or chronological designations and intended to be continued indefinitely. This definition includes periodicals, newspapers, and annuals (reports, yearbooks, etc.); the journals, memoirs, proceedings, transactions, etc. of societies; and numbered monographic series. (NISO Z39.7-1985)

Session: 1) the time during which a program is running for a user. In most interactive programs, a session is the time during which the program accepts input and processes information. In communications, the time during which two computers maintain a connection. 2) A user session is a delimited set of user clicks across one or more Web servers. An episode is a subset of related user clicks within a user session. 3) A search session is initiated by the consumer with the archive during which the consumer will use the archive finding aids to identify and investigate potential holdings of interest. 4) A data dissemination session is a delivered set of media or a single telecommunications session that provides data to a consumer. The dds format/content is based on a data model identifying logical constructs used and represented on each media delivery.

Statistics (metrics): the mathematics of the collection, organization, and interpretation of numerical data as in descriptive statistics. Examples of library statistics include collecting statistics for data elements that quantify library material resources, services, staff, operations, and users.

URN (Uniform Resource Name): a scheme for uniquely identifying resources that may be available on the Internet by name, without regard to where they are located. The specifications for the format of URNs are under development by the IETF.

User: the principal using a client to interactively retrieve and render resources or resource manifestations.

Virtual reference transaction: a reference interaction involving an external patron or user who transmits a query electronically and for whom a response is returned electronically using a variety of formats, including email attachments, URLs, etc.

Web browser: see Browser.

Web page: 1) a document on the WWW. Each web page is identified by a unique URL; 2) a web page is a collection of information consisting of one or more Web resources, intended to be rendered simultaneously and identified by a single URL; 3) a page view is a visual rendering of a Web page in a specific client environment at a specific point in time.

Web resource: the manifestation of a retrievable network object characterized by consistent conceptual mapping (e.g., electronic document, image, or service).

Web site: 1) a group of related HTML documents and associated files, scripts, and databases that are served up by an HTTP server on the WWW. Also, a site location on the WWW. Each Web site contains a home page, which is the first document users see when they enter the site. The site might also contain additional documents and files. Each site is owned and managed by an individual, company, or organization; 2) a web site is a collection of interlinked Web pages residing at the same network location.

Work: A work is fixed in a tangible medium of expression when its embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration. A work consisting of sounds, images, or both, that are being transmitted, is fixed if a fixation of the work is being made simultaneously with its transmission.

World Wide Web: The total set of interlinked hypertext document residing on HTTP servers all around the world. Documents on the WWW, called pages or Web pages, are written in HTML, identified by URLs that specify the particular machine and pathname by which a file can be accessed, and transmitted from node to node to the end user under HTTP. Also, the WWW is system of Internet servers that support HTML formatted documents that are linked to other documents, including graphics.
SEMINAR PAPERS

Standards/Strategies and Policies
Abstract

The achievement of excellence is the challenge facing the University Library in the 21st Century. With this objective in mind, a project has been developed, to operate at regional level, for the assessment of the Andalusian University Library System. Led by the Andalusian Universities Quality Unit (UCUA), it will be implemented by a group of librarians from different Andalusian Universities. The project team has drawn up the Self-Assessment Guide, based on the EFQM Excellence Model. This paper undertakes to describe the steps followed in the preparation of, and the issues dealt with by, the Self-Assessment Guide.

Introduction

The pressure brought to bear on public services by the demands of quality and efficiency has led university managers and administrators to take full account of the need to evaluate their organization in terms of its performance.

Within the university as a whole, the library constitutes an ever more complex organizational-technological-informational system, which must reflect the needs and preoccupations of the prevailing socioeconomic environment and adapt its products and services to suit the user.

What is the best way to identify opportunities to offer added value in university library services? What are the strong and weak points of those services? Is the library mission statement defined in terms that suitably underline the value of those services to the university community or to its stakeholders? These are all questions that need to be resolved by the new planning and assessment policies of university libraries.

The awareness of the need to provide an overall combination of services and products which best meet the demands and expectations of an ever-growing group of users, who, for their part, are responsive to the variations in the supply and demand of services generated by the (ever-more competitive) information market, and the additional requirement to manage ever-diminishing resources in the most efficient way possible, provide the framework within which the Pilot Scheme for the Assessment of University Libraries in Andalusia (1999-2002) was originally conceived(2).

Assessment and quality assurance in the higher education sector in Spain

The 1990s was a decade of assessment and quality throughout the University sector in Spain and the European Union, and began with the Experimental Programme for Quality Assessment in Universities (1992-1994), which sought inspiration from prevailing international practice. Under the remit of this programme, the Council of Universities (the public body in charge of university matters in Spain) chose to build on an integrated and institution-wide approach of self-evaluation plus external review by experts of teaching and learning, research, services and organization. During the same period, a European pilot programme was developed, for quality management in the university administration and service areas, which greatly helped to expand the culture of quality among administrative and service staff and to spread strong support for the adoption of the EFQM model of excellence as the model for the assessment of services.

In 1994, the EU launched a new pilot project for quality assessment in the higher education sector, to develop a European model for quality assessment (limited to teaching and learning); by the end of 1996, a number of conclusions had been reached: the autonomous and independent nature of the bodies in charge of the management, coordination and development of assessment and quality assurance activities must be safeguarded; the assessment process must allow for the matching and adaptation of evaluation mechanisms to individual institutional profiles, as well as for the participation of all stakeholder and the confluence of internal and external elements; and, finally, the results of the assessment must be made publicly available.

The European Commission passed the conclusions of the European Project as recommendations, at the same time that the Spanish Government was setting up a National Programme for Quality Assessment in Universities (1995), and consequently, the recommendations of the Commission were incorporated into the Spanish programme. In short, the Commission’s recommendations established that quality assessment activities must seek to improve the quality of products and services as well as to offer accurate information to
stakeholders on the use and the ultimate performance of resources channelled into the system.

From 1996 onwards, the National Programme and the adoption of its agenda by regional authorities and Universities alike, has resulted in a growing acceptance by the academic community of the challenges and opportunities offered by assessment and quality assurance activities. A nationwide, technical committee for the National Programme, several quality units and technical committees for regional authorities and individual institutions, have paved the way for the development and implementation of the tools required for a successful programme of evaluation. The first such tool was the Assessment Guide (1998), in which the principle procedures for the process of evaluation are outlined. Support services, like libraries, are to be considered in relation to the particular degree or programme being assessed, but at the same time they can be reviewed on their own, as an organizational unit serving the whole institution across campus. In this case, the assessment guide builds on the EFQM model and offers a set of performance indicators to be changed and adapted to local conditions in the self-assessment process.

Academic librarians have been committed to this culture of quality from the very start and, in most cases, have been leading the way in their own institutions. General tools, such as the Assessment Guide referred to above, developed for use in administration and services alike, have been of little use for libraries; in consequence, academic libraries have been the first units to develop their own assessment guides at local and regional levels. The first of these guides was compiled by the Catalan Agency for Quality in 1999; this has already undergone practical trials in several universities. Other university libraries have gone through the assessment process without a clear reference and without even breaking ground. In 2000, the Andalusian Universities Quality Unit convened a technical committee to draft a new assessment guide for academic libraries. Based on the experience already available, as well as on the recommendations of the national Assessment Guide, we chose to develop our own guide along EFQM lines, because of the growing influence of the latter in the evaluation of both public sector and non-profit organizations across Europe. During the course of our work we were delighted to see that our approach concurred basically with that adopted by LISIM. In addition, a new guide, also based on the EFQM model, has recently been issued for the administration and services sector of our universities.

In the year 2001, the publication of the report entitled “Universidad 2000” and government proposals for a wide-ranging review of current University legislation, have sparked a debate about the future of the higher education sector in Spain. Undoubtedly, therefore, further changes and developments are ahead. However, the culture of quality management and assessment will continue to spread, academic libraries will continue to play a leading role in the development of new approaches and to share their experiences at international events such as this.

An EFQM-compliance guide for the University Libraries of Andalusia.

Activities to be evaluated

The use and consumption of information is increasingly necessary and the need for information, vital to the strategic development of the University mission, is constantly growing. In the future, the university user will be obliged to cultivate connections, skills and abilities which will allow him to make efficient use of the growing volume of information (both internal and external) which relates to or affects his professional activity.

On the other hand, certain trends are becoming apparent, and concern a change in teaching practice and requirements, which will have a significant impact on research performance, to the extent that the working methods and productivity of lecturers, researchers and students have become elements of the utmost importance.

If we accept that improved productivity is directly related to the particular informational policy adopted, then the library constitutes a primary support in the process of academic education and research.

On this basis, the proposed, overall assessment of the University Library (taken to mean an administrative, organizational and functional unit), involves the assessment of both traditional activities (the ability of the library to provide documents and information) and non-traditional activities, currently emerging in the new educational context (the ability of the library to provide integral training). In addition, the assessment will need to take into account the connection between each of these types of activity and the ultimate mission, and the teaching and research objectives of the University, as well as considering the extent of the role the library may play as the University Knowledge Management Unit. The activities to be assessed are as follows:

1. Global analysis of the Library System: integration, relevance of objectives, participation in multifunctional teams, etc., within the University System.
2. Products and Services that the Library System provides to the teaching and research branches of the University.
3. Ability of the Library System to provide documents and information.
4. Degree of stakeholder satisfaction with the products and services provided by the Library.
ASSESSMENT METHODOLOGY

The self-regulatory method is employed (self-assessment and external assessment), which involves three separate stages:

- Self-assessment, undertaken by the Self-Assessment Committee, in accordance with the Internal Assessment Guide.
- External Assessment, undertaken by a Committee of External Experts, in accordance with the guidelines set out in the External Assessment Guide.
- A Final Report, prepared by the Self-Assessment Committee, based on the findings of the two previous reports.

GENERIC STRATEGIES:

The Guide and the process of assessment it recommends, are based on the following principles:

**Integral Assessment:** the EFQM excellence model is an ideal tool to effect the integral assessment of the University Library System. The application of EFQM criteria in assessing the degree of quality achieved by the library helps to overcome organizational barriers (central services, branch libraries, etc.); in addition, concepts such as leadership, strategies or partnerships, are applied to the organization as a whole and help to provide a global image of the library.

**Global Assessment:** All the activities and tasks related to the different areas listed above are also submitted to analysis.

**Emphasis on interaction:** particular attention has been paid to highlighting the cause-effect relationships produced between the various EFQM criteria and sub-criteria, as well as on the relationships produced between, for example, the various activities and tasks (cataloguing, reference, teaching products, etc.), the organization of the library (central libraries, branch libraries, etc.) and the projection of results among the university community and stakeholders. A wide range of problems are pinpointed during the process of examination and appraisal of this interaction, and many opportunities for improvement are identified. An appropriate analysis of these findings will enable the most appropriate solutions to be developed.

**Contrasting of information:** a wide variety of information is employed, both in terms of the nature of the information itself (qualitative or quantitative) and the origin thereof (internal and external); this approach helps to overcome the problem of coincidences and discrepancies, an essential pre-requisite when issuing value judgements.

**Systematic analysis of the results:** the products provided by the library are the basic point of reference when formulating and issuing value judgements. Several tables of relevant information must be completed for each one of the products.

**Emphasis on evaluation:** the process of assessment entails far more than the mere compilation of data. Data collected requires due analysis and appraisal, value judgements must be formed, weaknesses must be identified and improvement actions proposed. To this end, the guide proposes the completion and analysis of a number of Tables.

AN EFQM GUIDE

The Guide is divided into 5 parts, as follows:

1. **An Analysis and Description** of the 9 criteria and the various subcriteria that make up the EFQM model, as adapted for university libraries. Each of the criteria and subcriteria are sub-divided as follows:
   - Definition of, and comments regarding the criteria/subcriteria
   - Key Performance Areas: a description is provided of those areas, within the criteria or subcriteria, which are particularly relevant.
   - Approach: this section contains a description of the most suitable approach for each of the different criteria.
   - Deployment: in the same way, this section contains a full description of the elements which are evidence of the appropriate and systematic implementation of each of the criteria.
   - Corroboration: a list of possible corroborative evidence of the criteria or subcriteria is provided by way of example.
   - Questions: a wide range of relevant questions that enable the Assessment Committee to satisfactorily complete the score table for each of the criteria and subcriteria. At times, these questions may serve to provide quantitative data for inclusion in the Tables; at others, they may serve to confirm impressions, or to provide qualitative data relevant to the assessment.

2. **Tables:** the Guide includes 35 Tables for data collection, organized into four different areas: the Library Context (University, Degree Courses, etc.), Resources, Services and Stakeholder Satisfaction (users, personnel, etc).

3. **Indicators:** The Guide includes a series of performance indicators.

4. **Excellence-rating Matrix:** an objective tool, for use by the management team, to determine the level of excellence achieved by the library on a scale from 0 to 10. It serves as a quick guide to the approach adopted and to the degree of deployment achieved in each EFQM criteria/subcriteria, and is a
useful planning tool, highlighting as it does those areas requiring improvements in quality.

5. **General guidelines for the Assessment Committees** of University Departments (the basic unit of research assessment undertaken by the University) and of degree courses (the basic unit of assessment of teaching personnel). These guidelines cover the basic aspects of library services, whereby library products are converted into teaching and research resources and, consequently, these services may be assessed in terms of their impact on university research and teaching.

**Strong points of the guide**

1. Special emphasis is laid on the concepts of Leadership, Strategy and Partnership, as key factors to increase the competitive advantage of the library system within the university system as a whole. The leadership of the library management team is a vertical element in the EFQM model, on which the remaining criteria and subcriteria depend for support. Together, these elements form the basic skeleton of the model, the foundation on which the entire structure of excellence may take shape.

   On the other hand, the cultivation of strategic partnerships with customers and suppliers is a basic tool with which to maximise resources when these are scant and insufficient, as has been the case with libraries in recent decades.

2. The Guide represents an attempt to integrate the models of quality assessment and of excellence: EFQM & ISO 9000:2000. Both models have begun to converge, although not as the result of any planned collaboration. ISO 9000:2000 sets out specific requirements for a quality management system, according to which the library must demonstrate its ability to provide products consistently to users, who need these products to be adjusted to certain known and accepted specifications, and concludes by recommending processes for continuous improvement and for the prevention of non-compliance.

   As a result, the ISO standard is rendered not only more flexible and perfectly capable of being adapted for use with service-providing organizations, but it is also brought more closely into line with the EFQM excellence model: user satisfaction and continuous improvement.

3. Along these same lines, the Guide proposes a model for the multidimensional measurement of the library organization, to serve as a counterbalance to the 9 criteria of the EFQM model, from the point of view of strategic management. This approach will permit the development of an integrated model of measurement, in the form of a balanced scorecard, which will combine both the model of quality and that of excellence (ISO, EFQM, stakeholder theory...).

4. Finally, the Guide contains an excellence-rating matrix, suitably adapted for use in the library context (see the end of this report) in which each criteria may be graded on a scale from 0 to 10: Leadership, Policy and Strategy, Management of Staff, Partnerships and Resources, Processes, and Customer, Staff and Society Results.

   The matrix represents an attempt to attach an objective, numerical value to the level of excellence of each library and to the final results of the assessment. It also enables comparisons to be drawn between the different libraries assessed, irrespective of the size of each, or their differing levels of resources.

**Conclusions**

Although the guide has been prepared for use in the Pilot Scheme for the Assessment of University Libraries in Andalusia, it is broad in scope, fully comprehensive and detailed.

   Its purpose is to facilitate the work of the assessors, to help highlight the strengths of the libraries assessed and to provide sufficient contrasting information to enable weaknesses to be pinpointed and improvement actions to be proposed.

   The use of the different materials throughout the duration of the Pilot Scheme will help to identify any shortcomings, gaps or omissions in the guide itself, which may then be submitted to a process of revision.
References

Barrionuevo, Migue Duarte (1999) “Searching Excellence in the Library System of the University of Cadiz” in: Development of Library Management as a part of the University TQM. Łopuzańa


Notes

1. A working group of the Andalusian Universities Quality Units assisted in the production of this paper. Andalusian Universities Quality Unit (http://www.ucua.es) is a consortium of 10 Andalusian Universities, accountable to regional government, whose objective is to foster improved standards of quality in the higher education sector in Andalusia. It is responsible for the assessment of university degrees and diplomas and of university departments and services. In addition, it serves as the instrument for liaison with the National Programme for Quality Assessment in Universities.

2. The Andalusian University Libraries Assessment Guide was compiled by the Technical Committee of the Pilot Scheme for the Assessment of University Libraries in Andalusia (1999-2002). The members of the Committee include Carmen Baena Díaz (Director of the Pablo de Olavide Library of the University of Seville); Maria del Carmen Liñán Maza (Director of the Library of the University of Cordoba); Aurora Márquez Pérez, Coordinator of the Department of Standardization and Technical Processes of Cadiz University Library; José Carlos Morillo (Director of the Library of the University of Huelva); Cristóbal Pasadas Ureña (Director of the Psychology Library of the University of Granada); Maria Pinto Molina, Professor of Documentation of the University of Granada; Miguel Duarte Barrionuevo (Director of the Library of the University of Cadiz), the Committee coordinator.
# EXCELLENCE-RATING MATRIX

<p>| Stage | Leadership                                                                 | Policy &amp; Strategy                                                                 | Management of Staff                                                                 | Partnerships &amp; Resources                                                                 | Processes                                                                                   | Customer Results                                                                 | Staff Results                                                                 | Society Results                                                                 |
|-------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 10    | All the members of the library management team (LMT) are actively involved in sustaining continuous improvement. | The policy and strategy defined by the LMT is known and understood by everyone.   | All actions are aimed at releasing the full potential of all the library staff.      | Library resources are used efficiently to achieve strategic objectives.                    | Value added processes are closely controlled and continuously improved.                    | A positive trend is apparent in terms of customer satisfaction. Objectives are being met. These are only some of the performance indicators in the library. | Regular comparison with other university libraries reveals that staff satisfaction is similar to that registered in other libraries and shows a tendency to improve. | Practically all points of view are sought in local society. The findings are taken into account in the development of library policy. |
| 9     | The LMT is demonstrably involved in the external promotion of total quality. | A best practice analysis process has been developed to assess changes in library policy and strategy, in order to retain competitive advantage. | All staff are encouraged to put forward proposals, and to develop and achieve their own objectives. | An established process is in place to cater for the provision of additional resources in order to promote the changes required by best practice analysis of the library policy and strategy. | A quality management system can be shown to exist. | 75% of customer satisfaction objectives have been achieved. | The results show that the staff feel fully integrated in the work environment. | Comparisons have been started on 25% of objectives. |
| 8     | The LMT has a uniform approach to continuous improvement strategies throughout the library. | The policy and strategy processes are benchmarked.                               | The staff policy supports the library policy &amp; strategy of continuous improvement. | An established procedure has been set in place to modify and review the allocation of resources, in accordance with changing requirements. | The aims and achievements of the process are clearly linked to user requirements. | 50% of customer satisfaction objectives have been achieved. | The results show that the staff feel appreciated for their contribution to the work. | 50% of society objectives have been achieved. |
| 7     | The LMT is active in the evaluation, motivation and recognition of all the library staff, for their achievements in respect of continuous improvement. | A process has been established to change library policy and strategy.             | There is an established process to encourage creativity and innovation amongst the library staff as a whole. | There is an established procedure to identify, evaluate and assess new technologies and their impact on the library. | An established mechanism has been set in place to develop and employ the appropriate means to assess the key processes. | All the staff are aware of and understand the customer satisfaction objectives. | The results should indicate that the staff are able to express their ideas freely and on a continuous basis. | There exists a link between the results and library policy and strategy. The policy is reviewed. |</p>
<table>
<thead>
<tr>
<th>Stage</th>
<th>Leadership</th>
<th>Policy &amp; Strategy</th>
<th>Management of Staff</th>
<th>Partnerships &amp; Resources</th>
<th>Processes</th>
<th>Customer Results</th>
<th>Staff Results</th>
<th>Society Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>The LMT is actively involved in the development and support of improvement groups (IG), and act as leaders thereof.</td>
<td>A process has been developed to assess the continuing relevance of current policy and strategy on the basis of information gathered.</td>
<td>IGs have been established and have the necessary support.</td>
<td>Established systems have been set in place to monitor, supervise and review Key Performance Areas, with a view to reducing operating costs.</td>
<td>The resulting process is reviewed and returned to the improvement cycle.</td>
<td>The elements which are pivotal to customer satisfaction have been identified and this information is used to modify customer satisfaction objectives.</td>
<td>Improvement objectives are established and made public.</td>
<td>There is a growing awareness.</td>
</tr>
<tr>
<td>5</td>
<td>A process has been developed to ensure that the LMT works directly with customers and suppliers. Whether or not the process is effective is subject to review.</td>
<td>The library has a policy and strategy statement which takes into account all 8 EFQM criteria featured in this matrix.</td>
<td>The training and developmental needs of all the staff and of the IGs are regularly reviewed. Gaps in training are identified with reference to staff aspirations and the needs of the library.</td>
<td>Systems have been set in place to reduce the cost of materials.</td>
<td>A strategy has been devised to improve the key processes offering added value.</td>
<td>Customer satisfaction levels are shared with the University as a whole.</td>
<td>The different trends have been established. Positive and negative trends are parameters which are fully understood and measured in a way which is significant to the staff.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>A process has been developed to ensure that the LMT shows clear and direct involvement in the provision of role models for the improvement of the library within the University System. The efficacy of the process is subject to review.</td>
<td>There is a clear process of communication of the library mission and vision and of the Key Performance Areas to all library staff, to the extent that everyone is aware of them and understands them.</td>
<td>A system of assessment for all library staff has been set in place.</td>
<td>A process has been developed to control the dissemination of information destined for users, suppliers and staff.</td>
<td>A strategy of improvement has been established and improvement objectives have been set.</td>
<td>The importance of customer satisfaction objectives may be demonstrated.</td>
<td>Internal dialogue and communication is valued and the degree to which it is effective is closely monitored.</td>
<td></td>
</tr>
<tr>
<td>Stage</td>
<td>Leadership</td>
<td>Policy &amp; Strategy</td>
<td>Management of Staff</td>
<td>Partnerships &amp; Resources</td>
<td>Processes</td>
<td>Customer Results</td>
<td>Staff Results</td>
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<td>3</td>
<td>A process exists to facilitate communication between the LMT and the staff.</td>
<td>An established procedure is in place for the collection of all the relevant, external information required in an analysis of the Key Performance Areas.</td>
<td>A two-way system of information exchange and communication has been set in place in the library.</td>
<td>Relationships are developed with suppliers to ensure that quality and speed of service are hallmarks of their mutual dealings.</td>
<td>The effectiveness of the existing key process is evaluated.</td>
<td>Improvement objectives have been established.</td>
<td>The data is used to produce a graphic representation of staff satisfaction.</td>
<td></td>
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<tr>
<td>2</td>
<td>A process exists to create and promote the continuous development of the library corporate culture.</td>
<td>An established procedure is in place for the collection of all the relevant information required in an analysis of the Key Performance Areas.</td>
<td>A publicly acknowledged commitment exists to promote the development of the staff as a whole, in order to improve performance and meet objectives.</td>
<td>A procedure has been set in place to identify essential resources.</td>
<td>The key processes offering added value are identified, and are presented in the form of a graph or are documented. Process relevancy is established.</td>
<td>The data is used to provide a graphic representation of the trends in customer satisfaction.</td>
<td>Key elements in staff satisfaction have been identified.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>The LMT has set in place a process to develop its own awareness of the concepts of total quality.</td>
<td>The LMT has developed a mission statement and has defined the Key Performance Areas.</td>
<td>An established process is in place to sound out and take into account the opinions of the staff.</td>
<td>A process exists to identify available resources and the way in which they are being used.</td>
<td>The principal library processes have been identified.</td>
<td>Customer complaints are recorded and produce an “ad hoc” result.</td>
<td>Staff complaints are identified on an “ad hoc” basis.</td>
<td></td>
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</tbody>
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Developing national data collection models for public library network statistics and performance measures: Project update

John Carlo Bertot and Charles R. McClure
Information Use Management and Policy Institute, School of Information Studies, Florida State University, USA

Abstract
Public library networked statistics and performance measures are important indicators of the use, uses, and users of networked services that public libraries offer their patrons. Individually, these factors provide libraries with the ability to incorporate network usage data into key decision making processes and planning activities. Together, through a systematic approach to the collection and reporting of public library network statistics on a national scale, these factors provide significant data regarding use and usage trends throughout U.S. public libraries that inform policy makers, researchers, and library professionals as to what types of network activities are occurring in public libraries and how those uses can lead to public library role changes in the networked environment.

The research presented in this paper is made possible through the support of a U.S. Institute of Museum and Library Services National Leadership Grant (NR-00009). Additional study information can be found at: http://www.ii.fsu.edu/Projects/IMLS/index.html

Introduction
Public library networked statistics and performance measures are important indicators of the use, uses, and users of networked services that public libraries offer their patrons. Access to data that identify what networked services are being used by whom and when can:

- Enable local library directors and state library agencies to compete for resources with other local and state organizations as by documenting the range, extent, and impact of library-provided networked services.
- Assist public libraries make a strong case for federal or local community support for technology and information infrastructure by documenting their Internet-based services and resources.
- Facilitate the transition from traditional library use measures such as circulation, reference transactions, interlibrary loans, etc., to network measures that describe the nature and use of library-based network activities and resources.
- Assist libraries in administrative, management, and planning activities.
- Allow individual libraries, states, and regions to effectively compare themselves to others in terms of Internet development, costs, provision of services, connectivity, and use.
- Provide libraries a means through which to assess, compare, and make decisions regarding collections resources in general and future collections development decisions in particular.

Individually, these factors provide libraries with the ability to incorporate network usage data into key decision making processes and planning activities. Together, through a systematic approach to the collection and reporting of public library network statistics on a national scale, these factors provide significant data regarding use and usage trends throughout U.S. public libraries that inform policy makers, researchers, and library professionals as to what types of network activities are occurring in public libraries and how those uses can lead to public library role changes in the networked environment.

Background
With the assistance of a 1998 National Leadership Grant from the U.S. Institute of Museum and Library Services (IMLS), the authors conducted a study to develop national public library network statistics and performance measures. Through this study, the authors developed, defined, and field-tested a series of public library network statistics and performance measures for ultimate collection at the national level (see Figure 1). Overall, the statistics and measures developed in this study provide the means to track various public library networking capabilities and activities such as the type and level of Internet connection; types, public access workstations; available network-based services, such as databases, online reference, and web-based services (e.g., digital libraries); and staff and user instruction.

Upon completion of the network statistics and performance measure project, the authors received a 2000 National Leadership Grant from IMLS to assess the feasibility of and develop a national model for collecting public library network statistics and performance measures. Partners in the current study include the U.S. National Commission on Libraries and Information Science (NCLIS) and the National Information
Standards Organization (NISO). Based on the project findings and model field test (discussed in more depth below), the researchers will recommend to IMLS, the public library community, state library administrators, and others, possible approaches to the collection of public library network statistics on a national scale. These recommendations will be included in the final project report to IMLS in May 2002.

The authors note that there are a number of national and international efforts underway that continue to research the library network statistics and performance measure environment. This paper summarizes, but does not review, selected efforts in Figure 2.

Developing A National Public Library Network Statistics Data Collection Model

There are a number of network statistics and performance measurement data collection issues that require resolution (Bertot, McClure, and Ryan, 2000). Among these issues are the:

- **Range of Sources of Network Data within Individual Library.** No two libraries have the same information technology infrastructure, configuration, or systems implementation. This creates a substantial challenge for the collection of the same data from libraries using similar (but different) technology in various configurations.

- **Data Quality.** Librarians want accurate, credible trustworthy, valid, and reliable data that describe the use and uses of their networked resources and services. However, there is a false expectation that machine-generated or captured data (e.g., online database sessions, web visits) are exceptionally accurate. This is not the case, as the quality of such data depends on a number of factors. Indeed, Figure 3 demonstrates the difficulty of capturing a simple database session count. All nationally collected and reported data related to libraries and services are best seen as estimates – even those that are currently collected (Library Research Service, 1995).

- **Limits to Longitudinal Data.** Longitudinal data are useful to track trends within a library and as a check for unusual spikes or bad data. But the rapidly changing nature of information technology will have a substantial impact on the life cycle of the network statistics and performance measures. It is unclear as to just how longitudinal network statistics will be given the need to change what they capture and how as technology changes.

- **New Data Collection Techniques.** Network measures require researchers and professionals to consider the benefits and/or necessity of using new data collection techniques including traditional quantitative methodologies (surveys, or Likert scale surveys of user satisfaction with network services) in new ways; less familiar qualitative (e.g., focus groups, interviews) methods; adapting traditional methodologies (e.g., pop-up Web-based surveys); and creating new methodologies (e.g., Web-based transaction log analysis) to capture network usage data. In some cases, to promote timely and responsive measures it may make sense to rely on carefully developed samples at the local, state, and national levels rather than 100% population responses. In other cases, sequencing data collection, in which a question is not asked annually but every two or three years may be appropriate to reduce local data collection burden.

- **Ability of Local Libraries to Collect Network Measures.** In order to attain national network statistics and performance measure data, it is necessary to collect the raw data at the local library outlet level. It remains unclear as to the ability of the library outlets to collect such data.

- **Preparation and Training Necessary.** Collecting data on network measures will require preparation and library staff training to be successful. There are a number of training topics that need attention including the identification of the range and diversity of technology generating network measures; the notion that at least for the near term estimates, samples, and the lack of long term longitudinal network data may be the norm; and introduction to new data collection techniques and how they may be applied to collecting network measures relevant to local libraries.

- **Training in New Data Analysis Techniques Necessary.** Training in how to analyze and interpret these new network measures (some more than others) will be necessary at all levels. For example, training librarians to download pre-formatted data into a standard spreadsheet and then do some basic analysis. In addition, few of those interviewed outside of some systems librarians knew how to effectively use network analysis data. In the case where the library has systems staff, network data may only be used for internal technical purposes. But often, these technical experts have not seen the utility of this data for wider administrative purposes such as demonstrating use, showing need, garnering funding.

- **Training in the Analysis and Use of the Network Data Reported Necessary.** Librarians have spent decades convincing local governing boards that circulation counts, attendance records, reference transactions, etc., that go up annually are a “good thing.” Now that these and other traditional counts are stagnant or declining in many cases, librarians have to re-educate governing boards that web hits,
libraries to foster reporting agreements with external entities to ensure that libraries receive use data for services to which they subscribe or can access through subscriptions by other entities (e.g., state library agency).

These issues, at a minimum, require attention and an acceptable level of resolution for it to be possible to develop and collect national public library network statistics and performance measures.

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**Figure 1. Public Library Network Statistics**

- **Public Access Workstations**
  - **# Public access workstations**
    Annual count of the number of library owned public access graphical workstations that connect to the Internet for a dedicated purpose (to access an OPAC or specific database) or multiple-purposes.

- **# Public access workstation users**
  Annual count of the number of users of all of the library’s graphical public access workstations connected to the Internet computed from a one week sample.

- **Maximum speed of public access Internet workstations**
  Indication of the maximum bandwidth of public Internet access, e.g., less than 56kbps, 56kbps, 128kbps, 1.5mbps, etc.

- **Databases**
  - **# Full text titles available by subscription**
    Report: Serial titles, Other titles, Total titles
    Count of the number of full text titles that the library subscribes and offers to the public computed one time annually.

  - **# Database sessions**
    Total count of the number of sessions (logins) initiated to the online databases. Definition adapted from proposed ICOLC standard http://www.library.yale.edu/consortia/webstats.html.

  - **# Database queries/searches**
    Total count of the number of searches conducted in the library's online databases. Subsequent activities by users (e.g., browsing, printing) are not considered part of the search process. Definition adapted from proposed ICOLC standard http://www.library.yale.edu/consortia/webstats.html.

  - **# Items examined using subscription services**
    Count the number views to each entire host to which the library subscribes. A view is defined as the number of full text articles/pages, abstracts, citations, and text only, text/graphics viewed. Definition adapted from proposed ICOLC standard http://www.library.yale.edu/consortia/webstats.html.

- **Electronic Services**
  - **# Virtual reference transactions**
    Annual count of the number of reference transactions using the Internet. A transaction must include a question received electronically (e.g., via e-mail, WWW form, etc.) and responded to electronically (e.g., e-mail).

- **Public service time spent servicing information technology**
  Report: Information technology staff, Paid public service staff (Professional Librarian, Paraprofessional), Volunteer, & Total
  Annual count of the staff hours spent in servicing information technology resource and service activity in public service areas computed based on a one week sample.

- **Virtual Visits**
  - **# Virtual visits to networked library resources**
    Report: # Internal virtual visits, # External virtual visits, # Total virtual visits
    Count of visits to the library via the Internet. A visit occurs when an external user connects to a networked library resource for any length of time or purpose (regardless of the number of pages or elements viewed). Examples of a networked library resource include a library OPAC or a library web page. In the case of a user visit to a library web site a user who looks at 16 pages and 54 graphic images registers one visit on the Web server.
Instruction

User information technology instruction
Report: # Users instructed, # Hours of instruction
A Count of the number of users instructed and the hours of instruction offered in the use of information technology or resources obtainable using information technology in structured, informal, and electronically delivered instruction sessions conducted or sponsored by the library.

Staff information technology instruction
Report: # Staff instructed, # Hours of staff instruction
Annual count of the total number of staff instructed and the number of hours of formal instruction in the management or use of information technology or resources obtainable using information technology.

International Coalition of Library Consortia (ICOLC)
ICOLC is an international coalition of predominantly research libraries (some of which are sponsors of the ARL e-metrics project) interested in pursuing standard network statistics and reporting systems regarding database vendor data. ICOLC first published its proposed standards and definitions in November 1998 and is currently considering revisions to those standards. Additional information on the ICOLC initiative is available at http://www.library.yale.edu/consortia/webstats.html.

International Standards Organization (ISO)
Through the ISO Technical Committee 46 (Information and Documentation), subcommittee 08 (Statistics and Performance Evaluation) members of ISO have been revising both general library statistic standards and incorporating network statistics and performance measures into the statistical data collection efforts of participating libraries (multi-type). As of July 2001, the U.S., through NISO, rejoined the ISO effort after a one-year absence. Recent ballotling efforts resulted in the passage of the proposed ISO library statistics (document ISO/DIS 2789) although a number of voting members provided substantial comments on the statistics. Additional information on this and other ISO efforts are available at http://www.iso.ch/iso/en/ISOOnline.frontpage.

European Community-sponsored Equinox project
The Equinox project focused on developing library performance and quality measures. In particular, the project aimed to further develop existing international agreement on performance measures for libraries for the electronic library environment as well as develop and test an integrated quality management and performance measurement tool for library managers. The project identified a number of performance indicators that, in some cases, have been integrated into the ISO library statistics initiative. Additional information on the Equinox project is available at http://equinox.dcu.ie/.

LibEcon project
A European initiative, LibEcon focuses on the collection of economic and other library-related data from predominantly European libraries. For its Millennium Study, the survey incorporated selected network statistics developed by the IMLS study as well as ISO activities. Additional information on LibEcon is available at http://www.libecon2000.org/.

Council on Library and Information Resources (CLIR) initiative
CLIR investigated the issues surrounding network statistics primarily from an online database data perspective. The initial study, conducted during 1999 and 2000, resulted in the publication of a white paper entitled White Paper on Electronic Journal Usage Statistics. It is the understanding of the study team that the work begun through this effort continues. Additional information on this initiative is available at http://www.clir.org.

Publisher and Libraries Solution Committee (PALS)
This recent initiative, operating through the auspices of the Joint Information Systems Committee (JISC), is exploring the data needs of libraries from publisher provided online usage statistics. A Vendor-based usage statistics working group has been developed to explore the issues involved regarding online vendor statistics in a more in-depth fashion. This group met in June 2001 in the United Kingdom to pursue further network statistics needs of libraries from vendors. Study team members are in contact with this group. Additional information at: http://www.jisc.ac.uk/curriss/collab/c6_pub/#uswg.
**Association of Research Libraries (ARL)**

**E-Metrics**

Beginning in July 2000, this project seeks to identify, define, and standardize a set of network statistics and performance measures for ARL libraries. The intent is to develop a core set of network statistics and performance measures through which ARL libraries can manage their networked resources and services, plan future network resources and services, and benchmark themselves against other ARL libraries. In addition, the project seeks to provide network statistics and performance measures in an outcomes-based context. Additional information on the project is available at: http://www.arl.org/stats/newmeas/emetrics/index.html.

![Figure 3. Capturing an Online Database Session](image-url)
Possible Models for National Data Collection

The ability to resolve several of the issues identified above lies, in part, with the type and nature of the national public library network statistics and performance measure system adopted by library professionals, researchers, and policy makers. Research by the authors – as well as numerous formal and informal interviews, focus groups, and discussions with library leaders, researchers, and policy makers – suggests that there may be numerous approaches to the development of a national network statistics and performance measure collection, reporting, and analysis system. These include:

Extending the current National Center for Education Statistics (NCES), National Commission on Libraries and Information Science (NCLIS), state library agency, and public library Federal State Cooperative System (FSCS) collaborative approach for annual public library data collection.

In this model, public library data on selected statistics are passed from public libraries to state library agencies up to NCES for compilation, analysis, and reporting. All 50 states plus the District of Columbia and U.S. Territories participate in the process.

At present, there are approximately 50 data elements collected and reported through the FSCS process (e.g., operating budgets, FTEs, circulation). It is necessary to propose new elements through an administrative procedure, and element adoption requires the vote of at least 26 state data coordinators (SDC, personnel located in state library agencies) with a three-year phase-in on inclusion by all 50 states, Washington, D.C., and U.S. Territories. The adopted elements then go into the following year’s survey form for collection. The time from element vote to adoption to collection can be as long as three years.

Over the last several years, the FSCS group undertook at least two efforts to adopt a variety of network statistics. The most recent effort occurred in December 1999. While some network statistics were voted in, a vast majority – including some network statistics contained in Appendix A – failed to get the necessary 26 votes for adoption. [Note: state library agencies voted in early 2001, however, to include the online database statistics on their annual surveys beginning with the 2002 reporting year].

Developing a lead states and libraries approach to data collection and reporting.

For a variety of reasons, it may not be feasible for all public libraries and state library agencies in the nation to simultaneously adopt and report data on a set of network statistics and performance measures. However, research by the authors demonstrates that there are a number of states (20+) that indicate their willingness and/or desire to collect at least a core set of network statistics and performance measures from the public libraries within their states. The same research shows that, while a state library agency or a number of public libraries within a state may not be willing or able to collect network statistics, lead public libraries within states find it imperative to collect such data for a variety of decision making, management, and reporting purposes. In this model, lead public libraries and state library agencies adopt, collect data, analyze data, and report data on a core set of network statistics and performance measures. The lead state library agencies and public libraries also serve as an incubator for developing, defining, and reporting new network statistics and performance measures.

Creating an ongoing sampling design to generate national estimates.

This model employs a sampling approach for a variety of data collection activities to use with public libraries, state library agencies, and library network consortia. The intent of this approach is to develop a sample that would enable the generation of national estimates of core set of network statistics and performance measures from public library, state library agency, and library network consortia. Such a model would permit the targeting of network statistics appropriate to the level of data collection – library, state library agency, library consortia – as well a framework for modifying or creating new statistics and performance measures on an as needed basis. It would be possible to engage in the data collection process on a regular (e.g., annual, biannual) and/or ad hoc (e.g., as necessary) basis.

Adopting a combination approach to network statistics and performance measure data collection.

The above data collection models are not mutually exclusive. Rather, it is possible to combine aspects of the FSCS, lead state/library, and sampling approaches to collect, analyze, and report public library network statistics and performance measures so as to provide nationally aggregated network statistical data.

A key aspect of the research project is to determine which model or aspects of the above models – including models and/or approaches not yet identified – are appropriate under what circumstances for the development, definition, collection, analysis, and reporting of national public library network statistics and performance measures.

National Model Field Test

The study team is preparing to conduct a national model data collection field test that would both continue the test of the network statistics and perform-
ance measures and test a method for data collection and reporting. The field test would occur in October 2001, so as to provide state library agencies, consortia, and public libraries with adequate time to prepare for the field test. The goals of the field test are to:

1. Create a fast response approach to the development, collection, analysis, and reporting of network statistics and performance measures;
2. Foster an environment of constant change;
3. Implement a reasonably burden free data collection and reporting process for public libraries, state library agencies, and library consortia;
4. Work with non-library partners to gain access to library network data (e.g., vendors, consortia, state library agencies); and
5. Produce national estimates of public library network service uses and usage.

To do so, the field test will:

- **Use a selected states, public library, and consortia approach.** The field-testing approach presented to the public library and state library agency community was on of an initially purposeful approach in which states, and public libraries and consortia within those states, would be selected based on the extent to which the states were already collecting/planning to collect network statistics and performance measures, annual state library database expenditures, known consortia within the states, a varied composition to the state’s public library landscape along rural/urban, poverty, and population of legal service area demographics (as found in the annual public library surveys as well as poverty data held by the study team and NCLIS), and a willingness to participate in the study.

- **Select the states.** Based on the above criteria, the study team identified 14 states to participate in the field test (Alabama, Colorado, Georgia, Illinois, Kentucky, Louisiana, North Carolina, Ohio, Pennsylvania, Texas, Virginia, Wisconsin, and Wyoming). To date, ten states have agreed to participate in the field test.

- **Use multiple data collection points.** In the networked environment, network-based services are provided directly or indirectly to or by public libraries. Thus, it is necessary to collect network use and usage data from multiple entities to provide an estimate that reflects actual public library network services. For example, state library agencies are increasingly providing statewide access to online databases that users can access either through public library facilities or remotely, and consortia provide their library members with access to online databases that users can access either through public library facilities or remotely. For there to be an accurate reporting system (though still an estimate, as discussed in Bertot, McClure, and Ryan, 2001), the consortia and state library agencies need to report the online database usage statistics for the public libraries. These usage statistics need to be reported in combination with the public library network usage data so as to get a better sense of the total public library use of, in this case, online database resources. The other network statistics (e.g., public access, virtual visits, Instruction) would be collected by individual public libraries and then reported to the state library agency.

- **Create a reporting system.** The field test will parallel the FSCS process, but use a selected sample-based approach in which

  - Public libraries collect and report their network statistics usage data to the state library agencies (likely the SDC). Unlike the initial field test of the network statistics and performance measures during 1999-2000 during which public libraries or consortia were assigned specific statistics to test and report, this field test will ask public libraries to collect all the statistics that apply to their organizations – e.g., public access, virtual visits, instruction, databases, and electronic services. Not all libraries provide instruction, have a website, or subscribe to online databases, thus they would not report instruction, virtual visit, or database data.

  - Consortia report their public library online database usage data to the state library agencies (likely the SDC). [A key issue to resolve is whether these consortia or state library agency-based online database usage data should be disaggregated and reported by individual public libraries or kept in an aggregate “public library usage” state. Disaggregation would require substantially more effort, and it is unclear if such effort provides additional benefit over an aggregated reporting of the usage data.]

  - State library agencies separate out public library online database usage data. It may also be the case that state library agencies serve as the state library facility. It is unclear as to whether public access workstation data, or other services related data such as virtual visits or electronic reference, would be reported as part of the public library national data. It is more likely that state library agencies will need to consider the reporting of such data on the state library agency annual survey.


State library agencies report network usage data to a central data collection agency. For the purpose of the field test, the Information Institute at Florida State University will act as the central data collection agency. The Information Institute will also generate reports based on the data collection effort so as to identify sample reports and reporting formats. As part of the field test, the study team will identify issues, burden, and other management requirements for the data collection effort. This study team will then present this information to NCLIS (who is actually one of the study partners), the National Center for Education Statistics (NCES), SDCs, state librarians, consortia managers, and public library directors. Based on feedback from these entities, the study team will make final adjustments and recommendations as to the national data collection and reporting processes.

This approach will provide substantial feedback on the ability of libraries, consortia, and state library agencies to report the network statistics data; the process by which data are reported, and the ability of the reported data to describe public library network services and resources use. In addition, the results of the field test will identify what the characteristics of national data collection system should be given the network statistics environment.

Clearly, such a national data collection system will need to:

- **Create a fast response approach to the development, collection, analysis, and reporting of network statistics and performance measures.** A key criticism of the FSCS process is the time lag between the development of data elements and the eventual reporting of those elements. For a variety of reasons, it can take four years under the current FSCS process from development to reporting of statistics (to be fair, the FSCS group undertook changes in its bylaws recently to expedite the element adoption and reporting process). By the time the NCES releases the public library data reports, the data are often outdated. This is particularly problematic in the networked environment in which any network statistics and performance measures will likely remain relevant for two-three years.

- **Foster an environment of constant change.** Gone are the days of statistics and performance measures that last for decades. The networked environment is such that change in technologies and the implementation of those technologies is rapid. Thus, the statistics and performance measures that capture network data will necessarily undergo constant modification. It is imperative, therefore, that the model for national library network statistics and measures foster an environment of flexibility, change, and creativity in the creation, collection, and reporting of statistical data.

- **Implement a reasonably burden free data collection and reporting process for public libraries, state library agencies, and library consortia.** It is clear that data reporting requirements imposed on public libraries are arduous. It is also clear, however, that network usage statistics are increasingly important to professionals, researchers, and policy makers. Thus, it is necessary to develop a data collection and reporting system that provides maximum benefit for minimal effort.

- **Work with non-library partners to gain access to library network data.** Increasingly, key network usage data is out of the public library, state library, and library consortia domain. Examples include online database usage, Internet service provider (ISP), and telecommunications carrier (e.g., bandwidth consumption) data. It is critical to the measurement of library network services that the national data collection activities develop reporting partnerships with, minimally, the online database vendor, ISP, and telecommunications carrier communities.

Undoubtedly, there are other characteristics necessary for a national public library network statistics data collection system that the field test will identify.

**Next Steps**

The development of a set of national public library network statistics (see Figure 1) was an important first step that provides public libraries with the ability to describe the use, uses, and users of their networked resources. It is critical, however, to aggregate individual public library network statistics data collection efforts in order to inform policy makers, practitioners, researchers, and others as to the shift in public library services and resources, the use of their services and resources, and the impact such uses have on the public library as a community-based organization. Doing so will enable public libraries to report – at the local, state, and national levels – the contributions they make to their communities through their network-based services. Ultimately, this study will recommend possible approaches to accomplish these objectives.
References


The Association of Research Libraries Statistics and Measurement program: From descriptive data to performance measures

Julia C. Blixrud
Director of Information Services, Association of Research Libraries, USA

Abstract

The Association of Research Libraries (ARL) has collected descriptive data from its members for the better part of the 20th century. As the libraries' environments change to one of increased interest in accountability and institutional outcomes, an ARL New Measures Initiative has been established to develop different and innovative ways for libraries to describe their contributions to their institutions. These new measures will assist libraries to move away from data that just describe a library's inputs and outputs to data and programs that can help libraries measure their performance over time both to benchmark with peers and to improve their own operations.

Introduction

The Association of Research Libraries (ARL) is a not-for-profit membership organization comprising the leading research libraries in the United States and Canada. Its mission is to shape and influence forces affecting the future of research libraries in the process of scholarly communication. Although ARL libraries are a relatively small subset of the research libraries in the United States and Canada, they account for a large portion of academic library resources in terms of assets, budgets, and the number of users they serve. Statistics have been a part of ARL's programs since the association began, and have had a significant impact on the development and use of library statistics in the United States and Canada throughout the 20th century.

Development of ARL Descriptive Statistics

Since 1961-62, ARL has collected data annually from and published statistical data for its members that describe their collections, expenditures, and staffing. Prior to 1961-62, annual statistics for university libraries were collected by James Gerould, who was first at the University of Minnesota and later at Princeton University (Molyneux and Stubbs, 1990). These data, covering the years 1907-08 through 1961-62, are now called the Gerould statistics (Molyneux, 1986). The whole data series from 1908 to the present represents the oldest and most comprehensive continuing library statistical series in North America. Machine-readable datafiles dating from 1908 are available on the ARL ftp server (1) and an interactive interface has been developed and is supported by the staff at the Geospatial and Statistical Data Center at the University of Virginia (2).

The ARL descriptive measures dataset has remained relatively unchanged throughout the years. The data variables used in the 1960s to the 1980s, with only minor modifications and additions, were those first established by Gerould. Over the past decade, the set of data gathered was expanded to include more categories for public service activities in addition to the traditional categories of library characteristics, collections, personnel, expenditures, and university data. Except for a few services, the library variables still concern the inputs of on-site collections, staff, and expenditures (3).

ARL statistics data have been most useful at the aggregate, national level for the trend information they provide about changes in services (interlibrary borrowing, group presentations, circulation, reference transactions) in the last 10 years (ARL, 1999) and monograph and serial unit costs; monograph and serial expenditures, and monograph and serials purchased since 1986 (ARL, 1999). These data, and their accompanying charts, are used by the Association and its members to document the decline in ownership due to the high cost of materials. The value of reliable trend data cannot be overstated.

However valuable the ARL data were for describing the traditional characteristics of research libraries and to monitor trends, they have not been adequate to assess the emerging uses of technology for access to information and the changing nature of research libraries. This is not to say that ARL had not been looking at other types of data or considering other possibilities for assessing library performance. As early as 1982, ARL contracted with Paul Kantor of Rutgers University to test four performance measures (availability of library materials, accessibility of library materials, analysis of patron activity, and delay analysis of interlibrary loan) and to produce a manual (Kantor, 1994) to help libraries collect and analyze the data. The project achieved its goals of identifying the measures, but the members determined that the process for data collection was too burdensome for regular use.

Also in 1982, ARL began to collect data in a supplementary statistics form that gave members a chance to test collection of specific data such as monographs purchased, staffing, monograph expenditures, staff salaries and fringe benefits, automation expenditures,
external and reserve circulation, reference transactions, branch libraries, and instructional faculty. If variables were deemed useful, they were moved into the main ARL statistical survey.

An emphasis in the need to collect measures on access arose from the Committee on ARL Statistics in 1989. In the early 1990s, an “Inventory of Library Access Characteristics” that covered library facilities, equipment, resource sharing, and some access services was developed and conducted annually for several years. In an article for ARL’s newsletter, Sarah Pritchard outlined some of the efforts ARL had been undergoing to integrate measures of outputs and services and noted that a distinction between access measures, which were reflected by library services and could be collected at a national level, and performance measures, which spoke to the effective management and were better addressed locally, was deemed essential (Pritchard, 1992).

ARL Statistics and Measurement Program

In 1994, the Association adopted a new strategic objective that broadened the emphasis of the Statistics Program from just describing research libraries to one of “measuring the performance of research libraries and their contributions to teaching, research, scholarship and community service.” In conjunction with this objective, the membership supported an increase in dues allocation to the program and hired a full-time program officer. Since that time, the activities of the program expanded considerably.

The current ARL Statistics and Measurement Program (4), under the direction of the Statistics and Measurement Committee, provides descriptive data about the characteristics of research libraries today and seeks to develop and measure these libraries’ contributions. It has been instrumental in addressing the new ARL strategic goal of developing new measures for assessing library performance and their contribution to higher education. Reports and updates on activities are found in the annual ARL Program Plan (ARL, 2001) and ARL’s bimonthly report (5).

The program supports the production of publications and member-distributed reports regarding the operations of research libraries (6). In addition to the printed publishing efforts, the program has a strong presence in electronic publishing activities. Except for salary data, all data for the annual statistical publications are collected through a website interface to speed the data entry process and ensure accuracy.

The ARL statistical survey instruments, through either use of data variables and definitions or in its entirety, has been used as the basis for surveys conducted by several other organizations: American Library Association (ALA) salary survey, Integrated Postsecondary Education Data System (IPEDS) Academic Library Survey; Association of College and Research Libraries (ACRL), a division of the American Library Association; Council on East Asian Libraries (CEAL); and the Canadian Association of Research Libraries (CARL).

The New Measures Initiative

The ARL New Measures Initiative was begun because of increasing demand for libraries to demonstrate outcomes and impacts in areas of importance to their institution and increasing pressure to maximize use of resources through benchmarking resulting in either cost savings or reallocation. Members felt that ARL was quite good at gathering data on inputs such as collection size, expenditures, and staffing and had made progress in the area of outputs through data on services and people served. And while some effort had been made to look at performance measures in the case of ratios (e.g., expenditures per FTE), a set of measures to determine outcomes or impacts had not yet been developed.

In January 1999, several members of the Statistics and Measurement committee, the ARL Leadership and Management Committee, and other interested member leaders of ARL, gathered in a retreat setting to discuss what ARL can do to assist members in developing new measures that better describe research libraries and their services. Those attending the retreat addressed a set of questions regarding the data needed to describe research libraries in today’s environment, the need for new measures, and the means by which useful data and measurement tools could be developed (7). The retreat participants recognized that any new measures must:

• Be consistent with organizational missions, goals and objectives
• Be integrated with an institution’s program review
• Balance customer, stakeholder, and employee interests and needs
• Establish accountability
• Include the collection and use of reliable and valid data. They determined that in order to succeed there must be collaboration among member leaders with strong interest in this area, specific projects developed with different models for exploration, and an intent to make resulting tools and methodologies available to full membership and wider community. Therefore, not all members are required to participate in all projects. This gives each project the flexibility it needs to test and
refine measures without placing undue burdens on the entire ARL membership.

When the New Measures Initiative first began, members examined the eight areas of interest generated at the 1999 retreat and subsequently focused attention on several specific topics: higher education outcomes assessment, the utility of service effectiveness measures across libraries, usage measures for electronic resources, identification of cost drivers, and applying the results of the ILL/DD Performance Measures cost study (8).

A series of specific projects were initiated in 2000, some supported with direct member financial contributions. The projects can be categorized as:

• Demonstration project for service effectiveness measures
• Investigation of the role libraries can play in campus learning outcomes activities
• Project to define usage measures for electronic information resources
• Identification of cost-drivers and development of cost-benefit studies
• Develop assisted self-study program to apply results of ILL/DD studies
• Investigation of role libraries play in support of the research process

This set of projects has now become the New Measures Initiative and incorporates initial investigations with a variety of projects at different stages of development. Two of the projects are large-scale. To keep the community informed about the initiative and the projects as they progress, a new measures website was established and organized by project (9).

**LibQUAL+**

The largest of the New Measures Initiatives to date is LibQUAL+ (10), a research and development project undertaken by ARL in collaboration with Texas A&M University to define and measure library service quality across institutions and to create useful quality-assessment tools for local planning, such as the evaluation of a library’s collections-related services from the user’s point of view. LibQUAL+ was begun in 1999 in response to members’ desire for alternative assessment methods. The project was spearheaded by Texas A&M University Libraries, who had been using a modified version of the SERVQUAL instrument—a customer survey used widely in the private sector—to evaluate their library services since the early 1990s. In the fall of 2000, ARL was awarded a US$498,368 grant from the U.S. Department of Education’s Fund for the Improvement of Post-Secondary Education (FIPSE) to help defray the cost of further developing the LibQUAL+ tool and scaling up its application to the full spectrum of libraries in the higher education community. The goals of the project include (a) the development of a regrounded protocol to evaluate service quality in all post-secondary libraries; (b) an effective web-based delivery mechanism for the protocol; (c) identification of best practices to allow wiser allocation of scarce resources through cross-institutional comparison; and (d) the establishment of an ongoing, cost-recovery, service quality assessment program at ARL. Receipt of the grant has allowed ARL to expand the project to libraries outside the ARL membership.

As the LibQUAL+ dataset becomes richer, those libraries who participate in the survey and have users who rate services below minimum expectations can look to their cohorts who excel for models for improvement.

**E-Metrics**

First known as the e-Usage (Usage Measures for Electronic Resources) project, the ARL E-metrics project is an effort to explore the feasibility of collecting data on the usage of electronic resources. Twenty-four ARL member libraries committed US$10,000 to participate in a 20-month project to be carried out under contract with the Information Use Management and Policy Institute, School of Information Studies at Florida State University. Project goals are to (a) develop, test, and refine selected statistics and performance measures to describe electronic services and resources in ARL libraries; (b) engage in a collaborative effort with selected database vendors to establish an ongoing means to produce selected descriptive statistics on database use, users, and services; and (c) develop a proposal for external funding to maintain the development and refinement of networked statistics and performance measures (11).

First completed was a knowledge inventory of ARL libraries with indications of institutions worth considering for best practices. Participating institutions subsequently worked with the project investigators to refine a set of measures—unfortunately not as small a list as many had hoped—toward field test in spring 2001 for which to develop tools and a methodology for data collection. Since many electronic measures are dependent on vendor data, a meeting with 12 database vendors (ones with which ARL libraries spend the most money) was held in March 2001. The vendors also agreed to a field test of their data in collaboration with some of the participating libraries. The project investigators would review the data to see if a small set can be defined that are in line with library interests and can be generated by the vendors with some consistency. The investigators, project directors, and ARL staff have been engaged in discussions with other national
and international organizations struggling with the same issues of electronic resource statistics, in particular vendor-based statistics, and a means for collaborating with those organizations while not detracting from or slowing down the ARL effort.

Project investigators have also begun to consider development of an institutional outcomes model that can be applied to research libraries. Project participants will be responding to draft papers that outline either multiple models or possibly a process by which institutions develop their own outcomes in relation to institutional outcomes.

Other Projects

While the two projects are by far the largest, there are other projects that address the desire for ARL members to have new measures or new ways to measure their operations. To advance an investigation of the role libraries could play in addressing learning outcomes, Kenneth Smith, Eller Distinguished Service Professor of Economics at the University of Arizona was hired as a consultant to draft a white paper suggesting a role for research libraries. His white paper, “New Roles and Responsibilities for the University Library: Advancing Student Learning Through Outcomes Assessment” (12) outlines a strategy for involving research libraries in campus assessment activities to demonstrate the value of the library to the learning community. The paper was presented to the ARL membership at their May 2000 meeting and an action plan was developed and approved by the Statistics Committee to begin with a call for participants in summer 2001.

Doug Jones, University of Arizona, is serving as a Visiting Program Officer in 2001 to explore the impact libraries have on research and the research process. He will provide a report on his findings to the Statistics and Measurement Committee. If the results suggest future action, a project plan will be developed.

Another project is the development of an assisted self-study for ILL/DD operations. It will consist of three parts: an organizational assessment, comparison of local activity against the benchmarks and best practices identified in the ILL/DD Performance Measures Study, and development of specific actions and changes that will result in a service that meets or exceeds those benchmarks. A small pilot group of libraries will test the methodology, with a goal of making the study available to the membership and library community in 2001.

Cost drivers continue to be of interest to some participating in the New Measures Initiative. Strategies to begin those projects include the development and review of a list of library functions to identify promising areas, clearly define processes that are a part of the function to investigate, develop common definition of tasks, conduct data gathering and analysis, and provide workshops and training on assessment methods.

The first costs project is a technical services cost study methodology that is currently being tested at five research libraries (13). When the testing is complete and the software becomes generally available, the ARL Statistics and Measurement Committee will examine its use and consider it for possible recommendation to the ARL community.

Eileen Hitchingham (Virginia Polytechnic and State University) developed a methodology to allocate staff costs to library services. Several libraries are testing the methodology in summer 2001 and, if successful and scalable, the methodology may subsequently be offered by ARL at a cost-recovery rate for members.

The shift from an input to an outcomes focus requires a change in thinking for many individuals. In order to assist ARL member libraries to make this shift, the ARL Statistics and Measurement Program conducts a variety of workshops, sponsors conferences, and provides consulting services.

Conclusion

As the research libraries continue to feel the pressures of shifting from a management system that is accustomed to measures of inputs (revenues) and outputs (expenditures) to one of efficiency and effectiveness, it will be important that the New Measures Initiative keep looking for innovative ways to describe the research libraries of today and their contributions to their organizations. Whether some or all of the ARL members choose to participate in some or all of the projects is not as important as offering the opportunity to test and refine the new measures. As individual New Measures projects develop, there will continue to be changes in the activities and it is likely each year will bring modifications in the agenda. And as the stages of the various projects in the New Measures Initiative are completed, the ARL Statistics and Measurement Program, in conjunction with the Statistics Committee, will determine how best to deploy the results of the project or how to take the project further. Likely scenarios for many of the projects include the incorporation of data elements into the statistical surveys, the development of workshops and consulting services for performance measures, and the establishment of data gathering and statistical analysis tools that the ARL Statistics and Measurement Program can offer on a cost-recovery basis.

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References


Notes


3. A full description of the variables can be found at <http://www.arl.org/stats/arlstat/ddoc.html>.


5. “Special Issue on Measures,” ARL 197.

6. The annual reports include the ARL Annual Salary Survey, ARL Statistics, ARL Academic Law and Medical Library Statistics, ARL Supplementary Statistics, and Preservation Statistics. From 1994-1999, an annual publication, Developing Indicators for Academic Library Performance: Ratios from the ARL Statistics, was published and included an introduction that documented the current environment for performance measures in higher education and academic libraries.

7. A series of white papers addressed some potential areas of consideration <http://www.arl.org/stats/newmeas/nmbackground.html>

8. The Interlibrary Loan and Document Delivery Performance Measures Study was a two-year effort to measure the 1995/96 performance of ILL departments in 119 North American research and college libraries. The study, funded, examined four performance measures: direct cost, fill rate, turnaround time, and user satisfaction. It was funded by The Andrew W. Mellon Foundation. <http://www.arl.org/access/illld/illld.shtml>

9. Each project also includes links to other resources <http://www.arl.org/stats/newmeas/>

10. A full description of the project, a project bibliography, and related links appears at <http://www.arl.org/libqual/>.


13. More information on the cost study methodology is at <http://www.arl.org/stats/newmeas/tcs_overview.html>
The Forging of Consensus: A methodological approach to service quality assessment in research libraries – the LibQUAL+™ experience

Colleen Cook and Fred Heath, Texas A&M University, USA
Martha Kyrillidou and Duane Webster, Association of Research Libraries, USA

Abstract

This paper discusses the emergence and forging of consensus in relation to the LibQUAL+ project as it developed from the winter of 1999 to summer of 2001. A rich history of assessment in the service sector using the SERVQUAL instrument over the last twenty years, a fertile ground in the library field where various institutions including Texas A&M experimented with measuring service quality at the local level for a decade, and an increasing awareness that time for action has arrived as experienced by the leaders of the ARL New Measures initiative, and members of the ARL Statistics and Measurement Committee and the ARL Leadership and Management Committee, gave birth to the historical context that created LibQUAL+.

LibQUAL+ is the first total market survey developed for libraries – a standardized protocol applied across institutions that encourages libraries to complement their resource metrics with much needed metrics of users’ perceived quality.

Background: The Emergence of Consensus

In the winter of 1999, North American research library leaders meeting in Tucson, Arizona, issued a call for new measures of library performance (Nitecki & Franklin, 1999). As conceived, the new measures were intended to serve as an alternative and complement to the ARL Index, the descriptive statistical compendium that has served the research library as virtually its only assessment metric for decades.

This paper focuses on one of the initiatives born of the Tucson symposium: LibQUAL+™, a research and development project undertaken jointly by the Association of Research Libraries (ARL) and Texas A&M University Libraries to define and measure library service quality across institutions and to create useful quality assessment tools for local planning. The emergence of LibQUAL+™ is described from the time of its endorsement by the New Measures Task Force and the ARL membership in October 1999, to the current day.

This paper discusses the awarding of a $500,000 grant from the Fund for the Improvement of Post-Secondary Education (FIPSE), a second round of implementation involving more than 40 libraries, and the scaling of the spring 2002 phase to include almost 200 participants. The paper also touches upon the plan for the transfer of the instrument from Texas A&M University to ARL for on-going administration. The challenges and opportunities that lie ahead for ARL conclude the paper.

Antecedents: Theoretical grounding of the proposed protocol

If we have learned anything from the work of Thomas Kuhn, *The Structure of Scientific Revolutions* (1962), it is that cultures and organizations are loath to tinker with, trade, or discard explanations for complex behaviors that have served them well over time. However, when existing paradigms are increasingly unable to explain observed phenomena, emergent tools that are better able to predict and explain inevitably displace them. New ways of viewing phenomena emerge, new ways of looking at the same problems appear; the world begins to be interpreted differently.

As Danuta Nitecki has observed, on the contemporary university campus, “every unit... is valued in proportion to its contribution to the quality success of the campus” (Nitecki, 1996b). Strategically, libraries must be both competitive in today’s global information marketplace, and serve as wise stewards of society’s considerable investment in them. Effective service delivery must address several fundamental questions: what do users expect from libraries, and how can libraries assess whether they have fulfilled these needs? In an age of increasing accountability, academic libraries, just as other elements of higher education, are being forced to adapt themselves to the criteria by which like social institutions are commonly judged.

Fundamental to the ongoing drive to refine evaluation processes for service delivery is recognition of the sizeable investment that society makes in its libraries. For example, in the aggregate, ARL members alone expended over $2.7 billion dollars in 1998/99 to address the library and information needs of research constituencies in North America (Kyrillidou & O’Connor, 2000). Rowena Cullen suggests yet another
motivation and exhorts libraries either to change or contemplate irrelevance: “Academic libraries are facing two major threats in the global digital environment and an increasingly competitive environment, and must improve the quality of their services in order to survive” (Cullen, 2001). She views the global digital revolution as greatly affecting not only traditional forms of information access and delivery, but also the world of higher education itself. The arrival of the virtual university with a concomitant virtual library is clearly a challenger to the status quo. Cullen pointedly remarks, “Retaining and growing their customer base, and focusing more energy on meeting their customers’ expectations is the only way for academic libraries to survive in this volatile competitive environment” (Cullen, 2001).

Today academic libraries face competition from alternative, cost-effective information providers. In light of this reality, it is imperative for libraries to seek new means to ensure that their services meet and preferably exceed user expectations. A continuing program of assessment is sine qua non to development of a meaningful approach to meeting service goals. Again, in the words of Nitecki, “A measure of library quality based solely on collections has become obsolete” (Nitecki, 1996b).

As Sarah Pritchard explains, an assessment approach facilitating the generalizability of results across libraries and the surfacing of best practices is desirable. “The difficulty lies in trying to find a single model or set of simple indicators that can be used by different institutions, and that will compare something across large groups that is by definition only locally applicable—i.e., how well a library meets the needs of its institution. Librarians have either made do with oversimplified national data or have undertaken customized local evaluations of effectiveness, but there has not been devised an effective way to link the two” (Pritchard, 1996).

Enter SERVQUAL. “If I have seen further it is by standing on the shoulders of giants,” said Isaac Newton in his famous letter to Robert Hooke. One way to respond to the pressures for change is to take a known paradigm, effectively in place in another discipline, and by careful re-grounding, reshape its tenets for application there. Librarians found one such paradigm in the commercial sector. Business leaders have long acknowledged the role of the customer in judging quality. They assert that users cannot judge service quality, users do not know what they want or need, and the professionals, have the expertise to assess the quality of library service. They assert that users cannot judge quality, users do not know what they want or need, and professional hegemony will be undermined if they kowtow to users. Such opinions about service, in fact, are irrelevant. The only thing that matters is the customers’ opinions, because without users there is no need for libraries except to serve as warehouses (Altman & Hernon, 1998).”

Credibility: TAMU experience very important for the credibility of the process

As the research library community looked for new measures to respond to the pressures for accountability, a catalytic role was played by Texas A&M University, a land-grant institution in College Station, Texas. In the first place, Texas A&M was the site where Berry, Parasuraman and Zeithaml, as young assistant professors began the collaboration that gave the business world SERVQUAL. The trio continues its active collaboration, and Len Berry is still at Texas A&M University, where he holds the coveted title of distinguished professor.

Secondly, at the time the library staff at Texas A&M made its proposal to the New Measures Group at ARL in October 1999, it had already recorded six years of experience with the application of SERVQUAL to the research university environment, administering a slightly altered version of the protocol three times. Those experiences were already a part of the scholarly record (Coleman, Xiao, Bair & Chollett, 1997; Cook, Coleman & Heath 2000).

Finally, in answer to the call for New Measures, Texas A&M University Libraries was able to offer a powerful interdisciplinary research team to lead the effort to re-ground SERVQUAL and gap theory for the research library environment. In addition to library staff with previous experience with the SERVQUAL instrument, they were able to offer a strong team with a rich array of technical, quantitative and qualitative experiences. Yvonna Lincoln serves on the LibQUAL+ team as the external evaluator for qualitative methods. Dr. Lincoln is Professor and Program Director of Higher Education,
To the synergy of interdisciplinary campus talent could be added the contribution of CITL, the Cognition and Instructional Technologies Laboratories. Drawing upon its strengths in web-based assessment, the Texas A&M University Libraries team was able to quickly scale up the LibQUAL+ protocol for administration across the Internet. The availability of a rigorous tool placing only modest demands on local resources with no requirement for resident statistical expertise was an early factor in earning the support of the ARL community.

Collaboration: ARL’s commitment to action and commitment to learning = progress

ARL’s Statistics and Measurement Program is highly regarded both within the ARL community, as well as across other sectors in higher education, and other national and international programs and agencies. ARL has sustained a leadership role in the testing and application of academic library statistics in North America institutions of higher education. ARL is involved in advisory efforts for the Academic Library Statistics survey conducted on a biennial basis by the National Center of Educational Statistics (NCES); has been an active participant in efforts to define and revise standards through the National Institute of Standards Organization (NISO/ANSI); and, has been actively involved in efforts with higher education working collaboratively with the Association of American Universities (AAU), with the National Post-secondary Education Cooperative (NPEC), with the National Consortium for Continuous Improvement (NCCI), with the Association of College and Research Libraries, a division of the American Library Association (ACRL/ALA), with the American Association of University Libraries (AAU), with the National Post-secondary Education Cooperative (NPEC), with the National Consortium for Continuous Improvement (NCCI), and the American Association of Health Sciences Library Directors (AAHSL), to name a few.

ARL sustains very close collaborative relations with its member institutions through the Visiting Program Officer program, and other arrangements that support and enhance ARL’s and its member libraries’ leadership role. Most notably the relation with the University of Virginia’s Geosciences Data Center has made possible the electronic interactive edition of the ARL Statistics that has been widely recognized as a prototype for other agencies in developing interactive electronic publications.

Results from a recent survey of ARL member representatives to inform the efforts of the ARL Board of Directors and gauge the readiness of the current member leaders to support the ARL program framework and identify targets of opportunity show that the ARL Statistics and Measurement Program is among the top rated programs of the association. On a scale from 1-10 on how important this set of issues is to a member library, the ARL Statistics and Measurement Program
averaged 8.36 and in terms of effectiveness 7.16. In the words of some of the ARL directors responding to the survey:

“a prize program, useful on a regular, routine basis. From local benchmarking to national comparisons and a measurement-based historical record of research libraries, their successes and problems. A basis for powerful evaluations and planning - one that is getting, as it requires, a thorough review in light of the new infrastructure costs that impact libraries, the new kinds of services provided, and new kinds of tools used, the need for a determination of what really needs measuring.”

“ARL's work allows us to describe and compare ourselves when we talk with our university leadership. In it useful to be able to say, truthfully, that ARL is working to define new measures. We need to measure ourselves in ways that show us where to invest to be more effective.”

“As they reflect the face of research librarianship, its services and its costs, these data are the most useful visible results that ARL can point to as a result of its existence.”

"Improved measures are the cornerstone for the many changes and adjustments that libraries will undoubtedly continue to require in this era of rapid change spurred by technological advances. ARL serves as a catalyst for gathering, organizing and disseminating these data."

ARL is an active forum for collaboration where consensus emerges successfully again and again without stifling action. The building of consensus and successful collaboration is one of the ingredients of success for LibQUAL+.

Tangibility: Rapid and Visible Progress of the LibQUAL+ Initiative

One of the reputed weaknesses of collaborative efforts is the lengthy time lag that often occurs between the endorsement of an idea and the rollout of a product whose results can be shared with peers. In the not-for-profit sector, many factors may contribute to a time lag. Often the difficulty of mounting collaboration across far-flung institutions has a way of slowing the process. The costs of travel and the availability of release time of librarians from their local duties may limit agility. Further, university libraries derive their reason for being from their service to the local academic community; the earmarking of funds for developmental purposes for librarianship as a whole may carry some political costs.

In this instance of collaboration, the Texas A&M University-based initiative circumvented many of these risks, making the venture attractive to the ARL cohort. One of the reasons that the Texas A&M University Libraries had invested in SERVQUAL locally was the dependence of library operations on a library use fee (LUF). The fee, currently at six dollars per credit hour, returns almost seven million dollars annually to the library budget. Library administrators, who took the fee to student government for review, were concerned with identifying service quality issues before they became real problems (dis-satisfiers) on their campus. Their success with SERVQUAL over a six-year period justified continued investment in a service quality assessment tool that could meet user expectations on their own campus, lead to normative information about service quality delivery, and surface best practices among research libraries.

The Texas A&M efforts through 1999 had proceeded independently of, but now fortuitously crossed paths with, the ARL New Measures Initiative. At the Tucson meeting in the winter of 1999, the participants recognized that the focus of library assessment paradigms on input measures or expenditure metrics was at variance with growing demands for evaluation and accountability. The Texas A&M proposal at the annual membership meeting in October of 1999 to underwrite a pilot project to test a new web-based tool for service quality assessment received a warm reception and quick endorsement.

The ARL-endorsed design tested score validity across libraries and across contexts, freeing institutions from sole reliance upon locally developed assessments. The emergent LibQUAL+™ project proposed to establish a national perspective, providing local managers with data fine enough to diagnose local service issues. Where deficits were discovered, managers would have the opportunity to make the improvements that best fit the local situation. At the same time, it was hoped that it might be possible through LibQUAL+™ to place the local experience in a normative context, and perhaps identify best practices across the dimensions that define library service quality. This perspective was seen as an important context for librarians and campus administrators alike (Cook, Heath, B. Thompson, & R. Thompson, 2001).

Between October 1999 and April 2000, the Texas A&M team implemented a number of steps in fast-track fashion. A diverse group of 12 ARL libraries was selected for the initial pilot phase and representatives from each of the libraries were oriented to the upcoming project at the ALA midwinter meeting in San Antonio. To ensure that the re-grounded SERVQUAL survey accurately reflected the concerns of library users at the participating universities, a series of 60 interviews took place with users (faculty, graduate students, and undergraduates) over the winter months. At the same time, CITL worked with liaisons at each of the institutions to develop for each campus a customized front-end web page that would be attached to the standard questionnaire. Completing the logistical requirements prerequisite to launch, Texas A&M University
acquired the hardware and software necessary to administer the survey, capture the data, and analyze the results for a large-scale, web-based survey spanning the continent (Cook, Heath, B.Thompson, & R.Thompson, 2001).

By March 2000, less than six months after endorsement, and after beta testing with the Medical Sciences Library at Texas A&M University, the project was ready for launch. The first institutional version of the survey was loaded onto the Web on March 15, and, by the first week in June, it had run to completion on all campuses. Altogether some five thousand responses were received and automatically downloaded into SPSS for analysis. An engaged library community awaited the communications of the early findings (Cook & Heath, 2000).

Dissemination

The next step in the forging of consensus was to subject the findings of LibQUAL+™ to the scrutiny of peer review, and to answer questions about the integrity of the instrument itself as well as the desirability of its continuing application in the research library community. The first step was to share the information with the participants themselves in order to gain immediate feedback on the quality of the data and on the instrument itself. In the reporting-out meeting held for participants during ALA’s annual meeting in July 2000, each of the pilot libraries was provided with mean scores for each of the questions, for each of the five first-order factors or dimensions, and an overall score. Additionally, the reporting-out session was used to assess the experiences of the pilot libraries in the administration of the survey on their home campuses. As Hendrick and Hendrick have observed, in the behavioral sciences, “theory building and construct measurement are joint bootstrap operations” (1990). The forging of consensus demands a commitment to the steady improvement of the instrument through interaction with the user community (Cook & Heath, 2000; Cook, Heath & Thompson, October 2000).

From the outset the design team has been committed to placing the results of the research into the hands of the library community for review. Following the ALA session, the findings of the first phase were then presented at the sixty-sixth IFLA General Conference, Section on Statistics, in Jerusalem, in August 2000 (Cook, Heath & Thompson, August 2000). The LibQUAL+™ data were then explored in context of other research at an ARL-sponsored international conference on the New Culture of Assessment: Measuring Library Service Quality, in Washington, D.C., in October 2000. The papers of those well-attended sessions became the theme articles in the Spring 2001 issue of Library Trends (Cook & Thompson, Spring 2001; Cook & Heath, Spring 2001). With the viability of web-based administration demonstrated, and with growing support in the library community, the design team agreed to expand the second round of participants from 24 to more than 40.

Under the guidance of their external evaluators, the Texas A&M University design team has adhered to the rigorous practice of subjecting LibQUAL+™ findings to the acid bath of peer review. In addition to a very large number of presentations at symposia and conferences, articles have been published by the research team in the ARL Bimonthly Report, College and Research Libraries, Educational and Psychological Measurement, the Encyclopedia of Library and Information Science, IFLA Journal, Journal of Academic Librarianship, Library Information Science Research, Library Trends, Performance Measurement and Metrics, and portal. An understanding of the research design, an analysis of the reliability of the instrument, and candid discussion of its strengths and weaknesses have helped to advance its acceptance in library circles.

Evaluation

Formative evaluation also takes place by analyzing direct user feedback on the LibQUAL+ survey itself. Through the analysis of user comments and due to the number of incomplete surveys we recognize that there are three issues we need to investigate further: (1) best practices when drawing random e-mail samples; (2) how to increase response rates for a web-based survey, and (3) troubleshooting and resolving software problems associated with a web-based survey. The first is to identify and establish best practices when drawing random e-mail samples. Past experience has illustrated that the quality of e-mail databases varies at each institution and we should try to provide some guidelines as to how best to draw samples from those databases.

Although results were generally representative of university populations, efforts to increase response rates will remain a high priority and efforts will be made to ascertain how response rates can be increased for a web-based survey such as LibQUAL+™. We realize that by understanding and resolving the technical problems that have accompanied our web-based survey instrument we will also likely impact the user response rate positively. Improving the technical compatibility of the instrument during fall of 2001 to diagnose browser/operating system issues and additional usability testing are the critical next step.

Since validity and reliability analyses have been conducted on a sample of well over 20,000 returned surveys from 45 diverse, mainly ARL libraries, the questionnaire has been reduced to a parsimonious base set of 25 questions, about half the length of the 2001 iteration of the survey. Thus, issues of redundancy and length, that might have affected response rate adversely, are being continuously addressed.
To gain a better understanding of what libraries expected from their participation in the pilot phase of the study, an evaluation regarding expectations and perception regarding LibQUAL+ was conducted by ARL. Three themes emerged from the responses collected. In return for their time and effort in assisting the LibQUAL+ research team during this pilot phase of the program, participating libraries expected the following:

- To gain benchmark indicators to better assess their library service quality
- Find a means of being able to assess library service quality and provide empirical documentation of their findings to their campus administrators, and
- The development of a reliable tool by which to measure library service.

Library administrators’ expectations were translated into an 18-question survey that we used to evaluate the spring 2001 LibQUAL+ administration from the perspective of the participating libraries’ perceptions and expectations. The responses have been favorable (Table 1) and in all instances we have exceeded minimum expectations (see Graph 1); there is an indication that the training component of the project needs to be enhanced. Notably, several comments addressed the need for further training in deciphering their results. Specific comments to this effect include: “...Schedule more time to discuss results at participants meeting”, “...establish a place on the project server to address frequently asked questions related to understanding the results (issues discussed at the participants meeting held at ALA)...” As expected, feedback surrounding technical problems, survey length and redundancy of survey questions was also provided. Overall the directors tended to evaluate the project slightly higher than coordinators (see Table 2).
### Table 1: Participating Libraries’ perceptions and expectation from LibQUAL+

<table>
<thead>
<tr>
<th>When it comes to...</th>
<th>Minimum</th>
<th>Desired</th>
<th>Perceived</th>
<th>Gap Between Min and Perceived</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Perceived Mean Scores regarding:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 adequate communication from research team members to project participants</td>
<td>6.69</td>
<td>8.56</td>
<td>7.80</td>
<td>1.11</td>
</tr>
<tr>
<td>1 understanding service quality issues and dimensions</td>
<td>6.33</td>
<td>8.49</td>
<td>7.44</td>
<td>1.11</td>
</tr>
<tr>
<td>4 providing convenient access to a reliable tool for measuring service quality</td>
<td>6.60</td>
<td>8.36</td>
<td>7.40</td>
<td>0.80</td>
</tr>
<tr>
<td>11 timely availability of the results</td>
<td>6.49</td>
<td>8.11</td>
<td>7.40</td>
<td>0.91</td>
</tr>
<tr>
<td>17 promoting a culture of assessment, i.e., a commitment to evidence-based decision making in resource allocation</td>
<td>6.42</td>
<td>8.29</td>
<td>7.27</td>
<td>0.84</td>
</tr>
<tr>
<td>3 an empirical method for identifying and measuring user expectations and perceptions</td>
<td>6.40</td>
<td>8.33</td>
<td>7.22</td>
<td>0.82</td>
</tr>
<tr>
<td>7 establishing baseline data against which you can measure the impact of future changes in service delivery</td>
<td>6.53</td>
<td>8.31</td>
<td>7.22</td>
<td>0.69</td>
</tr>
<tr>
<td>9 results that demonstrate clearly where there are service gaps in your library</td>
<td>6.58</td>
<td>8.42</td>
<td>7.16</td>
<td>0.58</td>
</tr>
<tr>
<td>2 an opportunity to contribute to the pilot LibQUAL+ process and improve it</td>
<td>6.16</td>
<td>8.09</td>
<td>7.11</td>
<td>0.96</td>
</tr>
<tr>
<td>Low Perceived Mean Scores regarding:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 deliverables that can be used for marketing and public relations purposes at the local level</td>
<td>5.84</td>
<td>7.71</td>
<td>6.60</td>
<td>0.76</td>
</tr>
<tr>
<td>12 establishing national norms on user expectations for library service quality</td>
<td>5.69</td>
<td>7.47</td>
<td>6.58</td>
<td>0.89</td>
</tr>
<tr>
<td>18 LibQUAL+ becoming part of your library’s ongoing assessment for regional accreditation purposes</td>
<td>5.42</td>
<td>7.31</td>
<td>6.42</td>
<td>1.00</td>
</tr>
<tr>
<td>10 results that help guide resource allocation</td>
<td>6.13</td>
<td>7.98</td>
<td>6.38</td>
<td>0.24</td>
</tr>
<tr>
<td>15 external validation of previously locally conducted surveys</td>
<td>5.31</td>
<td>7.09</td>
<td>6.22</td>
<td>0.91</td>
</tr>
<tr>
<td>14 assistance/training in modifying services to better meet user expectations</td>
<td>5.31</td>
<td>7.00</td>
<td>5.36</td>
<td>0.04</td>
</tr>
</tbody>
</table>
Table 2: Higher average scores by the directors who evaluated the project

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Perceived Mean Scores regarding:</th>
<th>director</th>
<th>coordinator</th>
<th>neither</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Perceived Mean Scores regarding:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 understanding service quality issues and dimensions</td>
<td>8.00</td>
<td>7.20</td>
<td>7.38</td>
<td></td>
</tr>
<tr>
<td>2 an opportunity to contribute to the pilot LibQUAL+ process and improve it</td>
<td>7.75</td>
<td>6.80</td>
<td>7.13</td>
<td></td>
</tr>
<tr>
<td>3 an empirical method for identifying and measuring user expectations and perceptions</td>
<td>7.92</td>
<td>7.00</td>
<td>6.88</td>
<td></td>
</tr>
<tr>
<td>4 providing convenient access to a reliable tool for measuring service quality</td>
<td>8.25</td>
<td>7.20</td>
<td>6.75</td>
<td></td>
</tr>
<tr>
<td>5 adequate communication from research team members to project participants</td>
<td>8.33</td>
<td>7.52</td>
<td>7.88</td>
<td></td>
</tr>
<tr>
<td>6 measuring how well current library services meet user expectations</td>
<td>7.58</td>
<td>6.40</td>
<td>6.38</td>
<td></td>
</tr>
<tr>
<td>7 establishing baseline data against which you can measure the impact of future changes in service delivery</td>
<td>7.00</td>
<td>6.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 obtaining informative and actionable benchmarks</td>
<td>7.42</td>
<td>6.64</td>
<td>7.00</td>
<td></td>
</tr>
<tr>
<td>9 results that demonstrate clearly where there are service gaps in your library</td>
<td>7.67</td>
<td>6.96</td>
<td>7.00</td>
<td></td>
</tr>
<tr>
<td>10 results that help guide resource allocation</td>
<td>6.83</td>
<td>6.08</td>
<td>6.63</td>
<td></td>
</tr>
<tr>
<td>11 timely availability of the results</td>
<td>8.50</td>
<td>6.88</td>
<td>7.38</td>
<td></td>
</tr>
<tr>
<td>12 establishing national norms on user expectations for library service quality</td>
<td>7.33</td>
<td>6.36</td>
<td>6.13</td>
<td></td>
</tr>
<tr>
<td>13 ability to compare your users' perceptions and expectations with those of other libraries' users</td>
<td>7.42</td>
<td>6.72</td>
<td>6.13</td>
<td></td>
</tr>
<tr>
<td>14 assistance/training in modifying services to better meet user expectations</td>
<td>6.58</td>
<td>4.84</td>
<td>5.13</td>
<td></td>
</tr>
<tr>
<td>15 external validation of previously locally deliverables that can be used for marketing and public relations purposes at the local level</td>
<td>8.00</td>
<td>5.56</td>
<td>5.63</td>
<td></td>
</tr>
<tr>
<td>16 promoting a culture of assessment, i.e., a commitment to evidence-based decision making in resource allocation</td>
<td>8.17</td>
<td>6.96</td>
<td>6.88</td>
<td></td>
</tr>
<tr>
<td>17 LibQUAL+ becoming part of your library’s ongoing assessment for regional accreditation purposes</td>
<td>7.83</td>
<td>6.04</td>
<td>5.50</td>
<td></td>
</tr>
</tbody>
</table>

n = 12  n = 25  n = 8
In the revealing words of a director from one of the participating libraries: “The whole project more than lived up to my expectations. The empirical approach, effective teamwork and communications and the solid products make LibQUAL+ one of the most successful multi-institutional programs I have ever seen in my 35 years in higher education. Understanding the methodology, I know that LibQUAL+ cannot give us highly granular data that would answer very detailed questions like “What do users need/expect from ILL for delivery turnaround.” I would ultimately like to see a method/tool that would allow us to use the more general observations that we can draw from LibQUAL+ to move to more specific questions about user needs and our performance in fulfilling them. That said – I think LibQUAL+ is a giant step in the right direction that will go down as a major watershed for ARL and other academic libraries. We expect to make it a core program in our attempts at continuous improvement” (Library Director participating in Spring 2001 LibQUAL+ administration).

External Validation

LibQUAL™ has also won support in granting circles. In October 2000, ARL was awarded a grant from the Fund for the Improvement of Postsecondary Education (FIPSE)—a competitive and prestigious award—to continue development work on the LibQUAL+ instrument and service for three years (October 2000-September 2003). The FIPSE program is a highly selective federal program of the U.S. Department of Education. The award assures the library community that the development path of LibQUAL+ will continue, and that the mature version will be available for on-going ARL administration. The goals of the project include (a) the establishment of a library service quality assessment program at ARL; (b) the development of web-based tools for assessing library service quality; (c) the development of mechanisms and protocols for evaluating libraries; and (d) the identification of best practices in providing library service. The FIPSE funding will allow ARL to refine the questions, dimensions, and data-gathering processes and develop a cost-recovery service that ARL libraries and other academic and research libraries can use to determine their own service effectiveness. The FIPSE funds of $988,368 will cover 49.5% of the estimated costs of the project, with ARL and Texas A&M University contributing the remaining 50.5% of the total project costs. Institutions participating in the funded project will be charged a modest administrative fee to cover direct costs of project reports (Cook, Heath & Thompson, October 2000).

Further, interest in the paradigm has extended to related fields. Texas A&M University and ARL are exploring the potential of adapting the instrument to the digital library environment and, to help support this avenue of research, are seeking funding from the National Science Foundation (NSF) National Science, Mathematics, Engineering, and Technology Education Digital Library program. Encouragement from NSF program staff gives reason to be optimistic about the outcome of the grant application.

The attitudes of individual libraries and consortia are pivotal to the success of the LibQUAL+™. Through publications, reports, conferences, training sessions and symposia understanding of the protocol, its reliability, and its “fit” to library assessment has steadily grown. In the first phase, 12 ARL libraries were selected from among 30 volunteers as pilot libraries. In the second phase, just completed, the majority of the Big Twelve Plus Libraries (a library consortium of some 30 research universities in the western United States) and a range of other libraries participated. Altogether, 43 libraries participated, including for the first time libraries outside of the ARL community. Only 24 libraries were projected for the second iteration and 50 in the third round. The overwhelming interest and the robustness of the design have permitted a more rapid scaling up. Next year, in phase three, as many as 200 libraries may be accommodated. Among those expressing interest are the OhioLINK libraries and the American Association of Health Sciences Libraries (AAHSL). The measure of service quality across all types of post-secondary libraries is an opportunity for Ohio to assess user perceptions of the investments in libraries across the state. Likewise, AAHSL contemplates the opportunity to assess service delivery across a significant proportion of that library community. The community is sufficiently committed for the National Library of Medicine (NLM) to commit to fund in part the participation fee for the AAHSL libraries.

Looking Forward: Maintenance of Consensus

Where does the library community go from here as LibQUAL+™ emerges from research and development into a full-fledged protocol administered by ARL? To this point in its development, the development team has tightly controlled the instrument, for sound psychometric reasons. Demands for the maintenance of a normative database and identification of best practices will dictate strong ARL oversight for the mature instrument. However, the pressures to accommodate the local needs of individual institutions and consortia will grow. How to balance the requirements for central control with local needs will be a policy issue that needs to be addressed in the near term.

A myriad of other questions also arise. Where normative tables are intended to provide library managers with perspective on their own scores, placing service delivery performance in the perspective of cohorts, unintended outcomes lurk in the data. With normative data, “ranking” of service quality scores becomes possible. The superior ability of one library to meet or exceed the service expectations of patrons does not necessarily
mean that library is “better” than another library when traditional metrics are concerned: investments, size of collections, etc. LibQUAL+™ is but one of many ways of listening to or assessing an organization. Continued training and communication is necessary to effect an appreciation of the instrument and an endorsement of its purposes.

The power of LibQUAL+™ and the nature of web-based surveys make possible step two activities: follow-up and longitudinal studies. Research designs incorporating those features strengthen validity testing and enable more powerful outcome measures. However, they must be balanced against increasingly rigorous requirements from institutional review boards to respect the confidentiality and anonymity of human subjects.

These policy issues underscore the need for an advisory committee. Because LibQUAL+™ has as its goal measurement of service quality across all types of North American postsecondary libraries, a diverse committee that extends beyond ARL membership could be desirable. Too, inasmuch as future designs consider the re-grounding of LibQUAL+™ for other higher education and service markets, such as digital libraries, museums, and information technology, the composition of any future advisory committee may be yet more diverse. Finally, there are issues of international applications. Philip Calvert (1997, 2000), Rowena Cullen (2000) and others have indicated the need for assessment of service delivery in all cultures, and international prospects have already been identified. International participation on the advisory committee is a reasonable expectation if consensus is to be expanded. Re-grounding of LibQUAL+™ for implementation in other cultural settings is a near-term priority.

Summary

The ingredients of consensus building are several. They include a clearly identified need, as expressed by the agenda of the New Measures Initiative and the sponsorship of a major reputable organization—in this case, the Association of Research Libraries. In the formative stage, while a critical mass builds, the sponsorship of a lead institution, underwriting essential developmental needs is essential. In this instance, the role of Texas A&M University, providing the qualitative and quantitative expertise and the large-scale web survey capability, answered a pressing need. The efficacy of rapid movement from concept, to design, to implementation and to deliverables cannot be underestimated. From the beginning, the sense of momentum was palpable and ensured and the community remained engaged in the process. Success in obtaining grant funding also played a part, providing a kind of external validation of the design project. Also important was the far-reaching dissemination of the research, evaluating the psychometric integrity of the instrument and the appropriate-ness of its “fit” to the purposes it undertook to measure. The acceptance of manuscripts describing the instrument in some of the best library and measurement journals provided further evidence that the New Measures initiative was on track. But much work remains ahead. The instrument must be continually re-grounded for its primary clientele, and new library applications in North America and abroad must be investigated, as must its applicability to related fields. The requirements to answer the calls for greater accountability and responsiveness to user needs are greater now than they were in 1999. The challenges of consensus building, across cultures and information sectors, become even more complex.

References


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Academic Research Library Support of Sponsored Research in the United States

Brinley Franklin
Director of Library Services, University of Connecticut Libraries and Consulting Associate, KPMG Consulting, LLC, USA

Abstract

Academic research libraries support their educational institutions' missions to conduct research, including sponsored (funded) research. In the United States, colleges and universities have performed cost analysis studies, typically employing user surveys, for at least thirty-five years to quantify the extent to which their libraries support sponsored research. The United States government allows educational institutions to seek reimbursement for library expenses related to funded research via the institution's indirect cost rate. This has given American academic institutions an incentive to measure the extent to which their academic libraries support sponsored research. This paper reports on the results of statistically valid studies conducted between 1982 and 2001 at 153 libraries incorporating responses from approximately 150,000 academic library users to measure academic research library support of sponsored (funded) research in the United States.

Introduction

Academic research libraries support their institution’s multi-faceted mission, including the school’s educational, research, public service and, in some cases, patient care programs. In recognition of academic libraries’ support of the sponsored research enterprise, the United States Government has federal regulations in place that permit educational institutions to perform a cost analysis study which results in an equitable distribution of the costs libraries incur to support an institution’s major functions. U.S. Office of Management and Budget (OMB) Circular A-21 (the Circular) sets forth the principles by which educational institutions and their libraries can quantify and seek reimbursement for costs incurred in support of sponsored research.

Section E.2.d.(3) of OMB Circular A-21 allows an institution to perform a cost analysis study. A cost analysis study, in seeking to achieve an equitable distribution of library costs, may take into consideration weighting factors, population, or space occupied, if appropriate. The explicit requirements incumbent on an institution performing a cost analysis study are that the study must:

…be appropriately documented in sufficient detail for subsequent review by the cognizant federal agency; distribute the costs to the related cost objectives in accordance with the relative benefits derived; be statistically sound; be performed specifically at the institution at which the results are to be used; be reviewed periodically, but not less frequently than every two years, updated if necessary, and used consistently; state and explain any assumptions made in the study; and be fully justified. (United States. Office of Management and Budget, 2000)

The Standard Methodology

In the absence of a cost analysis study, OMB Circular A-21 Section F.8 prescribes that library expenses shall be allocated (to the institution’s major functions) first on the basis of primary categories of users, including students, professional employees, and other users. Federal negotiators often refer to this allocation method (see Figure 1) as “the standard methodology.”
function. The second category of users, professional employees, consists of the full-time equivalent of all faculty members and other professional employees. Expenses incurred for professional employees are assigned to the institution’s major functions in proportion to the salaries and wages of all faculty members and other professional employees applicable to those functions. Finally, the other users category, defined as all other users of library facilities, is assigned to the other institutional activities function.

OMB Circular A-21, Section E8, fails to address several key issues. It does not adequately define "professional employees" and its student and employee counts are based on potential library users on campus as opposed to actual library users. The Circular’s reference to other users as "all other users of library facilities" fails to recognize that, unless a library identifies every individual utilizing library facilities, the institution cannot quantify this category of users. Section E8 also fails to articulate how graduate research assistants should be distributed to the student and professional employee full-time-equivalent categories.

The standard methodology assumes that each individual FTE requires or receives the same level of support from expenditures for library facilities, materials and services. Librarians know this assumption to be false, both intuitively and empirically. Allocating the cost of a highly specialized, extremely expensive research journal to undergraduate students and doctoral-level researchers equally based on full-time-equivalent head counts is inaccurate. The allocation of library facilities costs using the standard method is also inherently an inequitable cost assignment relative to the benefits derived by library users because the library building is generally assumed to be used most intensively by students. (Schulz, 1983)

The standard methodology provides an educational institution with a relatively easy summary allocation of library costs. It fails, however, to account for the variation in library services, collections, and facilities and their accompanying costs as well as the differential usage of the library by diverse library users. The standard methodology is an abbreviated cost allocation approach for calculating academic library support for sponsored research that fails to address the complexities of academic research library operations and its benefits to actual users.

Early Academic Efforts to Measure Research Usage

There were at least several early pioneering efforts to measure research use of libraries, including noteworthy studies at Stanford University in 1964, the University of Pennsylvania in 1967 and Columbia University in 1969. The Columbia study included a special user survey and twelve types of surveys to sample 1300 randomly selected faculty members, senior research staff, administrative staff, research technicians and assistants, and graduate assistants from a total student and faculty population of 24,000. Ellis Mount and Paul Fasana articulated the classic problem historically facing academic libraries as they attempt to quantify the cost of providing research services: “…the library counted the number of items purchased and processed, but little was known about how or by whom these materials were used.” (Mount and Fasana, 1972)

A similar sentiment was reported in an article on a study conducted at Purdue University:

Satisfactory methods for allocating library costs between research and instruction in conventional academic libraries have not been developed. When faculty members or graduate students borrow materials from the library, the only way of determining how the material is to be used is to ask. (Drake, 1975)

The KPMG Library Cost Analysis Study Methodology

KPMG (then known as Peat, Marwick, Mitchell) began conducting library cost analysis studies in 1982. The KPMG study, utilizing a consistent approach over time, has since been performed forty-six times in 153 libraries at thirty-one educational institutions. The KPMG study, developed by the author and Greg Baroni, currently the Principal-in-Charge of KPMG LLC Consulting’s Higher Education Consulting Practice, evolved from a methodology developed in 1977 by Baroni and Linda Crismond, then Assistant University Librarian at the University of Southern California. The KPMG study has proven itself to be consistent with other reported reliable techniques for interrelating academic libraries' costs and services. (See, for example, Kantor, 1985)

In 1990, KPMG contracted with two statisticians, C. Mitchell Dayton and N.J. Scheers, to determine appropriate sample sizes for different types of research libraries when estimating sponsored research use with a 95% confidence level and a standard error rate of 5% or less. Dayton and Scheers reported that five components of the standard error had to be estimated to calculate sample size accurately when determining the ratio estimator for sponsored research: the ratio estimator itself (research use/total use); the coefficient of variation for research use; the coefficient of variation for total use; the correlation between research use and total use, and the standard error of the ratio estimator. Moreover, Dayton and Scheers determined that 96% of the variance in the standard error for actual library user survey data derived from sample size, the ratio estimator, and the coefficient of variation for research use.

For use in future studies, Dayton and Scheers compiled sample size tables for library user surveys to estimate sponsored research use as a proportion of total library use for libraries ranging from 5% to 70% sponsored research with standard errors of the ratio at .02, .03, and .05. At a library where 10% of total usage sup-
ports sponsored research, for example, a sample size of 719 respondents typically yields a confidence level of 95% and a standard error of plus or minus two percent. For a library with 30% sponsored research usage, a sample size of 1625 typically yields a confidence level of 95% and a standard error of plus or minus three percent. (Dayton and Scheers, 1990)

The basic library cost analysis study methodology employed by KPMG has been published previously (Franklin, 1989) and presented at cost accounting workshops. An overview is depicted graphically in Figure 2.

As Figure 2 depicts, a surveyed library’s direct and indirect expenses are assigned to cost centers that correspond to the library’s principal activities. Once the library’s total costs are analyzed and assigned to the appropriate cost center they are assigned to functions such as sponsored research, instruction, and other activities using the results of library user surveys.

The purpose of the user surveys is to estimate the percentage of total library use associated with sponsored research for each of the library’s major activities. Each cost center identified has a corresponding allocation base with usage data collected from the library user surveys (e.g., circulation costs are allocated based on circulation usage reported during the user surveys).

The surveys involve the selection of a random sample of time periods for conducting each survey, distribution and collection of the survey forms at the library and an estimation of the proportion of library activities which are attributable to sponsored research. When conducting the library user surveys, a time sampling procedure is used in which all library users are surveyed for a specified number of time periods during the year. A random sample of two-hour time periods using a monthly stratification is then selected. The actual date and time periods within each month are determined randomly using a random number generator. For any given randomly selected two-hour time period, a census of library users is conducted. The procedure involves distributing the survey forms as users arrive at the library and at the same time, surveyors request information concerning user category (e.g., undergraduate student, graduate student, faculty/staff, other). Completed forms are collected from users as they leave the library. A non-response rate is calculated for each user category so that non-respondent use can also be estimated and factored into the allocation base.

The library user survey is based on the random moments sampling technique. User survey forms are distributed to all persons entering the Library during randomly scheduled two-hour survey intervals and users are asked to return their completed survey forms as they leave the library.

Concurrent with the in-house survey being conducted, remote library users are also surveyed as they access electronic services purchased by the library. During the same randomly selected two-hour survey periods throughout the year that in-house surveys are conducted, library users are presented with a brief survey screen when they select one of the electronic databases or full-text products offered by the library. Users indicate their classification (e.g., undergraduate student), affiliation (e.g., College of Arts and Sciences), location (e.g., at home), and purpose of use (e.g., sponsored research) from a set of drop-down menus.

Findings

The thirty-one institutions where the KPMG library cost analysis study has been conducted include twenty-five of the one hundred largest recipients of science and engineering research development in the United States. (National Science Foundation, 2000)

The thirty-one research universities studied represent nineteen public institutions and twelve private universities. The universities are also geographically diverse: four from northeastern states; seven from mid-Atlantic states; seven from southeastern states; five from the mid-west; six from the southwest; and two from the far west.

Data collected at the thirty-one schools demonstrates that the proportion of sponsored research use to total library use varies considerably by type of library. Table 1 summarizes the average percentage of sponsored research use as a percentage of total library use at three groups and twelve distinct types of libraries.
Table 1 also illustrates that there is considerable variation in sponsored research usage at even the same type of library. The high and low values for sponsored research usage are disparate and the standard deviations are high at virtually every type of library studied. These findings underscore the diverse characteristics of both individual libraries and the academic communities they serve.

The data collected from library user surveys also permits an analysis of how specific materials and services at different types of libraries support sponsored research (see Tables 2-4). The survey forms generally differentiated between library collections used in the library, library materials checked out, and library services used (e.g., reference, interlibrary loan, bibliographic instruction). Within each type of library, research usage was generally comparable for library materials used in-house, library materials checked out, and library services used. The veterinary libraries were an exception.

When specific materials and services were analyzed for their support of sponsored research, the interlibrary loan service showed the greatest proportional support for sponsored research at all types of libraries except education libraries, where a larger percentage of owned journal use supported sponsored research. Journal use was almost invariably second highest after interlibrary loan use in its percentage of use related to sponsored research at all other types of libraries.

Electronic services use supporting sponsored research generally mirrored the same level of support exhibited by the general use of library materials and services at almost all types of libraries. The exceptions were the veterinary science and biology libraries surveyed. At veterinary libraries, an average of 41.4% of electronic services use supported sponsored research, compared to 22.5% for library materials used in house, 12.7% for library materials checked out, and 28.9% for library services used. At biology libraries, an average of 33.1% of electronic services use supported sponsored research, compared to 26.3% for library materials used in house, 21.5% for library materials checked out, and 22.4% for library services used.
### Table 2: Research Use of Specific Library Materials and Services

<table>
<thead>
<tr>
<th>Main and Medical Libraries (n=number of libraries)</th>
<th>General Materials &amp; Services</th>
<th>Specific Materials &amp; Services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Library Materials Used In-House</td>
<td>Library Materials Checked Out</td>
</tr>
<tr>
<td>Mean</td>
<td>12.1%</td>
<td>12.0%</td>
</tr>
<tr>
<td>Median</td>
<td>12.1%</td>
<td>11.7%</td>
</tr>
<tr>
<td>High/Low</td>
<td>20.3%/4.3%</td>
<td>22.9%/3.5%</td>
</tr>
<tr>
<td>Std</td>
<td>4.57</td>
<td>5.17</td>
</tr>
</tbody>
</table>

| Medical (n=36)                  |                              |                              |                         |                        |                        |                         |
| Mean                           | 25.9%                         | 25.2%                         | 25.3%                  | 25.9%                  | 31.2%                  | 33.6%                  |
| Median                         | 26.7%                         | 25%                           | 25.9%                  | 23%                    | 31.3%                  | 32.8%                  |
| High/Low                       | 35.1%/10.4%                  | 39.9%/7.9%                   | 46.2%/10.9%           | 47.3%/13.7%           | 42.9%/11%              | 59.1%/7.1%             |
| Std                             | 5.67                          | 8.17                          | 7.85                   | 8.12                   | 6.56                   | 12.24                  |

### Table 3: Research Use of Specific Library Materials and Services

<table>
<thead>
<tr>
<th>Science Libraries (n=number of libraries)</th>
<th>General Materials &amp; Services</th>
<th>Specific Materials &amp; Services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Library Materials Used In-House</td>
<td>Library Materials Checked Out</td>
</tr>
<tr>
<td>Earth Sciences (n=15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>27.4%</td>
<td>28.5%</td>
</tr>
<tr>
<td>Median</td>
<td>25.6%</td>
<td>30%</td>
</tr>
<tr>
<td>High/Low</td>
<td>43.8%/8.5%</td>
<td>48.4%/3.3%</td>
</tr>
<tr>
<td>Std</td>
<td>10.17</td>
<td>12.59</td>
</tr>
</tbody>
</table>

| Math/Physics (n=22)                     |                              |                              |                         |                        |                        |                         |
| Mean                                     | 31.8%                         | 29.6%                         | 26.3%                  | 22.6%                  | 40.1%                  | 38.8%                  |
| Median                                   | 31.8%                         | 26.2%                         | 26.9%                  | 25%                    | 43.1%                  | 37.5%                  |
| High/Low                                 | 49.1%/15.5%                  | 51.9%/11.2%                  | 50%/12.2%             | 41.7%/8.6%           | 62.6%/13.1%             | 71.4%/5.6%             |
| Std                                      | 9.95                          | 13.78                         | 9.82                  | 9.67                   | 13.51                  | 30.42                  |

| Engineering (n=15)                      |                              |                              |                         |                        |                        |                         |
| Mean                                     | 24%                           | 27.4%                         | 25.1%                  | 25.1%                  | 28.6%                  | 28.8%                  |
| Median                                   | 22.9%                         | 26.8%                         | 20.6%                  | 19.0%                  | 26.1%                  | 28.8%                  |
| High/Low                                 | 56.9%/11.2%                  | 71.9%/7.6%                   | 72.7%/10.3%           | 72.7%/9.3%           | 56.3%/14.5%             | 50%/3.2%               |
| Std                                      | 11                            | 15.9                          | 16.18                 | 17.84                  | 10.45                  | 16.87                  |

| Chemistry (n=14)                         |                              |                              |                         |                        |                        |                         |
| Mean                                     | 42.8%                         | 45.7%                         | 40.1%                  | 32.8%                  | 48.8%                  | 49.4%                  |
| Median                                   | 40.8%                         | 41.4%                         | 35.6%                  | 37.9%                  | 51.4%                  | 50%                    |
| High/Low                                 | 65.9%/25%                    | 68.1%/24.0%                  | 60%/19.5%             | 56.4%/8.3%           | 72.9%/29.4%             | 92.3%/9.5%             |
| Std                                      | 12.15                         | 13.44                         | 12.37                 | 14.16                  | 12.67                  | 37.55                  |
Table 3: Research Use of Specific Library Materials and Services continued

<table>
<thead>
<tr>
<th>Social Science Libraries (n=number of libraries)</th>
<th>General Materials &amp; Services</th>
<th>Specific Materials &amp; Services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Library Materials Used In-House</td>
<td>Library Materials Checked Out</td>
</tr>
<tr>
<td>Social Work (n=4)</td>
<td>16.0%</td>
<td>21.4%</td>
</tr>
<tr>
<td>Mean</td>
<td>21.7%</td>
<td>11.3%</td>
</tr>
<tr>
<td>Median</td>
<td>22.7%/8%</td>
<td>36.1%/5.9%</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>6.3%</td>
<td>13.0</td>
</tr>
<tr>
<td>Law (n=3)</td>
<td>10.2%</td>
<td>11.4%</td>
</tr>
<tr>
<td>Mean</td>
<td>10.7%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Median</td>
<td>19.6%/0.5%</td>
<td>25.2%/1.2%</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>7.81</td>
<td>10.15</td>
</tr>
<tr>
<td>Education (n=2)</td>
<td>15.7%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Mean</td>
<td>15.7%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Median</td>
<td>18.2%/13.2%</td>
<td>16.5%/11.9%</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>2.5</td>
<td>2.3</td>
</tr>
<tr>
<td>Business (n=2)</td>
<td>5.6%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Mean</td>
<td>5.6%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Median</td>
<td>9.6%/1.6%</td>
<td>11.6%/8%</td>
</tr>
<tr>
<td>Std Deviation</td>
<td>4.00</td>
<td>1.79</td>
</tr>
</tbody>
</table>
Conclusion

Academic research libraries vary in their support of sponsored research, one of an academic research university's primary missions. Science libraries, medical libraries, and engineering libraries services and collections exhibit the most support for sponsored research, but there is substantial variation among similar types of libraries (e.g., biology libraries) at different universities. Journals and interlibrary loan/document delivery are consistently the most highly used collection and service in support of sponsored research. In most cases, electronic services use approximates traditional services in its level of use to support sponsored research, but there are several notable exceptions, including biology libraries and veterinary science libraries, where electronic services appear to support sponsored researchers' work more intensively than traditional collection and service offerings.

The data gathered while performing library cost analysis studies during the last twenty years reveals considerable information about academic library support for sponsored research at major research universities. One university has conducted the KPMG study six times during the last fourteen years. Its results demonstrate that library support of sponsored research has been relatively consistent at that institution for a significant period of time (see Table 5).

Table 5: Longitudinal Research Use at One Academic Research Main Library 1988–2001

<table>
<thead>
<tr>
<th>Year of Library Cost Study</th>
<th>Sponsored Research Use as a Percentage of Total Library Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>9.4%</td>
</tr>
<tr>
<td>1990</td>
<td>11.4%</td>
</tr>
<tr>
<td>1992</td>
<td>9.8%</td>
</tr>
<tr>
<td>1995</td>
<td>10.2%</td>
</tr>
<tr>
<td>1998</td>
<td>10.4%</td>
</tr>
<tr>
<td>2001</td>
<td>10.6%</td>
</tr>
</tbody>
</table>

At an institutional level, three variables were analyzed to determine their relationships in determining a university’s spending patterns in relation to its library’s support of sponsored research. The three variables considered were: total research and development funding at the university; total library expenditures, and library expenditures in support of sponsored research as a percentage of total library expenditures.

The author found a high correlation between total research and development funding at an educational institution and total library expenditures at research universities. Little or no relationship was determined, however, between total library expenditures and library expenditures in support of sponsored research as a percentage of total library expenditures. Little or no correlation was also found between an institution's research and development funding and library expenditures in support of sponsored research as a percentage of total library expenditures.

References


Abstract

A new university accreditation system in the U.S. is known as the Academic Quality Improvement Project (AQIP), developed in 1999 by the North Central Association. AQIP is designed to offer an alternative to current re-accreditation procedures, engaging institutions in a continuous quality improvement process. Kent State University has been selected as one of thirteen initial institutions to participate. All academic units, including the libraries, are required to develop assessment plans that focus on student learning outcomes. Of particular challenge for the libraries is building meaningful assessments that demonstrate direct impacts on student learning.

Introduction

There is a new university accreditation system in the United States known as the Academic Quality Improvement Project (AQIP), developed by the North Central Association of Colleges and Schools (NCA). The NCA, now referred to as the Higher Learning Commission (HLC), was founded in 1895. As one of six regional associations, it accredits more than 1,000 institutions of higher education in the nineteen-state North Central region.

The HLC’s traditional accreditation process involves a ten-year cycle in which institutions are reviewed for re-accreditation purposes. Once every ten years, an institution of higher education is obliged to undertake an extensive self-study in order to determine how well the organization is meeting the HLC’s established criteria. The self-study then becomes the institution’s formal application for re-accreditation. A team of evaluators appointed by the HLC visits following the self-study of an institution. The team’s report offers suggestions for improvement and concludes with a recommendation regarding re-accreditation (The Higher Learning Commission, 2001).

An accreditation process such as the one used by the HLC is designed to serve several purposes. First, the process should serve to establish and maintain an institution’s credibility with the public. It should serve as a “stamp of approval” that an institution provides a meaningful higher education experience and that its graduates are knowledgeable and qualified individuals. Second, the process should serve to satisfy accountability. An accredited institution is one that is open to public scrutiny in order to ensure that the resources of the institution have been sufficiently aligned to meet its mission with integrity. Third, accreditation helps determine whether an institution is eligible to participate in federally funded programs, such as student financial aid.

ACADEMIC QUALITY IMPROVEMENT PROJECT

AQIP is offered as an alternative accreditation procedure, engaging institutions in a continuous quality improvement process rather than a ten-year cycle. The goal of AQIP is to challenge institutions, on a more frequent basis, to reach higher levels of performance while providing tangible benefits in terms of becoming a stronger organization (Spangehl, 2000). AQIP focuses on the academic mission of an institution and, specifically, on improving student learning. AQIP institutions will set objectives and undertake annual institution-wide assessment of progress toward meeting those objectives, reporting the results each year to the HLC. Results of the annual assessments should then be used to modify or establish new objectives. An institution participates in an AQIP Strategy Forum and conducts an Institutional Quality Review during a three to five year cycle. Every seven years, a formal re-accreditation validation occurs based on the annual results, participation in a Strategy Forum, and the results of the Institutional Quality Review (“Processes of the Academic Quality Improvement Project”).

AQIP differs from the traditional accreditation process by concentrating on teaching and learning, and by involving faculty more intensely in the academic improvement process. More timely feedback is provided to HLC institutions due to the annual and three-to-five year cycles. The new procedures are less intrusive given that institutions can set their own goals, allowing approaches to be responsive to distinctive institutional needs and aspirations (Spangehl, 2000).

Institutions that elect to participate in the AQIP alternative accreditation process are provided with nine AQIP Quality Criteria to be used to frame the establishment of goals and objectives. The nine criteria are: (a) helping students learn, (b) accomplishing other distinctive objectives, (c) understanding students’ and other stakeholders’ needs, (d) valuing people, (e) leading and communicating, (f) supporting institutional operations, (g) measuring effectiveness, (h) planning continuous improvement, and (i) building collaborative relationships (“The AQIP Quality Criteria”). Institutions
can emphasize some criteria more than others. However, it is understood that “helping students learn” is first among equals and cannot be ignored.

**One Institution’s Response**

A goal of the HLC is to have one-third of its institutions voluntarily choose the AQIP alternative for re-accreditation by 2002. Kent State University (KSU) applied and was selected as one of thirteen initial institutions to participate in AQIP. KSU had already taken formal steps toward academic assessment as result of its previous traditional ten-year accreditation review by the HLC and so was well positioned for AQIP. The Provost established an Advisory Committee on Academic Assessment with members appointed by the Faculty Senate. The purpose of the Committee is to assist, and serve as a resource for, the University in developing educational goal statements for all academic programs. Once goals are articulated, measurable objectives need to be specified. Independent but parallel to the development of AQIP, the University essentially began creating a process that could lead to a continuous improvement cycle. When AQIP presented itself as a method for obtaining more timely and meaningful results from the accreditation process, KSU had in place the beginnings of an infrastructure to engage faculty in the necessary thinking about student learning outcomes.

The KSU Advisory Committee on Academic Assessment developed a recommended six-step annual cycle that academic departments could use as a blueprint for developing or revising educational goal statements and for assessing progress. The most important aspect of this blueprint is its bottom-up approach that empowers faculty within an academic unit to have control over their assessment process. Just as AQIP is designed to allow an institution to focus on distinctive needs and aspirations, the KSU process permits a department to do the same without intrusive directions from above. The six-step annual cycle includes:

1. Defining program goals and objectives
2. Determining methods for assessing goals and objectives
3. Developing a timetable for assessment
4. Implementing an assessment plan
5. Reporting progress on accomplishing goals and objectives
6. Integrating assessment results into program improvement

**Implications for Libraries**

As the HLC and other regional accrediting bodies continue to develop continuous improvement criteria based on assessment, and as state governments and the general public increasingly demand accountability, there are implications for academic libraries. The challenge is for librarians to build meaningful assessments that demonstrate a positive impact of a library’s programs on student learning. Perhaps the most interesting aspect of this new environment for librarians is that the traditional measurements of library success, such as user satisfaction or size and use of the collections, are not particularly relevant. Instead, demonstrable means of determining student learning are required.

While academic departments have course-length contact with students in some type of classroom, lab, studio, or even World Wide Web setting, librarians do not typically have this advantage for affecting student learning. One might even argue that because a library is not a “teaching unit” it would be understandable and excusable for librarians to ignore mandates for student learning accountability. However, for an academic library to forego assessment of student learning at an AQIP institution is to sacrifice being positioned well for future funding initiatives. Clearly, one likely consequence at any intensely assessment-based institution will be to channel new or reallocated funds based on assessment results. Therefore, continuous improvement accreditation processes bring a host of opportunities and challenges to academic libraries.

Kenneth Smith (December 2000) recommends that the “library must move from a content view (books, subject knowledge) to a competency view (what students will be able to do).” He further suggests that ACRL’s Information Literacy Competency Standards for Higher Education (Association of College and Research Libraries, 2000) is a good starting point. Moreover, Smith makes an important point when he notes that many academic departments will share with the library certain globally (i.e., university-wide) desired student learning outcomes such as competencies in critical thinking, technology management, communication, and collaborative reasoning. The library’s mission in this environment is to demonstrate to academic departments that librarians can help address and meet these objectives through integrated course offerings and learning materials. The benefit is that librarians are helping the teaching faculty meet their own department’s learning outcomes objectives.

Faculty can concentrate on students mastering subject content and achieving program goals while librarians focus on universal objectives by working with faculty to teach competencies within the context of a discipline. Smith (December 2000) recommends six activities in which academic librarians should engage. These activities are: (a) develop learning outcomes from the library’s perspective, (b) develop offerings to meet the outcomes, (c) understand the learning outcomes of academic degree programs, (d) consider how the library’s curriculum offerings can be integrated into academic courses, (e) identify ways to measure whether outcomes are being achieved, and (f) collect and analyze data to modify curriculum strategies. These activities are intended to create the necessary movement of the library from a content orientation to a competency perspective.
THE LIBRARY’S RESPONSE

The question is, how does a library use this agenda to begin responding, in practical terms, to the pressure of demonstrating a measurable impact on student learning? At KSU all academic units, including the library, are now required to develop assessment plans that focus on student learning outcomes. Goals, objectives, measurements, timetables, and feedback loops are expected to be articulated in writing to the Provost. In fact, the annual planning process for the Academic Affairs division compels each unit to address assessment in writing and in some detail. The resulting document is then used as part of the process that determines future budget allocations. This turn of events has forced KSU librarians to develop a strategy for addressing assessment.

The first step was assigning the Assistant Dean for Collection Management (ADCM) as the assessment coordinator for the library. This meant the ADCM would be responsible for seeing that the library was undertaking assessment activities and for reporting progress to the larger university community. The ADCM’s first task was to foster a culture of assessment within the organization. At a meeting of the librarians, the issue of an assessment culture was raised on three fronts. First, the fundamental questions the organization must ask itself were discussed:

1. How do we know if our library programs are effective?
2. How do we assess the impact of libraries on student learning?
3. How do we use this as an opportunity to better integrate ourselves with academic units?

Second, the issue of “process” was addressed. How does a library set about thinking about assessment and learning outcomes? At KSU, it was recommended by the ADCM that discussions should occur at three levels: (a) among all of the librarians; (b) among the management team of the dean, associate dean, and assistant deans; and (c) at the departmental levels within the library. Individual librarians, the management team, and library departments would then undertake assessment activities.

Third, motivation to do assessment was bolstered by pointing out the benefits. Assessment activities allow librarians to document successes for purposes of individual promotion, tenure, and pay increases as well as for promoting the library to the university community. Engaging in assessment creates a need for professional development in terms of librarian training in measurement and analysis techniques. Until very recently, little research has been done on the library’s impact on student learning outcomes so there are many research opportunities in this area for librarians. Also, resource allocations will be required to support assessment activities.

Perhaps the most difficult concept to communicate to both superiors and subordinates is that to foster a culture of assessment the reward system needs to recognize efforts rather than specific outcomes. The point of assessment is to engage in a continuous improvement through a cycle of goal setting, activity, measurement, analysis, and adjustments. That is why it is important, for accurate measurement and honest analysis, that individuals and units not be rewarded or punished for immediate results. Self-assessment requires a certain level of trust that the results will not be harmful.

Having started to build a culture of assessment, the next phase for the librarians was to consider, within the context of AQIP and Kenneth Smith’s thoughtful recommendations, the following questions:

1. What do we already do that assesses the library’s impact on student learning?
2. What easy additional steps can we take to assess existing activities?
3. How can we better integrate the library with academic departments?
4. What is the essential role of the library in terms of impacting student learning outcomes?
5. Who can help us by providing and analyzing data?
6. What other opportunities exist to engage in assessment?

What do we already do? The reference department has over the past decade participated four times in the Wisconsin-Ohio Reference Evaluation Program (WOREP). The WOREP is a survey instrument developed to determine user success as perceived by both library users and the library staff serving them. It is one of the few standardized tools available to librarians to measure the effectiveness of the service they offer. By using the WOREP on a nearly biennial schedule, our reference department has had a benchmark of its own performance against which to measure the effectiveness of changes in staffing mix, training, and service protocols. Not only has this department stood nearly alone nationally in using the WOREP on repeated occasions, but also the results from the most recent survey showed that a new high level of performance has been reached. KSU’s use of the WOREP was reported on at the 3rd Northumbria International Conference in August 1999 (Radcliff, 2000).

What easy steps can we take? After looking at existing library activities or programs that could be evaluated, the technical services department developed an assessment component for the practicum experiences of Library and Information Science (SLIS) students working for college credit in the department. Evaluation procedures were developed that seek feedback on several levels from students about their practicum experiences. Feedback includes interviewing students about the experience in terms of skills attainment and goals accomplishment, brainstorming with the students about future practicum projects and...
improvements to the program, and requesting a copy of their SLIS-required practicum paper. The results of this feedback should allow continual improvement of the practicum experience.

How can we better integrate with academic departments? Traditionally, collection development work with academic departments and library instruction for academic courses has been handled through two separate programs under different assistant deans at KSU. Some librarians participated in both programs; others did one or the other. Some librarians provided collection development for one academic department but instruction for another. In order to better integrate the library with academic departments, the two programs were recently merged and librarian assignments altered. Now the same librarian does both collection development and instruction for departments. The goal is to present most of the library’s services as a holistic approach to a discipline’s information needs and provide a single point of contact. Librarians are now expected to make regular and frequent contact with their assigned departments and to address their instructional needs in a planned and systematic fashion. This should serve as an opportunity to discuss with academic departments desired student learning outcomes and how librarians can help academic units measure success in addressing these goals.

What is the essential role of the library? At KSU, information literacy has been embraced by the library as an essential component of student success and an area in which librarians can make a unique contribution. Two librarians and a third researcher have been working to develop a survey instrument that assesses the level of information literacy skills of undergraduate college students. The library decided to embrace this effort because such an instrument would be a useful tool in pre- and post-testing the impact of efforts to impart information literacy skills to undergraduate students. The investigators presented on the development of the instrument at the Association of College and Research Libraries’ national conference in March 2001 and have received a number of requests since then to share their progress with the national academic library community (O’Connor, Radcliff, & Gedeon, 2001).

Long-term plans include incorporating other measures of overall student ability (HSGPA, ACT/SAT scores, college GPA). Once the instrument is fully developed, it can be used for longitudinal testing with a cohort.

Who can help us? A recently developed service, known as PERCs (Personalized Reference Consultations), allows students and faculty to make hour-long appointments with a reference librarian to discuss a specific information need. Some instructors have started to require them for certain courses. In order to gauge the impact of such a service, reference librarians have begun recording the student identification numbers of participants. Working with KSU’s institutional research office, we will be able to track the academic success of these individuals by linking their PERC participation with their academic record, such as course grades and grade point averages. The point is that most campuses have such research offices that collect data on students and can be a useful resource for helping the library to measure programs. The library can combine its own data with other existing institutional data to enhance the degree of analysis.

What other opportunities exist? Through the OhioLINK consortium, KSU will likely participate in LibQUAL+ in the near future. LibQUAL+ tends to focus on user satisfaction and does not necessarily provide the type of data useful for measuring impact on student learning. However, if most of OhioLINK’s member institutions participate, it will at least provide a good comprehensive picture of the state of academic libraries in Ohio with regard to the need for such an instrument.

Summary

AQIP is the latest manifestation of a growing demand for higher education to engage in continuous improvement. It carries with it the weight of institutional accreditation and therefore cannot be ignored. By focusing on the need to show a positive impact on student learning outcomes, AQIP and other similar programs challenge the library’s ability to demonstrate success. Librarians in this environment need to focus less on measurements of user satisfaction and more on affecting student learning. It is recommended that the first step is to foster a culture of assessment within and throughout the library.

Assessment activities do not need to be comprehensive, but rather can be managed by measuring current activities that impact students directly. Discuss with academic departments common student learning outcomes and how librarians can help them measure success in addressing these goals. If possible, identify the unique contributions that the library makes to the institution in terms of student learning (e.g., information literacy). Undertake continuous improvement by articulating goals and objectives, collecting relevant data, analyzing data to determine strengths and weaknesses, and then improving services and programs by developing new or revised goals and objectives. Most importantly, take advantage of a remarkable opportunity to engage in new and meaningful collaborations with colleagues throughout the institution.
References

The AQIP Quality Criteria
<http://www.aqip.org/criteria.html>

<http://www.ala.org/acrl/ilstandardlo.html>


Activity-based costing as a performance tool for library and information technology services

Trevor Gerdsen
Information and Education Services Division,
The University of Newcastle, Australia

Abstract
The Australian government has long signaled its intention to build performance indicators into the resource allocation process for higher education. Through the early 1990s the federal government gave strong indications to the sector that higher education places might in future be allocated on the basis of cost performance. In 1991, the Federal Government commissioned Russell Linke to produce a report on performance indicators in higher education. The present federal government, under Prime Minister Howard, has introduced cuts to higher education funding and the continued pressure for efficiency gains has seen an increased desire on the part of government for scrutiny of costs on a comparative basis. The Relative Funding Model, introduced in 1991, has never been seen as based on “ideal” teaching costs, and since that time the realisation of the potential of information technology in the learning process has suggested it might be time to revisit these and other issues. In 1998 the federal government again sponsored an inquiry into the sector, this time in the application of activity based costing as the basis for comparative assessment, resulting in several pilot studies in 1999-2000. This paper reviews the application of activity based costing to library and information technology services at the University of Newcastle, which was additional to but concurrent with these 1999-2000 studies.

Introduction
During early 2000, the Information and Education Services Division (IESD) of the University of Newcastle undertook an activity based costing (ABC) study of its information technology and library services. The study grew out of a desire for better information to underpin planning and budgeting in the Division, and the opportunity to assess performance in the information technology and library services it provided to the University. The latter included an opportunity to benchmark with other higher education institutions. The outcomes of the study were the development of an ABC model specific to the IT and library functions, and a report of the study which analysed the data and provided recommendations to the Division’s management team regarding implications which might be drawn from the study. An edited version of the study report was subsequently made available to the higher education sector through the Australian Federal Department of Education, Training and Youth Affairs (DETYA) website.

This paper outlines some of the issues identified in using an activity based costing methodology within a higher education institution and the implications of this for improved data collection and benchmarking of activities. Briefly, it illustrates the way in which the substantive findings from the activity based costing study at the University of Newcastle facilitated questioning of the underlying assumptions and approaches to the provision of information technology and library services within a university context. It also considers some of the organisational and cultural impediments to successful implementation and acceptance of costing and other performance measures in higher education. The lessons learnt are relevant to any organisation where services need to be provided within a constantly changing environment that requires strategic choices be made in terms of the services offered and activities supported. The author would like to acknowledge the contributions of Ms. Linda O’Brien, Vice President-University Services and Mr. Jim Cleary, Executive Research Officer, in the preparation of this paper.

Background to the ABC study at the University of Newcastle
In 1993 the Federal Education Minister suggested that future higher education places might be redirected away from lower performing universities as defined by unit costs. Subsequently, in 1998, the Australian Department of Education, Training and Youth Affairs (DETYA) commissioned consultants Ernst & Young, to survey universities on a number of issues related to their costs and budgeting systems. In particular, Ernst & Young were asked to investigate the adequacy of universities’ costing information; to propose a costing methodology for higher education for discussion at a representative workshop and then to test an agreed methodology in three participating universities. The first part of this process led to two reports prepared by Ernst & Young in 1998. These reports documented, among other matters, a desire for better costing information to “assist the decision making process within the university, to identify financial anomalies within university budgets and strategies and to assist with pricing decisions with regard to the services and activities the university offers” (Ernst & Young, 1998b: 3).
Ernst & Young proposed an activity based costing and management methodology which was trialed in 1999 at three universities; Charles Sturt University in regional New South Wales, Murdoch University in Perth, Western Australia and RMIT University in Melbourne, Victoria. The priority areas where DETYA was interested in looking at costing data were courses, units of study, student types and research grants. The three individual universities’ cost studies focused on human resource management, facilities management and faculty costs. A final report, *A Study to Develop a Costing Methodology for the Australian Higher Education Sector Final Report* (Ernst & Young May 2000) has been released.

Concurrent with the DETYA trial studies in 1999, the Information and Education Services Division at the University of Newcastle saw an opportunity to improve its own management processes while at the same time contributing to the momentum of strategic cost management within Universities. The Division initiated an activity based costing and management pilot project in February 2000, based upon the DETYA pilot study methodology already identified, with a focus on information technology and library activities. A particular emphasis of the Newcastle study was on using ABC as a tool for better linking the Division’s plans with budgets and improving decision-making processes within the Division. The study was also seen as enabling more accurate determination of funding levels required for particular services through identifying reliable methods for tracking the costs of activities, and to contribute to continuous improvement through benchmarking with other higher education institutions.

The Information and Education Services Division was formed in 1998, following a merger of the University’s Information Technology Division, the University Libraries and the academic development, educational technology and media units. Prior to the 2000 ABC study, the Division had established planning and budgeting processes which sought to link operational plans and budgets within the Division with the University’s strategic goals. Many of the services of the Division are provided to faculties on the basis of service level agreements, under a charge-back or fee-for-service arrangement in some cases, and accurate costing data and systems are integral to the sustainability of such services. Performance related data and feedback is derived from a variety of sources, both direct and indirect, with the major source being the annual Composite Student Questionnaire (CSQ) which provides comprehensive feedback on performance within a standardised framework.

The ABC study provided an opportunity to test many of the assumptions underlying the costing basis of the service level agreements and other charge-back services, as well as providing the Division with better information in general on the costs of its individual activities. Importantly, the study also provided information on the factors which might cause costs to change, or what the effect on costs of particular strategies or decisions might be. In areas such as information and communications technology or the provision of information resources, the constant demand for investment in new technology and the implications of this for ongoing client support and maintenance services introduce significant budgetary and planning consequences for management. Activity based costing can inform management of some of these consequences.

The historical context of budgeting and reporting in higher education

Budgeting and financial reporting within higher education has undergone a significant shift in recent decades. The historical emphasis upon management accounting within universities and other public sector organisations more generally, was one exclusively focused on financial reporting systems that tracked funds and expenditures against annual budgets. In many institutions this has now moved to a more proactive cost management model. Cost management, as Ernst & Young noted in their 1998 inquiry, is now increasingly seen as a strategic tool that provides information and feedback which helps to set goals and track progress towards their attainment in an environment of intensifying competition. Cost management has become more integrated with planning and management, and the redesign of cost systems to facilitate decision making and corporate strategic analysis and planning is a central tenet of this approach. In the corporate world, but increasingly within the public sector as well, new approaches to management accounting have emerged reflecting this new perspective. Activity-based costing and activity-based management are examples of these.

One of the problems confronting the higher education sector is that the financial and accounting systems in use have traditionally been concerned with meeting external reporting and audit requirements. These are important and essential, but they have provided minimal internal flexibility and information beyond just being “...an extension of the institution’s general ledger” (Ernst & Young, 2000:7). The problem for managers in this context is that the internal accounting framework reinforces a particular approach to planning and budgeting, one that is not necessarily responsive to changing service demands or strategic initiatives. Equally, systems which meet financial reporting standards are not necessarily an indicator of effectiveness or relative performance in terms of educational or other outcomes.

In an earlier activity based costing study, undertaken by Ernst & Young at the University of Technology Sydney (UTS) using 1990 data, it was clearly identified
that the higher level data or existing benchmarks across the sector, such as Equivalent Full-Time Student Units (EFTSU) or student workload, were not a reliable reflection of the level of expenditure required to support a diverse student population (Doyle, 1994:42). Ten years on, however, these measures remain, by and large, the basis upon which university funding is allocated by the Federal Government. In most cases, they also form the basis upon which those funds are subsequently distributed internally across academic teaching departments and various support functions. There remains an increasing demand for institutional accountability in terms of university costs and performance, a point noted by Koher et al in a 1996 survey of the application of activity based costing to human resource management in Western Australian universities (1996:3).

Other Australian universities have initiated activity based costing studies at the whole of institution level, or more discretely in particular functional areas. The University of Wollongong is currently attempting a whole-of-university approach to activity based costing, as is Monash University in Melbourne. The Library of the University of Queensland has also used ABC for several years to analyse its services. At present, there has not been a great deal of information promulgated from these institutions about their use of ABC, no doubt due to these studies being still in-progress. As a consequence, there is little performance-related or benchmarking information shared among institutions as an outcome of these investigations.

The decade of the 1990’s saw reduced government funding for higher education in many western countries, including Australia. In Australia, the decade was also characterised by continued pressure for efficiency gains and an increased desire on the part of government for scrutiny of the costs of higher education on a comparative basis. In 1993, the then Federal Education Minister suggested that future higher education places might be redirected away from lower performing universities as defined by unit costs. At an aggregate level, definition of comparative costs on the basis of courses, units of study, student types and research grants, is possible on the basis of existing data. This could presumably, and does in many instances, provide the data to underpin a distribution of higher education funds along these lines. However this does not provide institutions with relevant information which would inform them of what might be causing the differences in these comparative costs and nor does it adequately support strategic planning or decision making at the institutional level. The ABC studies carried out under the DETYA project in 1999 and 2000 provide a methodology which might inform different approaches to funding, but importantly, they also provide institutions with a substantial tool for planning, managing and benchmarking their services based upon that funding.

Some issues within the sector

Universities are probably not alone in being conservative and possessing a strong, historically-embedded culture. Ernst & Young, in their 1998 survey of higher education institutions, identified a number of factors which might impact upon a successful implementation of activity based costing (or any improved costing methodology for that matter). However, they noted that “the most prominent and persistent challenge” in implementing an improved costing methodology within the sector was “dealing with and overcoming cultural resistance” (Ernst & Young 1998b, p. 4). An earlier study by Doyle (1994) also highlights the deep-seated difficulties in achieving sector-wide benchmarks when he cautions: “comparisons of costs, both between different activities within the one university, and between similar activities carried out by different universities, need to be treated with caution” (1994:51).

The Ernst & Young survey of universities in 1998 revealed that many staff considered that a costing methodology would not be accepted within the university. [42% considered that a costing methodology would not be accepted within the university; and 29% felt that it would be accepted, with the remainder undecided in the matter.] This high level of uncertainty and (in some instances) dismissal of, costing methodologies could be due to “the apprehension of cultural change that may need to occur during its implementation” (Ernst & Young, 1998b: 31).

Universities remain highly individualistic and reluctant to share data and information, other than that which they are forced or obliged to for funding or reporting purposes. Examples of this are DETYA statistics or highly aggregated data of little value for effective benchmarking or comparison purposes or to inform continuous improvement.

Again, the 1998 Ernst & Young survey gave an indication of possible reasons underlying the reluctance of university staff to be involved in activity based costing and management methodologies. In some instances the comments provide an indication for the general dismissal among university staff of costing methodologies and benchmarking activities within the sector, but also of perceptions of a “uniqueness” prevalent in many institutions, which underpins either reticence or rejection of such methodologies. Questions raised by individual academics during the 1998 survey reveal a high level of concern for the potential for external interference resulting from the use of a costing methodology and for a loss of independence or diversion from their core activity. The following perceptions serve to illustrate the point:
Our university is unique and we will always need to be recognised as having special needs.

We want to benchmark but don’t want other organisations reviewing the basic data or comparing individual university performance without taking into account unique differences and strategies (Ernst & Young, 1998b: 50-51)

The question of how data might subsequently be used is important, but so too is public accountability and transparency in use of public funds. The final reports of the DETYA study reinforce this perception, with all performance-related data removed from the documents. [Newcastle’s report, similarly, does not contain the activity-specific data either at the raw stage nor as it was generated through the reports using the ABC model. This level of detail is confined to the internal report.] This may be wholly justified given the purpose of the studies being to develop and trial the methodology rather than to focus on the veracity of the underlying data and benchmarks. However, overcoming this inertia of attitude is a major challenge for the sector in its approach to and uptake of activity based costing and other performance management measures.

Commenting on a survey of UK higher education institutions and their use of activity based costing systems through the decade of the 1990’s, Cropper and Cook noted that:

…no institution rejected ABC on the basis that it was technically flawed or that it could not be used as an effective decision aid within a university environment. The difficulties identified tended to be cultural rather than technical. (Cropper & Cook, 2000:65)

Reporting on a survey of universities in New Zealand, Fowler and Yahanpath noted that reasons for the non-adoption of ABC were attributed to internal institutional weaknesses rather than drawbacks of ABC itself (2000:28). A common difficulty noted in the New Zealand survey was in reaching agreement over cost drivers and collection of data, and that there were many activities for which no clear link between inputs and outputs could be identified. Further to this, and in particular, Fowler and Yahanpath identified that “higher level activities such as management and research and other multi-dimensional tasks are difficult, if not impossible, to measure” (2000:29-30). Debate will no doubt remain about whether or not these activities are impossible to measure, but it is clear, nonetheless, that they are difficult.

The UK and New Zealand experiences demonstrate that there is still much cultural resistance to costing methodologies and particular forms of performance measurement, and some suspicion of their usefulness or applicability in that context. These experiences are repeated in the Australian context.

Universities encourage individuality and questioning among their academic staff, and not without purpose. The pursuit of scholarly enquiry and research are in large measure the basis of our university system. But to a university, an approach such as ABC “lays bare the activities performed and resources consumed by individual academics, administrators and departments”, and it “renders transparent that which had been previously opaque” (Kober et al, 1996:26). Kober also notes that there is often a general level of mistrust among academic staff for managerialist initiatives promoted by the “centre” – the centre being university administration or anything non-academic. Gaining support for the introduction of an ABC system, Kober notes, requires a shift from these professional secular interests towards an institutional ethos - a “corporate” culture. In this, the collective interests and goals of the university community are seen to be advanced by openness and less defensive postures towards resource allocation decisions (Litchfield, 1959:504 and Dufty, 1980:27, in Kober et al, 1996:26).

The ideal, and the objective in promoting ABC within the higher education sector is that comparative information about the costs of activities will aid universities in identifying opportunities for cost improvement. Additionally, comparisons of generic support services across different universities may enable the identification of more efficient ways of delivering services (Ellis-Newman et al, 1996:76) through performance benchmarking.

Informing planning and decision making

Jenny Ellis-Newman, reporting on an ABC study at two Western Australian university libraries in 1996, commented on a situation with which many in the public sector might be familiar and perhaps more broadly, many in the private sector as well. This is the tendency for operational units to develop in-house accounting systems to track expenditures (and income) in a more useful way (to them) and provide them with more useful information than that which can be extracted from the general ledger. This is what had occurred in the two university libraries which were the basis of the study. This is no mere bean-counting or quibbling over funds, but rather an attempt to improve the effectiveness of management’s decision making in allocating and consuming resources relative to the organisation’s needs, and to have access to information which supports this objective. The effectiveness of this depends upon the quality of the accounting information received (Ellis-Newman et al, 1996:77). Obviously in the case of the two university libraries, one may assume the accounting information available at the time was not delivering the utility they sought.
Reviewing the applicability of ABC in the US higher education sector, Gordon and Charles identify similar concerns, noting that the accounting information of the traditional system “directs the administrator’s focus to total expenditures within a particular budget or cost pool” (1997:25). In planning, and critically in linking organisational plans with budgets, new ways of developing plans, agreeing targets and outcomes and identifying the resources to meet those objectives are required. This is often counter to much of the experience of managers in the higher education sector, including academic managers, and equally, runs counter to the resource allocation culture of many institutions. Despite changes, both internal and external, in many instances the current or previous budget is used as the starting point for negotiating the next budget allocation. This may not be surprising, but to achieve improvements in service quality, to realign resources with changing organisational goals and priorities and to provide scope for addressing strategic initiatives, a higher level of understanding is required. We need to better understand where costs occur and how these might vary with the changes and choices the organisation might make regarding its strategic priorities.

One objective with the Newcastle ABC study was to provide a methodology and data which could underpin the planning process through effectively linking proposed expenditures with outputs. The outputs or activities would be identified as part of the annual planning and negotiating cycle, and data such as that obtained through ABC provides a higher level of understanding about the budget consequences of the choices made and decisions taken.

Within a highly innovative and changing area such as information technology, institutions are constantly faced with the gap between user expectations and wants, and the competing demands and limited availability of funds to support these. Outsourcing is one strategy employed by public and private sector organisations alike, although no conclusions should be drawn that either sector has made these decisions on a similar basis. In developing budgets that support institutional goals, deciding which activities should receive funding and those that may need to receive a lower priority requires choices to be made not just concerning the relative merits of each, but what is achievable within the organisation’s budget. To do so, managers must have access to information on the cost of the activities that they manage. However, as the Australian National Audit Office notes, it is unlikely that this information will be able to be derived from the general ledger (ANAO, 1999:13). The solution therefore, is for organisations to implement a costing system that will obtain this data accurately and efficiently.

At the planning level, one objective is to try to anticipate and recognise what impact the decisions and choices made will have on the future costs of the organisation. This is not just in terms of the immediate budget effect, but can we predict with any level of assurance the ongoing maintenance and administrative costs associated with those decisions? For effective management in the public sector, managers will be increasingly exposed to decisions regarding restructuring of resources, outsourcing decisions and other actions in response to the increased emphasis on contestability, a point identified by the Australian National Audit Office (1999:48).

We tend to have good information about what resources we make available for particular functions, but less so about how those resources are consumed and converted into services and outputs, and what the spread of costs might be across the range of activities underpinning the service delivery. Equally, our traditional systems do not support in any significant measure, an understanding of what impact different levels of activity or demand or changes in circumstances might have on the costs within particular functional areas. In short, our traditional accounting systems may be useful as a financial condition report and to justify certain legal requirements, but they are not much use for strategic planning or operational management in higher education institutions. Activity-based costing allows greater management insight into the reasons underlying cost behaviour, compared to the more traditional classification of costs by departments and cost centres which typifies most accounting systems in higher education, a point noted by Doyle in his early study of ABC in an Australian university (1994:44).

The Information and Education Services Division of the University of Newcastle was formed to allow the University to pursue the opportunities presented by the significant changes and challenges occurring in information and communications technology, and to provide a more integrated mechanism for delivery of a range of services within ICT and library functions, among other activities. The Division provides the University with a new approach to the provision of information technology, information delivery and the support of teaching and learning, and part of this is the capability to respond more quickly and more effectively to changes within the internal and external environment. The capability to move or realign resources to meet these changes is critical. One mechanism through which this occurs is the annual planning and budgeting cycle and systems such as ABC have the capability to provide part of the management information systems underpinning this.

Notwithstanding these ideal objectives, it needs to be recognised that within public sector service organisations, costs are less likely to respond quickly to changes in output or service demands. Staffing levels and capital infrastructure are generally committed in advance, sometimes by a considerable margin. Sometimes, as the National Audit Office notes, attempts are made to reduce the unit costs of outputs by...
decreasing budgets or eliminating particular functions. However this often occurs without eliminating or modifying the drivers that give rise to these costs. As it is the performance of activities that drives expenditure, if we want to control expenditure then those activities must likewise be controlled (ANAO, 1999:57). Ellis-Newman and Robinson express similar concerns, noting that “traditional costing systems fail to meet (managers) requirements for accurate and detailed information about service costs because they are unable to explain adequately the relationship between costs and the events that cause costs to be incurred” (1998:379).

At Murdoch and Charles Sturt universities (two of the universities which participated in the DETYA ABC study) several key benefits were identified. Among these, the institutions noted that the ABC data and methodology provided a reasonable basis for comparison in developing performance indicators. The Newcastle study also identified this as a positive outcome from the study. The challenge, however, remains. This is the furthering of the use of ABC or other costing methodologies more broadly within the sector. Importantly, if the objective of benchmarking is to be attained, then agreement on common descriptors of activities and cost drivers, among other matters, will be essential if the performance indicators are to be meaningful and usable at the sector-wide level.

Murdoch University noted that a key benefit of the study was that it assisted in the development of pricing policies and highlighted where costs were not fully recovered. Murdoch also identified that the study and data “provides a basis for developing service level agreements with the Faculties” (Ernst & Young, 2000:11) and a point also identified at Charles Sturt University. At Charles Sturt, the study revealed:

deficiencies in the knowledge base of the University in regard to precisely what funds had been spent on achieving specific cost objects, and the need for more refined data gathering protocols; (and) … drew attention to the need for accurate costing for fee-for-service activities … (Ernst & Young, 2000:11)

The IES Division at Newcastle uses service level agreements with faculties in negotiating the services to be provided to support specific goals and outcomes in those areas. The charges underpinning these agreements were in many instances either confirmed or challenged by the ABC study results. The study results also served to provide an information base against which traditional or core services might be reviewed, and equally, against which the efficiency of new technological investments might be assessed. An example of this was the University’s investment in systems which provide for a high level of user independence and hence do not place significant demands on staff to mediate or provide the service. The ABC study most clearly demonstrated the value of some of these investments, and provided data to underpin capital investment and change management strategies in certain areas of the organisation.

In the US, the information technology division of Indiana University has long managed its services and resources using ABC data for strategic and operational management of its facilities. The IT division balances this with a well established client feedback survey to ensure it is effective in meeting their needs. The two systems effectively underpin each other (Peebles et al, 1999:50). While such systems as ABC can and do assist managers in their role internally, the benefits to be derived can also be external. In an age when universities and other public institutions are expected to be accountable for their use of public funds and to demonstrate the outcomes they achieve for the community in general, ABC can assist in demonstrating the value that the organisation adds through its specific activities. This may be research, international students and so forth, but it might also be its investment in specific areas, such as information technology or information resources. The recent debate concerning Federal Government IT outsourcing in Australia is an indicator of where institutions should be able to make rational and objective decisions regarding the provision of services, and where ABC data could underpin such decisions and demonstrate a cost effective outcome.

Performance management

As noted earlier, some reluctance has been identified among individuals in universities to adopt costing methodologies or other performance or benchmarking mechanisms. Staff within universities have expressed concern at how the results of such studies might be interpreted. Certainly, costing methodologies have the potential to raise the “performance-consciousness” of university staff. This may not always produce the desired results, however, unless it is given some contextual basis. Equally, a level of understanding of the purpose needs to be created and accepted amongst staff. Commenting on the application of activity based costing to human resource management activities in universities, Kober noted that the study refocused attention from inputs and processes to outcomes. This engendered “some fear that the public dissemination of the calculated costs of services may result in resourcing decisions prejudicial to the interests of Personnel Services” (Kober et al, 1996:23-24). Similar fears, as noted earlier, typified many of the comments of university staff in the 1998 Ernst & Young survey.

The challenge for institutions, perhaps, lies in better informing staff of the purpose behind costing methodologies and performance management – that these are not primarily about assessing the individual’s performance but about performance improvement at the group or institutional level. However, some writers
have identified that “there is evidence to suggest that managers deliberately opt for behaviourally-orientated cost systems that are less accurate than costing techniques allow in order to induce desired behavioural responses” (Merchant and Shields, in Cropper & Cook, 2000: 66). What isn’t necessarily clear in this is whether we are talking about modifying the behaviour of staff in performing the activity and supplying the service, or in modifying client behaviour in use of the service, to encourage acceptance of or a movement toward more cost effective outcomes and services. The latter was certainly a useful outcome of the Newcastle study, in that it provided a basis against which the Division could assess the range of its current activities, and consider options which clearly indicated a more cost effective outcome on the basis of data from the study. A concomitant action was the identification of change strategies which would move clients toward those alternative solutions or services.

Implicit in Cropper and Cook’s statement is the inference that simpler costing models may in fact be more beneficial for educational institutions than more complex ones. That perhaps, the desired outcome is not a high degree of accuracy in the financial or costing data acquired, but how it informs the behaviour of staff in such a way as to effect better client outcomes or alignment with strategic goals. Supporting this in some way, is the observation of Fowler and Yahanpath in their review of activity based costing in New Zealand higher education. In this, they noted that the “advantages of using information provided by an ABC exercise is that it gives guidance in resource management, performance management and strategic planning, and indicates areas where expenditure can be trimmed or reallocated” (Fowler & Yahanpath, 2000: 28). The latter is certainly dependent upon the accuracy of the financial data, and reinforces many of the perceptions of university staff about costing methodologies. Staff in general, are suspicious enough that such studies are all about “the bottom line”. It remains to managers and those within the institutions conducting ABC studies to educate staff that the purpose is to improve service to clients (as students or staff) and to inform the management and planning of the university or particular organisational unit, rather than just a cost cutting exercise.

Commenting on the benefits achieved and expectations of institutions in the UK experience, Cropper and Cook identify that while the majority of institutions were able to raise cost awareness and understanding “… only a small percentage of institutions claimed to have achieved cost reductions (one of the major benefits put forward by Cooper and Kaplan, 1991) or a more equitable resource allocation method” (2000:65). This perhaps highlights the differences in perceptions and expectations of costing methodologies. A reduction in costs per se is certainly a possible and desirable outcome. However the experience seems to suggest that a more positive outcome from the use of ABC is the effective use of available resources and the capability to inform planning and decision making. Cropper and Cook identified these additional benefits – in raising cost awareness and understanding, and improved decision-making processes based on the new information obtained (Cropper & Cook, 2000:65).

Costing of support services is one thing, but if activity-based costing is to be applied to the costing of courses and course delivery then it will require considerable thought about the how the variables across disciplines are to be recognised and built into any model. Fowler and Yahanpath noted in the New Zealand case, that “the present government funding system assumes a certain degree of cross-subsidisation across different activities/faculties, resulting in some distortion in any performance measure” (2000: 30). The Australian system of funding for places in universities is weighted to an extent to recognise some of the variables between disciplines, but similarly, the system assumes a level of cross-subsidy within institutions, and between undergraduate and post graduate or research students, among other matters.

Performance or benchmarking systems at the sectoral level in higher education are often highly aggregated, and while they may prove useful for some comparative analysis, they may not provide the level of detail required to inform decisions about strategic choices or planning at the institutional level. The application of activity based costing in institutions appears to be based on similar assumptions, such as improving decision-making and being able to “do more with less” by identifying where resources could be better deployed. These are outcomes which Cropper and Cook identify (2000: 62) in their UK study. However its effectiveness in meeting these other expectations, such as cost reduction and informing managerial decision-making processes have yet to be fully explored over an extended time period (Cropper & Cook, 2000: 64). The experience at Newcastle was informative with respect to decision making, but this was a one-off study yet to be integrated as part of an ongoing approach to performance management within the institution.

Conclusion

Ellis-Newman, in her assessment of the application of ABC within academic libraries, noted that “the greatest advantage of ABC to library managers lies in the benefits it provides in the areas of performance measurement and improvement” (1996: 85). From the evidence thus far, there still appears to be considerable effort required to realise these outcomes in an ongoing way. Moreover, agreement on common descriptors of activity and activity drivers are required before costing methodologies will prove effective as benchmarking and performance measurement tools for the sector.
Despite the number of studies and the interest, not just in Australia but in other countries as well, costing initiatives within higher education institutions have so far met with only limited success, a point noted by Cropper and Cook in the UK (2000: 62). The UK experience is probably the most advanced, and the limited success may be indicative that the approach needs either continued modification or alignment to better fit the needs of higher education or, that in the long term, it may not be the most effective tool for performance management and costing within the sector.

The ABC study at Newcastle provided an opportunity to build upon the model and knowledge developed in the DETYA study at the other three Australian universities, with a specific focus on library and information technology areas. The objectives of the project therefore included the development of a model that would have a sector-wide applicability requiring minimal future development or adaptation. The methodology and experiences learned in the study have been shared with the sector and it is hoped that the methodology will be tested in other universities with a view to refinement as a standard tool for benchmarking and costing for library and IT activities in Australian universities.

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Revising a standard in a time of constant change: The NISO Library Statistics and Performance Measurement Forum

Patricia Harris, Executive Director, National Information Standards Organization, USA
Denise M. Davis, Director of Statistics & Surveys, US National Commission on Libraries and Information Science, USA

Abstract

In the early-1990s when the U.S. library statistics standard was revised, the focus was on documenting or labeling input and output data consistently. Prompted by the pending review of ANSI/NISO standard Z39.7-1995, Library Statistics, and the need for greater understanding of the role performance indicators and outcome measures play in assessing the value of libraries, NISO took the lead in bringing together diverse constituents of the information community to begin national-level discussion on these issues. The Forum identified a need for action, and a consensus that a vision that moves libraries past the measurement of data and into assessment of performance, impact, and user wants and needs is not only desirable, but also necessary.

Environmental scan of US libraries

In the mid-1990s the United States benefited from the services provided by more than 8,900 public library systems. These comprised more than 16,000 service sites; 50 state library agencies (of which 48 have libraries servicing residents or state government employees); 3,400 higher education institutions with libraries; and 98,400 public and private schools with library media centers. In total, residents of the United States benefit from the services and resources of more than 117,700 libraries. Although the numbers of libraries remain largely unchanged, the shifts in the services, materials, and expenditures have been dramatic.

When comparing the status of libraries in the mid-1990s to today, we discover some interesting shifts in library acquisitions, the technological infrastructure required to perform basic tasks and provide basic services, and the organizational structures in which libraries operate. Libraries are major contributors to the United States economy. They expended more than $10.8 billion annually in the mid-1990s and expenditures are expected to exceed $13 billion in 2000. To emphasize this point, state library agencies reported operating expenditures of $218.2 million in 1994-95. In 2000, 93% were connected to the Internet. The 2000 Internet Connectivity in Public Libraries study revealed that 87.7% of public libraries used operating funds from local government for Internet-related technology and infrastructure expenses, 29.6% received state grants for a portion of their Internet-related technology and infrastructure expenses, and 31.4% benefited from special grants for technology and infrastructure, including the Gates Library Program.

In 1994 few US libraries, regardless of type, made graphical workstations available to their customers. There are now, on average, 8 graphical public access Internet workstations per public library branch. 81% of public libraries provide public access to magazine, newspaper and other databases; 36% provide access from locations outside the library. 91% of academic libraries reporting provide access to electronic indexes and reference tools within the library and 70% reporting provide access to full text periodicals within the library. 62% of public libraries and 75% of academic libraries provide Internet-related training services.
of Americans required adaptive technology devices in 1999. 28.8% of public libraries and 42% of academic libraries provide special hardware or software for accessing the Internet by individuals with disabilities.

Unfortunately little information on expenditures or target resources is available for K-12 school media centers, but four studies report related data. In aggregate, these studies found that 51% of public school library media centers reported that inadequate funds for technology were a “major barrier” to gaining or maximizing access to the Internet; 42% of school library media centers identified insufficient staff time as a major barrier; and only 42% of school library media centers considered “access to a network connection provider” no barrier. Other “major barriers” to Internet access reported by school library media centers included telephone lines (42%), and telecommunications equipment (38%). If these barriers were removed, and if adequate funds were made available, school media centers could be expected to join other types of libraries as major sources of access to educational materials and information, and as markets for resources in electronic format.

Prompted by the pending review of ANSI/NISO standard Z39.7-1995, Library Statistics, and acknowledging the changes in US libraries since the early 1990s, NISO recognized the need for greater understanding of the role performance indicators and outcome measures play in assessing the value of libraries. NISO took the lead in bringing together diverse constituents of the information community to begin national-level discussion on these issues in the context of standards, best practices and guidelines.

Executive Summary

On February 15-16, 2001 the National Information Standards Organization (NISO) organized an invitational Forum to gather information from the library community and key vendors about the best approach to evaluate the NISO standard on Library Statistics. Due for review in 2000, ANSI/NISO standard Z39.7 defines significant library input and output measures as they were collected by various organizations and agencies in the U.S. in the early 1990s.

Members of the Forum Planning Committee included Committee co-chairs Denise Davis, National Commission on Libraries and Information Services (NCLIS) and Patricia A. Wand, Library Director, American University. Committee members were Michael Gorrell, EBSCO, Martha Kyrillidou, Association of Research Libraries (ARL), Karen Motylewski, Institute of Museum and Library Services (IMLS), Barbara Perry, World Bank/IMF Library, Patricia Stevens, OCLC, J. D. Waggoner, West Virginia Library Commission, and Peter R. Young, Library of Congress (LC).

Forum participants represented every type of library: academic, government, public, school, and special, as well as associations, government agencies, vendors, and the library research community.

The Forum participants, all of whom are involved in collecting, aggregating, contributing, or studying library data, were invited because of their demonstrated professional expertise and commitment. Participants represented every type of library: academic, government, public, school, and special, as well as associations, government agencies, vendors, and the library research community.

Participants considered a variety of approaches, including ideas for research; topics that need to be addressed; areas where standards, guidelines, or best practices are appropriate; and opportunities for NISO to collaborate with other organizations.

As an ANSI-accredited standards developer, NISO supports the development of technical standards when a standard is viewed as the best solution. NISO advocates a practical approach to standards development and that standards should not be viewed as “the perfect document.” Procedures require that NISO revisit each standard five years after its approval. This “five-year review” is a chance to determine if the standard is still used. In this process NISO considers if the standard would benefit from revision; if the standard reflects current needs and practices, it can be reaffirmed; if the standard is no longer used, we consider whether it should be withdrawn or maintained as a legacy document;

The NISO Forum

BACKGROUND

In the U.S. every American National Standard is evaluated five years following its last approval. The NISO standard on Library Statistics, ANSI/NISO Z39.7-1995, came up for review in 2000. NISO convened this Forum to invite leaders in the field to evaluate the utility of library statistics standard and to help build a common vision of what is needed in assessing libraries and their contributions to their communities.

The Forum was designed around certain assumptions, including:

- The library community has a deep respect for standards and a long history of cooperation.
- Although the current standard for library statistics primarily counts inputs and outputs, the profession is ready to measure other indicators of productivity and quality. No standards exist for these other measurements.
- Successful standards start small and may begin as pilot projects, best practices, or guidelines that can be tested. A successful action plan will encompass phases with short-term and long-term activities.
- Many different constituents comprise the information profession and many different needs must be addressed.

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For many years, NISO tradition limited this discussion to its members, but it finds more value in opening discussion to the community at large and engaging a variety of knowledgeable and interested persons to advise on next steps. NISO has used this approach successfully to explore emerging standardization issues such as the Draft International Standard (DIS) for the Digital Object Identifier (DOI); advances in thesaurus construction and design; knowledge management; and the challenges and complexities of reference linking.

All Standards are expected to change to address new needs and technologies. The Library Statistics Standard was first released in 1968, revised in 1983 and again in 1995. With each revision the Standard expanded. When the 1995 edition of the Library Statistics Standard was released the committee that developed it acknowledged that the Standard did not address two important emerging areas: measurement of electronic resources and performance measures. It was recommended that these matters be examined at the next five-year review point.

FRAMEWORK OF THE FORUM

Throughout the Forum discussion was channeled through a mixture of panel presentations, whole-group discussions, and structured breakout groups. The goal was to maximize cross-disciplinary information sharing around broad issues and to use discussion in homogeneous groups (called affinity groups) to capture the viewpoint of specific segments, for example school libraries, researchers, and vendors.

The Forum was structured around a concept map comprised of four categories of measurement and three key management functions supported by those measures.

The four categories of measurement were:

1. **Statistics** – *What we are measuring - how much we do (input/output)*
   Counting activities and resources that quantify library materials, services, staff, operations and users.

2. **Performance indicators** – *How well we do.*
   Collection and interpretation of quantitative and qualitative data pertinent to local goals and objectives as well as values and/or characteristics in order to assess service quality, performance efficiency and customer satisfaction within a specific context.

3. **Economic value** – *How much we’re worth.*
   Collection and interpretation of expenditures data in relation to output production to document costs, unit costs, and economic value derived, and assign a dollar value to library products and services within a specific environment characterized by various environmental constraints and opportunities.

4. **Outcome measures** – *What good we do.*
   Evaluation of the results of program activity compared to its intended purpose. Measures relate to observable changes in knowledge, skills, behavior, attitudes, status or life condition. Quantitative measures are based on test scores, and qualitative measures are based on observations of indicative behaviors.

The three functions were:

1. **Internal decisions** – to assist with management decisions and internal specifications and policies

2. **Local advocacy** – to justify budgets and demonstrate that local goals and objectives have met the needs of the community

3. **Broad advocacy** – to identify trends, understand the larger environmental factors, promote the value of information organizations and professionals such as library and information professionals

This perspective was identified by a presenter and recognized as a useful distinction by many of the participants. During Forum discussions a fourth function emerged. There was significant discussion of the importance of marketing in library management.

Presentations

Two panel presentations set the stage for small heterogeneous or homogeneous group discussions. The first panel, representing academic, school, special, and public librarians, and the vendor community suggested significant current issues for measurement in libraries. The second panel presented current research and development focused on measuring the performance and value of libraries. Adverse weather conditions in the mid-Atlantic region of the US prevented some presenters from attending. As a result of good planning, some Forum planners and participants were able to make abbreviated presentations on the topics.

**Panel I: Issues for Libraries – Measuring the Information Age**

Moderated by Peter Young, panelists were asked to address the question “Given the speed of change, how should libraries measure today what they will need to report on tomorrow?”

Eileen Hitchingham, Virginia Polytechnic Institute, asked participants to consider whether data was being collected “to show” administrators for budget justification or “to know” – for use by library management.

Ann Weeks, College of Information Studies, University of Maryland, noted that no national data about school libraries is being collected. She pointed out that it is difficult to make compelling arguments for school libraries without data. Weeks also noted that
information literacy skills begin with school libraries, so life-long information literacy and effective library use is dependent on the success of this building block.

Susan Fifer-Canby, National Geographic Society Library, suggested that library staff should be treated as assets rather than expenses. She pointed out that special libraries are well positioned to facilitate organization-wide conversations.

Mark Smith, Riverside (California) County Library System, suggested that libraries have not been fundamentally changed by technology. Rather, he noted, it is users’ expectations and patterns of using library information resources that have changed dramatically.

Michael Gorrell, EBSCO Publishing, emphasized the importance of statistics. His early work in engineering demonstrated that “without data, you are just another person with an opinion.”

**Panel II: Current Research**

Denise Davis moderated the panel on research conducted in academic, public, and school libraries to develop tools that provide data on a variety of measures of library services and their value.

Fred Heath, Texas A&M University, described the development and testing of LibQUAL+, a protocol adapted from the business community, to assess service quality in academic libraries. LibQUAL+, funded in part by the Fund for the Improvement of Post-secondary Education (FIPSE), U.S. Department of Education, maps how well the level of service delivered matches user expectations, based on what users find important.

Denise Davis gave the presentation of John Bertot and his colleagues at Florida State University. Bertot is the lead researcher for two important ongoing studies. The first project is jointly sponsored by IMLS, NCLIS, and NISO. This work defines electronic network performance measures that can be collected at the national level for public libraries. The second project, sponsored by ARL, explores e-metrics for research libraries, suggests measures for the use of electronic resources, and develops a framework of outcomes of library services and their value.

Karen Motylewski delivered a presentation for Keith Lance, State Library of Colorado. Funded in part by IMLS, Lance has documented the positive relationship of student performance and strong school library/school media center programs in Alaska, Colorado, Pennsylvania and Oregon.

Christie Koontz, Florida Resources and Environmental Analysis Center, Florida State University (FSU), described her research in collecting in-library use statistics. In the most recent project, Keith Lance joined Ms. Koontz and Dean Jue of Florida State University as co-principal investigators in developing a model for using portable technology (PDAs) to assess use of the public library in majority, minority, and low-income settings. This project updates “Counting on Results” and is funded by a grant from IMLS.

An informal report was given by Jeffrey Owings, Associate Commissioner, National Center for Education Statistics (NCES). Owings provided information about the national Library Statistics Program and a longitudinal study of 10th graders in the U.S. that includes data about library media centers.

All presentations are on the NISO website at http://www.niso.org.

**General Themes, Discussions and Comments from Participants**

Throughout the Forum, common themes emerged around the topic of how to demonstrate the value that libraries contribute to their communities.

- There is critical need for systemic data collection. With all sectors of the industry represented in the Forum, discrepancies in the availability of accurate, current, national data for essential library services within key segments became rapidly apparent. The lack of information about school libraries may be the type example.
- There is a pressing need for guidelines for collecting qualitative and performance data. The community is ready to move beyond statistics into measures that tie the value of libraries more closely to the benefits they create for their users. Changes in the technology of library services and the competitive climate for resources require libraries, librarians, and even NISO, to understand better how to market themselves to a variety of audiences.
- Librarians need tools to collect and interpret qualitative data to “tell their story” more effectively. There is recognition that libraries need more than input/output data. New tools are needed to convey the value of libraries to their users and funding agencies.
- The increased use of technology in library operations requires different skill sets than were necessary a decade ago. Systematic training needs to be available to working librarians to develop the skills to assess, manage and promote their organizations.
- Different methodologies are evolving to measure network performance (NCLIS), service quality (e.g. ARL’s LibQUAL+), impact, and economic value. Additional research is needed to develop new tools and approaches for practical application by the library community.
- There is support for the development of a “data dictionary” of terms in frequent use by different constituencies. The definition and meaning of terms can vary greatly, and a common vocabulary is necessary to understand the data being
collected and presented.

- NISO can also serve as a clearinghouse for guidelines, standards, benchmarks, and best practices. In a rapidly changing environment, a variety of flexible tools are needed to facilitate coordination of developments throughout the industry. NISO is well positioned to develop a “data dictionary” of terms in use by different constituencies and to make this document available on the web. Given its pivotal role in the industry, it was suggested that NISO could facilitate the cross-sector collaboration necessary to evolve the most useful working documents.

A summary of discussion and comments from Forum participants follows.

- Caution was offered in data interpretation. For example, a decrease in number of searches conducted may reflect increased efficiency and higher user satisfaction rather than less use and lower value.

- The user’s universe is changing in fundamental ways that affect how information is located and used.

- Libraries are beginning to develop customer-oriented assessment tools focused on user satisfaction, service quality, and outcomes.

- Libraries need new tools and best practices to assess user behavior.

- Expectations for customer service standards can be operationalized as “every user has the right to….”

- The psychographics of subgroups (understanding how/why certain segments behave) can offer insights in developing customized services to meet specialized needs. (e.g. “minit markets”)

- With the advent of electronic resources, physical collections are less apparent but stable while digital collections may be more apparent, yet not stable.

- Measurement might more accurately focus on the activity of librarians rather than the activity of the library.

- Workload measures (e.g., how many interlibrary loan requests can be handled in one hour) are needed to establish parameters for staffing.

- Guidelines are needed to determine when to collect whole-universe data vs. sampling.

- The more libraries work with unified standards, the more likely they are to be heard.

- Guidelines and tools are needed to assess users’ needs, satisfaction and competency.

The discussion groups agreed that NISO might play a bigger role to:

- Bring constituencies together to learn about the work of other stakeholders, to build on that base, and reduce duplication of effort.

- Serve as a clearinghouse for standards and guidelines across diverse communities with related interests.

- Move beyond defining data elements to provide guidelines and methodologies for qualitative as well as quantitative measurement.

- Support the development of surveys, measurements, and other resources for measuring service quality and outcomes.

- Offer training for the industry on what to measure and how it can be measured.

- Explore tools such as ISO 9000 and the Baldridge Award program for application to the library and information industry.

- Create a publication series, with best practices identified as one desirable focus.

**Recommendations**

Many of the discussion groups agreed that NISO is well positioned to play a bigger role to:

- Facilitate cross-constituency information sharing, enabling specialized stakeholders to build on the work of others and to avoid duplication of effort.

- Serve as a clearinghouse for standards, guidelines, and other tools across diverse communities with closely related interests.

- Move beyond defining data elements to provide methodologies for qualitative as well as quantitative measures of library service.

- Support the development of surveys/measurements for service quality and outcomes.

- Offer training for the industry on what to measure and how to measure it.

- Explore tools such as ISO 9000 and the Baldridge Award for application to the library and information industry.

- Create a best practice publication series.

**Evaluation**

Attendees were invited to evaluate the Forum. Overall attendees’ comments were positive. Many noted their own discovery process, learning from colleagues and developing an appreciation of the need for guidelines within the industry.
Conclusion

In the early-1990s when the U.S. library statistics standard was revised, the focus was on documenting or labeling input and output data consistently. The Forum identified a need for action, and a consensus that a vision that moves libraries past the measurement of data and into assessment of performance, impact, and user wants and needs is not only desirable, but also necessary.

This Forum enabled a broad, diverse group of stakeholders to explore their requirements and vision for describing, measuring, and showing the significance of contemporary library services. Forum discussions confirmed that libraries and related organizations have a critical need to demonstrate concretely the value they bring to the communities they serve.

Forum participants agreed that NISO played a critical role in bringing all constituencies together. NISO was seen as a rare “honest broker” – an objective agent for sharing information across traditional boundaries to enable each constituency to build on the work of others and reduce the duplication of effort.

Developments since the Forum

The NISO Standards Development Committee met on July 9, 2001 and reviewed action items from the Forum. Approval was given to proceed with three components as part of an overall framework for NISO work in the area of statistics and measurement:

1. Revise and expand ANSI/NISO standard Z39.7-1995, Library Statistics. The approach a committee will be tasked to: review the standard and identify gaps; review existing survey instruments and identify gaps. The goal is to have Z39.7 reflect current survey instruments. Plans are to convene a working group in fall 2001 with representation from the library, research and vendor communities.

2. Develop a web accessible “data dictionary”, a working thesaurus of related terms for statistics, measurement, e-metrics and usage statistics. This data dictionary would encompass Z39.7. Drs. Charles R. McClure and John Carlo Bertot (FSU) will work with NISO to compile and maintain the data dictionary.

3. Assess the role of performance indicators and measures in the suite of NISO standards and guidelines. NISO recognizes that the area of performance measures continues to evolve and, at present, is too unstable to accommodate a standard. The goal is to develop a guideline or a best practice in this area. A partnership approach is planned and the following groups have been identified as potential partners: The Association of Research Libraries (ARL), Special Library Association (SLA), Association of Library and Information Science Educators (ALISE), and Urban Libraries Council (ULC).

Since the NISO Forum there have been ongoing discussions in the library and publishing communities regarding vendor-based usage statistics. The International Association of Science, Technology, and Medical Publishers (STM) sponsored a workshop on usage measures and statistics in April 2001. The Association for Research Libraries continues its multi-year effort in the area of library performance measures and service quality. Efforts in the UK are through the Joint Information Statistics Committee, Vendor-based usage statistics for online journals and databases, a group currently led by Richard Gedye, Oxford University Press. A working group was set up in 2000 under the auspices of PALS – the Publishers and Libraries Solutions group of the UK Publishers’ Association (PA), the Association of Learned and Professional Society Publishers (ALPSP) and the Joint Information Systems Committee of the UK further and higher education funding bodies (JISC). The Working Group on Vendor Based Statistics has looked at the variety of very useful work that has been conducted in this area over the last year and is now working toward a common code of practice.

It is evident that the work in this area continues to evolve, and defining and developing national standards of measure is but one part of the effort. The following is a brief list of valuable websites to consult regarding network performance and service quality measures.

Further Information

Association for Research Libraries, information about research and statistics projects http://www.arl.org/>

Bertot, John Carlo. Florida State University, vendor-based usage statistics <http://slis-two.lis.fsu.edu/~jcbertot/>

Institute of Museum and Library Services (IMLS) <http://www.imls.gov>

International Association of Science, Technology, and Medical Publishers (STM) <http://www.stm.com>

Joint Information Statistics Committee (JISC), Vendor-based usage statistics for online journals and databases. <http://www.jisc.ac.uk/curriss/collab/c6_pub/uswg/>

"BIX – the Library Index"
A German benchmarking project for public libraries

Petra Klug
Bertelsmann Foundation, Germany

Abstract
Bertelsmann Foundation took a risk – namely the implementation of a library rating and ranking index. This paper discusses how German libraries have benefited from the development and implementation of a library rating and ranking index. More specifically, this paper will outline how the BIX–Library Index had assisted libraries in their effort to get funds and their ability to point out strengths and weaknesses.

Introduction
“You never know the outcome if things are changed. But do you know the outcome if things are not changed?”

To introduce this topic, let me begin with my own “process of change”: Two years ago I attended the Northumbria conference as a guest and took many helpful ideas home with me from the different projects that were presented at the time. Today I present through this paper the project for which I have been responsible for two years. It goes without saying that I would be delighted if you found one or the other ideas interesting.

This paper will begin with a brief overview of how and why the BIX (German abbreviation of library index) library Index came into being, then describe what successes the BIX has already seen and, finally, outline where the BIX is at the moment and where it is headed. BIX is the German abbreviation of library index and is not quite accidentally reminiscent of the DAX.

Why did we start this project?
The subject of change is also reflected in the motto of the Bertelsmann Foundation: “Shaping Change.” Before presenting the “BIX” project to you as well as the development of the methodology, a brief introduction to the Bertelsmann Foundation is helpful.

Reinhard Mohn established the Bertelsmann Foundation in 1977 as a so-called independent foundation organized under private law, and started in a fairly small way with only a few staff members. The Foundation conceives and initiates projects within different fields. By now almost 240 employees are working on more than 180 projects. The last annual budget amounted to approximately DM 130 million.

It is an operating foundation. This means that the projects in a variety of different fields (which you see here) are not only supported financially, but that together with partners, concepts are developed and projects implemented. The founder Reinhard Mohn in the articles of association has laid down the nine areas – or fields of activity. Most of the projects are limited in time, which means that frequently requests for continuation of projects are sought.

The work priorities of the Public Libraries Division can be listed as performance comparisons, model developments, in-service training as well as reading and information competency. As project director, our projects essentially deal with strategic planning, the integration of new technologies, innovative services and sales formats, and last but not least performance measurement.

One of the first projects was a five-year inter-library comparison in which 18 libraries participated – bigger cities like Leipzig and smaller ones like Gütersloh for example. Here, the primary objective was to develop and test a reporting system for internal steering purposes. In parallel to the introduction of new steering models in the local authorities, another objective to be achieved was the acceptance of business management type approaches in public administration.

Based on this experience, the priority of the follow-up projects was to disseminate the tested methods. In a second round of comparisons the state-run library coordination offices that are charged with advising libraries and promoting their further development got together to form a project group. In different regions all over the country so-called “comparison rings” of libraries were created in which a total of some 70 libraries participated. The next step automatically had to strive for national coverage: as many libraries as possible – big ones and small ones – were to enter the comparison so that as wide a range as possible of libraries and their services could be represented.

In addition to the inter-library comparisons just described, there are other initiatives in Germany to measure performance in libraries, e.g., the German Library Statistics. Why, then, another performance measurement project?

From the different contexts described earlier a tried and tested reporting system has emerged that is necessary and makes a lot of sense for internal steering purposes. This, however, is not very suitable for outsiders,
by which I mean decision-makers in the administration and in local politics, i.e. people who take decisions on the budget, the staff, even the general importance of the library in the community. Numerous preliminary discussions with librarians, but also with local authority representatives, have shown this again and again. What is demanded is an easy-to-grasp portrayal of library performance.

What could an instrument look like that effectively presents library performance to the outside world? It has to be graphic, it has to be easy to understand for people who have not necessarily dealt very intensively with the subject of public libraries and who may not even be overly interested in doing so, and who, quite possibly, have never set foot in a library, at least not in the last few years.

These were the background conditions against which the library index project was initiated one year ago in cooperation with the German Library Association (DBV = Deutscher Bibliotheksverband).

The BIX system evaluates annual results. The project began with about 100 libraries and increased the number by nearly 60 percent in the second project year to 170. The libraries pay a contribution of DM 300, – towards the costs. To begin with, the project duration has been limited to 3 years. Yet, the objective is to continue the project over the long term with different partners – hence the contribution to the costs. The methodology was and still is developed together with INFAS (Institute for Applied Social Research). Last month it was already possible to publish the second annual evaluation.

Now, if you set yourself the objective of creating a graphic, easy-to-grasp representation of library performance it makes little sense to work with a comprehensive, highly sophisticated reporting system. It is obvious that to reach this objective you only need a few indicators or characteristic figures. This reduced set of figures should still be meaningful – the selection of the “right” indicators has therefore been a hotly discussed issue in all preliminary talks – and still is!

INFAS was asked to perform what is called a desk research analysis in order to place the decision for or against certain indicators on a sound basis. This means that the entire data material from the previous inter-library comparisons was analyzed and, with the help of statistical processes, certain correlation structures were identified. It has been discovered that there are indeed certain correlations between individual indicators, i.e. if indicator x is high then indicator y also tends to be high. In this way, a limited number of indicators could be filtered out that still possess a high level of validity. On the basis of these selected indicators, weighted according to their level of validity, an index system was then developed.

The top-level framework is formed from the four target dimensions: task fulfillment, customer focus, economics and staff focus. In other words, statements have to be made on the appointment of the library (e.g. buildings, employees, media), on the relationship between supply and demand (e.g. lending, turnover, opening hours), on expenditures and services (costs per visit), and on the development of the library team (e.g. rate of in-service training). Between 3 and 5 indicators are allocated to each of these four target dimensions and add up to a rank order for each dimension.

In the last step, all four results of the individual target dimensions taken together produce the overall score.

What successes has the BIX already seen?

At a very early point in time the decision was made to publish the performance data in the form of a so-called multi-dimensional ranking. The objective of this was clear from the start: if the publication of the project results is to form the basis for a discussion in the community a maximum level of attention will be attracted by such a ranking. Subsequently, this ranking has been very frequently and very critically discussed in the expert library world.

The libraries that participated on a voluntary basis had less of a problem with this. That is because they use the results for their PR campaigns, for their funding discussions in the community and of course, for their internal discussions. Perhaps you know Heidelberg as a romantic city with lots of historical buildings – but that’s not all: the public library of Heidelberg is the BIX “leader” of this year.

There are different stages of evaluation. The basic data from the libraries concerned are first put together to form the previously defined indicators. The individual indicators are weighted in line with their strength of correlation and their quality and transformed to a common calculation level. The so-called index figures can now be added up and form the ranking for the target dimension in question. The overall ranking is determined in the last step by adding up the index values. There are five size categories depending on the number of inhabitants of the participating cities.

In the meantime, it has been shown that these highly aggregated data can also provide pointers to internal change processes. Of course, you often need additional information – target profiles, statistics, and structural data – for a valid interpretation. The BIX results provide transparency and an indication of one’s own position: Where do I stand in comparison with others? What are the strengths of my library? Where can I improve my own offering? And: What can I learn from others?

The frequently asked question is what the participating libraries get out of facing such a public ranking that certainly involves opportunities, but naturally also risks. Every library has to make this decision for itself taking into consideration the local conditions. We are, of course, only at the beginning of our learning curve, as the results of the second project year having just
been published. Many libraries have used the results for their local PR work and have entered into a public discussion, for example in the meetings of their cultural affairs committees – as a result of which they have certainly not had a new building approved or their media budget doubled. As you know from your own experience these are processes that often take a lot of time and, after all, BIX is only one instrument among many. It is important to note that in many communities discussions have been triggered, particularly in those that did not do too well in the ranking. It has become very obvious that without resources – be it the media budget, personnel or buildings – customer-focused work is hardly possible. “Good things have their price!” Naturally, our colleagues in the libraries knew that before. Now they have evidence to prove this very clearly. For the libraries that do well in the ranking it is confirmation of the work they have done so far. Strictly speaking, no library is all good or all bad. Most of them have found a suitable starting point to pursue a library policy that promotes their own interests.

Another advantage is the offer of representative citizens’ survey within the framework of BIX at favorable conditions (made possible by a standard questionnaire and some time saving techniques). These are telephone interviews, are conducted by INFAS on request, and can provide interesting additional pointers to improvement potentials within the library.

Where is the BIX at the moment?

In the first project year the emphasis in the Bertelsmann Foundation work was on the development of the methodology in cooperation with INFAS. However, it lies in the nature of such projects that things change in the course of the project or that certain things do not work they way they were expected to. With a current project group of almost 170 libraries such necessary adjustments and updates unfortunately cannot be decided together with all libraries. This is why a steering group was established that would accompany the project in a consultative capacity. Members of this group are representatives of different size libraries, the German Library Association, the state-run library coordination offices, the local authorities and, of course, the Bertelsmann Foundation. Another work priority in the first year was the development of a concept for the publication of the project results.

This year we have recruited additional libraries to participate, and the equipment of libraries with Internet and computer workstations has been included in the BIX library index. At the moment, workshops are conducted with the participating libraries under the motto: “How do I use the BIX results?” The experience gathered in the first project year has shown that many libraries need support in the interpretation of the performance data and in the development of strategies and ideas for change. It has also been found that the exchange of experience and ideas among libraries themselves is at least equally important. A special discussion forum on the project homepage has recently been established to assist this exchange of information.

In addition to this discussion forum the new project homepage also features information on the project e.g., the calculation of the index, current developments or the chosen indicators. This information is designed to contribute to transparency and thus increase the acceptance of the project.

The current BIX results appear in the BIX Magazine. In addition to the tables containing the indicators and rankings of the individual libraries the magazine also carries articles on current topics. With the target group of decision-makers in libraries and local authorities in mind it is our objective to give the magazine as attractive a design as possible – so that it stimulates people to read it and projects an up-to-date image of a modern library.

Where is the BIX headed?

As a result of the voluntary participation of libraries the BIX system does not yet provide a representative picture of the German library landscape. As yet there is no balanced regional distribution, and too few of the very big and the very small libraries are taking part. With every new library that comes on board the BIX system gets that much closer to being truly representative.

What changes are in the pipeline? Since the BIX system evaluates annual data new libraries can decide to join every year. In the near future we want to include the use of electronic offers and we are intensively working on a model for the long-term continuation of the project when the sponsorship of the Bertelsmann Foundation runs out. We want to give more support to the networking of the libraries among each other and we want to move toward getting representative figures for the library system in Germany. To this end we need more libraries to participate in BIX.

Thus I know from my own experience – just like any library that tries to trigger things or get things moving – what it really means to push forward changes. There are many difficulties and reservations; there is hard work, and a need for strong nerves. Our experience is that it was and still is very important to have partners that support us in managing this project, like the German Libraries’ Association.

Additional information about BIX may be found at the Bertelsmann Foundation website, http://www.bertelsmann-stiftung.de/development.cfm?lan=en&nld=628.
Developing outcome-based indicators: Resource’s learning and access standard

Gina Lane
Council for Museums, Archives, and Libraries, UK

**Resource: the Council for Museums, Archives and Libraries** provides strategic guidance, advice and advocacy across the whole of Government on museum, archive and library matters. It is a non-departmental public body sponsored by the Department for Culture, Media and Sport (DCMS) in London. One of the strategic objects of Resource is to advise on best practice and the delivery of specific objectives. The purpose of indicators is to assess performance, monitor progress, and provide stakeholders with evidence about activities and services. Therefore, the use of, and need for, effective performance indicators that demonstrate the value and impact of our sectors, underlies one of Resource’s key objectives for the year 2001/02, which is to “demonstrate the value of the sector through the publication of statistics and other evidence for advocacy purposes.” Resource is a cross-sector organisation, and this paper therefore discusses museums and archives as well as libraries. Resource’s current work in this field is in developing a learning and access standard for museums archives and libraries. Resource attaches great importance to access and learning, and this is an area that, in terms of standards, has been relatively underdeveloped in the three domains, which have tended in the past to focus on measuring their own internal activities. This standard is the focus of this paper.

This paper could not have been prepared without the help and co-operation of my two colleagues on the steering group for the Resource Learning and Access Standard, Sue Wilkinson at Resource, and Anne Murch, whose many papers written to further the standard’s development I have freely plundered. Many thanks to both of them.

**Introduction**

Resource: the Council for Museums, Archives and Libraries provides strategic guidance, advice and advocacy across the whole of Government on museum, archive and library matters. It is a non-departmental public body sponsored by the Department for Culture, Media and Sport (DCMS) in London. It came into being in April 2000, inheriting staff and some functions from the Library and Information Commission (LIC) and the Museums & Galleries Commission (MGC). It operates independently from government. It has three strategic objectives:

- To provide strategic leadership and to promote change.
- To act as an authoritative advocate and champion for our sector.
- To advise on best practice and the delivery of specific objectives.

The first two of these require us to have both quantitative information about our domains and also qualitative information about the impact they have on people’s lives. The third requires us to set and monitor standards. Therefore, the use of, and need for, effective performance indicators that demonstrate the value and impact of our sectors, underlies one of Resource’s key objectives for the year 2001/02, which is to “demonstrate the value of the sector through the publication of statistics and other evidence for advocacy purposes.” (Resource, 2001/2)

In the manifesto (Resource, 2000) it is recognised that independence from government is particularly crucial in the advocacy role, and the statistics and performance measures used must therefore be independently verifiable and robust.

Resource is a cross-sectoral organisation and this paper therefore discusses museums and archives as well as libraries.

**Developing outcome based performance indicators**

The purpose of indicators is to assess performance, monitor progress, and provide stakeholders with evidence about activities and services. In the past, as we know, they have traditionally focused on things which can be counted up. Although these sorts of indicators provide much useful information their shortcoming is that they provide little indication of the impact services have on the lives of the people they are designed for and they do not effectively assess quality. Earlier work to remedy this was undertaken in the libraries sector by the LIC and the British Library Research and Innovation Centre, for example producing the report by François Matarasso, Learning Development. (Matarasso, 1998a) Details of the programme are still at present to be found on the LIC website (although this will be migrating to the Resource website in the near future).
Resource is now in discussion with the Audit Commission for England and Wales, the Local Government Association, the Office for National Statistics and cultural organisations such as the Arts Council of England, about better measures to demonstrate the value and impact of services. The Best Value Inspectorate, now nearing the end of its first full year of inspections, is moving towards looking at user outcomes rather than the more quantitative measures of cost, input and output which are currently being used. In 2000 the Audit Commission defined these as the:

Cost: Money spent to acquire the resources;
Input: Resources (staff, materials, premises) employed to provide the service;
Output: Service provided to the public, for example, in terms of tasks completed;
Outcome: Actual impact and value of the service delivery.

(Audit Commission, 2000)

There is general agreement amongst all the organisations we have discussed this with that:

• Outcomes are the best measure to use to evaluate the value of the service to the user and the impact it has on their quality of life;
• Outcomes demonstrate that the service is one that ought to be provided and whether or not the service is achieving what it ought to achieve for the user;
• They are notoriously difficult to develop. In all the discussions we have had, particularly around the Resource cross sectoral standards for learning and access (more of which later), there has been support for the use of outcomes, but varying degrees of success in identifying them.

The commonality of this goal of outcome based indicators became particularly apparent at the June 2001 meeting of the UK Local Government Association Cultural Services Network where a round up of research being undertaken by organisations represented at the meeting showed a move, for example by Sport England, to undertaking research projects to develop toolkits to measure the impact of their activities. In libraries, a particular area of interest has been assessing the impact of their ICT provision. For example, the Value and Impact of IT Access in Libraries project (VITAL) (Eve and Brophy, 2001), carried out at Manchester Metropolitan University, developed a methodology for assessing impact, which was tested in three UK public library authorities. The test results indicated positive impacts on a range of users, in all three localities. The project also produced a Methodologies Workbook, designed to help library organisations measure the impact of their IT services.

Another relevant project, Longitude (Library Networking Impact Toolkit for a User-Driven Environment) (http://www.earl.org.uk/longitude/longitude1.html), is currently being funded by Resource. EARL, the Consortium for Public Library Networking, is undertaking this project with a number of partners, including three public library authorities. Longitude aims to develop and test a toolkit of qualitative survey methodologies to help understand user needs and behaviour in the digital library environment. A key aspect of the project is its longitudinal approach, designed to find the best means of monitoring computer use over time. In addition, the toolkit’s cross-sectoral requirements, applicability, and transferability will be assessed through the participation of, and discussions with, representatives from archives and museums.

When the project findings are published later this year, they will represent a big step forward, in that impact evaluation has tended to concentrate on the immediate impact rather than use over time. Both Longitude and VITAL are also significant in that they consider core services which are provided, and used, all the time, rather than particular projects.

The learning and access standard

Resource’s current work in this field is in developing a learning and access standard for museums archives and libraries. Resource attaches great importance to access and learning, and this is an area that, in terms of standards, has been relatively underdeveloped in the three domains, which have tended in the past to focus on measuring their own internal activities. This standard is the focus of this paper.

Early in the development of the standard, a decision was taken to substitute “Learning” for “Education”, in order to embrace informal and lifelong as well as taught learning, and to include explicitly “access”, in recognition that while barriers to access in any form exist – physical, sensory, intellectual, cultural, attitudinal, social, skills-related, financial - learning is impeded.

Full details of the extensive consultation process Resource has undertaken are available in the framework paper which is available to view on our website at http://www.resource.gov.uk. (Resource, 2001) Some of the issues and common themes that emerged as a result of the consultation process include:

• Museums, archives and libraries welcomed the fact that they will be able to use a standard to measure, improve and be accountable for their performance as learning organisations;
• External recognition of this will position them squarely as providers of and contributors to learning, within possibly sceptical parent bodies (e.g., local authorities, where public libraries, museums
and record offices may not be placed within an Education or Lifelong learning department);

- A broad based and inclusive standard will better influence stakeholders, e.g., government departments, potential funders etc.;
- A user-focused standard will influence and encourage organisations that may hitherto have focused on collecting, storage and documentation rather than services to users.

The consultation also showed very decisively that a standard that focused on outcomes was also considered to be essential. A move away from quantitative, process driven indicators of input and output was felt to be timely. It also reflects thinking in UK local and central government as noted above, and, perhaps most notably, in the Best Value Inspection Service, a representative of which commented that our approach was “music to his ears”.

Is a learning standard based on outcomes achievable?

The following concerns have been raised during the consultation:

Learners or users will use a museum, library or archive with their own agendas and criteria of success. Existing survey work demonstrates that users will not always be conscious of their learning expectations or able to articulate them. Many will have no tangible sense of what they might hope to learn before an experience particularly when unstructured and informal, such as visiting an exhibition. This makes the task of identifying learning objectives and evaluating them very challenging.

Evaluation becomes more complex when longer-term learning outcomes are considered. For the individual these might include:

- Increased understanding or knowledge of a particular subject area or concept.
- Growing sense of identity as part of a group or community.
- Growth of self-esteem.
- Inspiration resulting in creativity.

Increased understanding of knowledge might be relatively straightforward to assess, by seeking feedback from users following a virtual or physical visit. It is far more difficult to apply measures that demonstrate the effect of a museum, library or archive experience in the remaining three points. This may only become apparent after some time. The specific impact of the museum, library or archive learning experience may be very subtle and difficult to define. Inevitably there is a danger that in attempting to define learning outcomes these become too narrow and simplistic, and focus on information or knowledge acquired.

A further issue is that most recent evaluation work has concentrated on measuring the impact of specific projects rather than assessing the learning impact of day-to-day activities in museums, libraries and archives (for example, the UK Libraries Change Lives award). (Matarasso, 1998b) One challenge in the development of a standard will be to identify outcomes and techniques to support the evaluation of learning in the broader organisational context.

To support the implementation of a learning standard a toolkit will be needed that will enable an organisation to assess broad learning outcomes for users and help to codify the anecdotal information that they gather into some kind of performance measure. The consultation exercise has identified the need for research to identify the types of questions or techniques that organisations can use to help them to gather this information consistently and reliably. This project is currently being commissioned by Resource, and will involve consultation with users and potential users as well as with professionals and relevant agencies and organisations. Support and training materials will also be produced to help services to use the toolkit.

Resource’s approach to identifying outcomes

Outcomes for the user having been identified early in the development of the standard, the consultation period independently stressed the need for outcomes that identified the value and impact of our services. The framework paper therefore looked additionally at outcomes for the community and for the organisation. To assist consultees with conceptualising what these might look like, the framework paper produced a few examples. These were provided only as examples and were not intended to be taken as precursors to the finished standard. A few people concentrated on these examples rather than the general direction we were taking, which although unfortunate did illustrate the difficulty of the concept. It was obviously easier to look at examples than to reflect on the broad approach.

To assist with the process a steering group has been set up to keep the project team on track and to provide independent intellectual assessment of the development of the standard. The group’s remit is to act as a think tank to develop the framework of the standard, to ensure that it represents the views and needs of museums, archives and libraries, and that it takes account of and adopts best practice within the sectors and from the wider cultural sector. To help achieve the latter, representatives from the Arts Council of England and the Reading Partnership (a library development agency which focuses on libraries’ work with adult readers, and supports library advocacy, research and
partnership development), have been invited to join the think tank, joining key players from representative bodies within museums, archives and libraries.

In July 2001 a 2-day residential workshop was held to develop the framework for the standard, identifying good practice principles with examples taken from delegates' experiences, and also looking at broad outcomes for the organisation (museums, libraries and archives) and learners and communities. A key question during the workshop sought to identify what good practice might actually look like. The results were many and varied, and with varying degrees of ease in identifying what the indicators might be that would provide evidence of the outcomes.

In the US the Institute for Museum of Library Services has also been working on evaluating the impact of services, using outcome based evaluation. (IMLS, 1999) Their work looks at the benefits of measuring outcomes as “benefits or changes for individuals or populations” and provides a model of how this might be achieved. They define learning outcomes as achievements or changes in the following:

- Skills – the ability to do something new (a specific task or activity) or a development of an existing skill, e.g., drawing a still life, tying a knot, using a keyboard/the Internet;
- Knowledge/understanding – the year of a battle, how Van Gogh painted, how tidal systems work, what to plant where in your garden, establishing a fact that you have set out to research;
- Behaviour – reading more, visiting museums more frequently, talking to your children, signing up for courses, having a discussion, decrease in truancy;
- Attitude/awareness/feeling – greater tolerance of cultural difference, enjoying museums, greater confidence, increase in self-esteem, starting to like modern art;
- Status – becoming a Friend, achieving a qualification, becoming a volunteer, leading a community project; and,
- Life condition – greater involvement in the community, improved health, greater involvement in learning.

This work is very useful and interesting, and will certainly be something the research project should look at. Resource would, however, like to go still further and look at outcomes – benefits or changes – for organisations as well as for individuals and communities. This will assist in providing objective evaluation of the value and impact of libraries, museums or archives.

A structure for the standard

The framework for the standard has developed and moved forward at each stage of the consultation. Resource had been considering whether to adopt a stepped approach to the standard with a three level structure, which would allow for the range and variety of types of organisation, which might wish to adopt the standard. This approach was however discarded at the residential workshop. Dissatisfaction with the levels centred around a:

- Fundamental unhappiness with the idea that small organisations who could not get beyond Level 1 might be made to feel inferior;
- Concern that having three distinct levels would produce a silo effect and make it impossible for organisations to have gain credit for having done part of all or any of them, without necessarily completing the whole of one level.

An alternative approach was put forward by delegates and developed during the workshop. This was an intensive two days of work for delegates, the steering group and the facilitators on two of the hottest days of the year. A conceptual diagram was drawn up to illustrate that the different elements of the framework were overlapping, with a menu system, which organisations might choose from to gain “credits” within the standard’s framework. The resulting interlocking framework, at present with the working title “Building a Learning Environment” attempts to describe the way in which Resource would like museums, archives and libraries to deliver learning, the type of evidence that would suggest they are doing this effectively, and gives some good practice examples. This will provide a basis for assessing both the quality of learning services and the learning outcomes for users and communities.

Appendix 1 gives the diagram, but the contents of the interlocking circles are:

- Identifying the external context for the organisation’s work, by aligning its mission, policies and strategies to reflect learning agendas
- Extending its relationship with users, by:
  - Identifying needs & opportunities
  - Maximising access
  - Involving users
  - Reaching out to new users
  - Creating welcoming spaces that inspire and support learning
  - Working creatively with partners to provide learning opportunities.
Many issues arose from the workshop, which will be taken into account in continuing to develop the framework:

- It should help to encourage progress and development. It needs to be a pragmatic tool rather than a set of hard performance indicators that measure quantity instead of helping to improve quality.
- It eventually needs to be both achievable and aspirational for both small and large organisations, and for museums, libraries and archives.
- It needs to be organic and flexible, changing and evolving to reflect the external context and new initiatives.
- It should acknowledge that providing a high quality learning experience depends as much on resources (highly qualified staff, money etc.) as on the values, attitudes and behaviours that reflect the organisation’s culture and its commitment to learning.
- It embraces the principle that learning organisations provide effective learning opportunities i.e.: if processes and provision are continuously reviewed and improved in consultation with partners and users, this will result in an improved learning experience for all.

At the time of writing, Resource is developing the framework by presenting an overview of each element:

1. To list possible outcomes, together with examples of indicators that show what services do, separated from, but closely linked to, samples of evidence or outcomes which show the impact museums, libraries and archives have on users; and,
2. Then to give some selected examples of good practice.

Appendix 2 gives an example of what this might look like. This framework we are creating will continue to use and value processes and outputs, but is designed to encourage people to think about the end result and impact of their activities. It must be emphasised that this framework is in the very early stages of development and so the example must be taken for what it is - a first stab.

How will the standard operate?

One of the groups at the workshop was asked to look at implementation of the learning standard. As with other aspects, this is still at an early stage but there were some general pointers from which the steering group can begin to develop a structure. The main areas the group examined were:

- Was a system of accreditation or inspection a better method?
- Should the standard be fixed or be designed to develop organically?
- Should it be issued as a publication or be primarily web based?
- How could it meet the needs of both large and small organisations/services?
- Should it be voluntary?

In considering the structure the delegates had in mind four key purposes: to improve the services offered to users; to improve the organisations’ own practices; to have a standard which could act as an advocacy tool; and which could act as a tool for levering resources. There was consensus that whatever indicators or evidence were required, this standard should in some way be linked to other standards, quality assurance schemes or performance measures so that evidence for those might be acceptable in this standard, and vice versa. This would help to prevent organisations having continually to measure and monitor slightly different things.

Delegates also felt that the standard could only be voluntary but that there should be strong incentives attached.

Conclusion

We are taking the new framework out to consultation around the country and in Scotland, Wales and Northern Ireland in the autumn. The next steps in developing the standard are to work on the structure and the operating system and to pilot from April 2002. We hope next year to be in a position to tell the conference whether that has been achieved and how the process has developed. In the meantime, I hope this paper and the description of how Resource is approaching the standard, and our focus on outcomes, has been useful. Although the process may seem long and drawn out, we remain convinced that only a rigorous and detailed approach is likely to achieve the goal of measuring outcomes.

Resource would like to invite further contributions to the debate. We would welcome hearing how colleagues have been approaching the use of outcome-based evidence, and particularly invite contributions from colleagues in other countries. Please contact either Sue Wilkinson or Gina Lane from Resource. E-mails: sue.wilkinson@resource.gov.uk or gina.lane@resource.gov.uk.
References


Appendix 1

Building a learning environment framework

Appendix 2

Identifying the external context for our work; aligning our mission, policies and strategies to reflect learning agendas.

Overview

This area explores the extent to which the museum/library/archive is outward looking, and influences, responds to and changes to reflect the broad context within which it works. This involves:

- Demonstrating awareness of national government agendas,
- Analysing community needs
- Basing learning programmes on these needs.

It’s also about demonstrating that learning is led from the top and embedded throughout the organisation, in its values, policies and strategies, and that staff and volunteers are equipped to deliver this strategy.
KEY OUTCOMES

OUTCOME 1

We support both national learning agendas and local priorities in our mission, plans, programmes and provision.

INDICATORS

• Our mission statement reflects learning agenda and incorporates broadest needs of the widest public
• Our plans are influenced by 360 degree consultation with stakeholders, users and staff
• Our committee/advisory groups are broadly representative of the learning interests of communities e.g., youth/schools, academic, minority ethnic groups, business, etc.
• Our forward plan, annual library plan etc prioritise learning objectives
• We have a learning and access policy exists and this is implemented
• Local social, political, and community factors shape and direct our learning needs analysis and resulting provision
• National agendas (e.g., Resource, DCMS, DfES, future trend surveys) are considered and integrated within our plans and policies as appropriate
• We are represented at senior level at local and national forums concerned with learning matters and are seen to influence these debates

EVIDENCE

• Users say they perceive the organisation as a place where they can learn and enjoy themselves
• The mission statement is publicly displayed so users and staff are familiar with this
• Staff have read the learning and access policy and can say how this affects the way they work
• Users, stakeholders and staff say they have been consulted and invited to contribute their ideas on learning and access
• Staff can identify specific local and national issues that have influenced the development of their policies and programmes on learning

GOOD PRACTICE EXAMPLES

• Tyne and Wear Museums Mission Statement:

  To help people determine their place in the world, and understand their identities, so enhancing their self-respect and their respect for others.

  We believe that:

  We make a **positive difference to people’s lives**.

  **We inspire and challenge people** to explore their world and open up new horizons.

  We are a **powerful educational and learning resource** for all the community, regardless of age, need or background.

  We act as an **agent of social and economic regeneration**.

  We are **fully accountable** to the people of the North East.
Information policy-based indicators to assess US federal websites: methods and issues

Charles R. McClure
Eppes Professor and Director of the Information Use Management and Policy Institute, School of Information Studies, Florida State University, USA

Assessment of government websites in terms of their compliance with information policies can be accomplished via a number of techniques and approaches. By and large, however, little such assessment is done and government agencies often have little knowledge of the information policies that may affect the operation of their website or the techniques to conduct such an assessment (McClure, Sprehe, and Eschenfelder, 2000). This situation exists for a number of reasons and because of a number of issues.

The purpose of this paper is to describe key issues related to government website assessment in terms of information policy compliance and extend the previous work by the author to propose possible solutions for dealing with these issues. This paper extends work that was completed on a study funded by three U.S. Federal agencies to develop performance measures and statistics to assess U.S. government websites (McClure, Sprehe, and Eschenfelder, 2000). That effort produced preliminary performance measures for Federal websites as well as an inventory of U.S. information policies that affect website development. Specific objectives of the study included:

• Describe the current best practices of selected Federal agencies’ techniques to assess their websites;
• Identify the range of Federal information policy (laws, regulations, guidelines) that affects agencies’ development and management of Federal websites; and
• Propose measures and indicators that can assess the degree to which Federal websites comply with existing Federal information policy.

Ultimately, the purpose of the study was to improve the overall quality and impact of Federal websites, develop practical evaluation techniques to conduct such assessments, and assist users’ access to and use of those Federal websites. The paper offers background information on key terms, discusses possible approaches for assessing websites in terms of information policy compliance, identifies selected issues that require attention in this assessment process, and concludes with a number of recommendations for how best to conduct policy-based assessments.

Background

This section of the paper offers brief background information regarding the significant growth in the number and scope of Federal websites and offers a discussion of key terms such as information policy, information policy instruments, and policy analysis. The paper does not provide a literature review of these or other topics related to Federal website assessment. A number of recent publications by the author on this general topic are available on his website at: http://slis-two.lis.fsu.edu/~cmclure/.

The growth of government agency websites in the United States is significant. The actual number of websites is not known. A recent directory of U.S. government websites identifies 4,500 unique agency websites (Notess, 2000). Slabodkin states there are over 3,000 websites in the U.S. Department of Defense alone. Browsing the various directories (Notess, 2000; Androit, 2000; Maxymuk, 2001; and Hernon, Shuler, and Dugan, 1999) presents users with a staggering wealth of information on virtually every topic known to mankind. Web-based directories such as the Federal Web Locator http://www.infoctr.edu/fwl/ can overwhelm the user with the scope, extent, quantity, and quality of information available from the U.S. Federal government.

As agencies have moved to take advantage of the web environment for public access to government information and the provision of a range of interactive services, so too has the information policy environment that affects these websites grown. Information policy is a term used to describe a set of interrelated principles, laws, guidelines, rules and regulations, directives, procedures, judgments, interpretations, and practices that guide the creation, management, access, and use of information. Information policy can be set at a national level, e.g., by the U.S. Federal government; by state and local governments, and by other agencies and institutions, e.g., private companies or agencies within governmental units. No single authority or corpus of statutory or administrative law describes and coordinates information policy in the United States or in other countries (McClure, 1999).

An information policy instrument is a written law, guideline, regulation, or other official statement that describes how information will be collected, managed, protected, accessed, disseminated, and used. In the
United States, Federal information policies are shaped by a number of key policy instruments, including:

- The Freedom of Information Act (5 USC 552), which outlines procedures by which individuals can request government information;
- The Privacy Act (5 USC 552a), which protects individuals from unwarranted government use of personal information and outlines procedures by which individuals can obtain information that the government may maintain about them;
- The U.S. Government Printing Office’s Depository Library Program (44 USC 19) and Federal printing laws (44 USC 17), which insure that a basic collection of government information is made available to the public through selected libraries;
- The Copyright Act (17 USC 101), which provides certain protections for authors of literary and other types of work and sets the stage for determining intellectual property rights.

Many other information policy instruments exist; these are offered as illustrative of a broad set of instruments that affect information management in general and website development and operations in particular.

One of the most significant policy instruments related to assessing Federal websites is the Government Performance Results Act (GPRA) of 1993 (PL.103-62) and follow-on laws and regulations. GPRA mandates the adoption of a strategic and annual planning process, which is tied to budget and authorization cycles and will be based on established and measurable performance indicators for every program. Although this act was made law prior to the expansion and wide public use of the Internet, particularly the Web, the mandate for the development of performance indicators tied to annual budgeting and strategic planning applies to services offered in an electronic environment.

Performance indicators for Federal websites consist of measures that permit an agency to demonstrate whether its websites are or are not meeting the performance goals set forth for the sites. The GPRA is a cornerstone for Federal program assessment and was referenced in the Bush Administration’s budget proposal for 2002-2003 as a basis for funding various programs including E-commerce and E-government. Compliance with GPRA by agencies is uneven at best; compliance with GPRA regarding agency websites is more limited.

Assessment of information policies and information policy instruments typically involves the use of various policy analysis techniques. What policy analysis is and the techniques by which it can (or should) be applied is quite contentious and beyond the scope of this paper (see Doty, 2001). Since policy analysis is often prescriptive - offering specific recommendations to deal with issues - its application in assessing U.S. websites offers a number of challenges. An overview of some of these techniques and how they can be applied to information policy analysis can be found in McClure, Bertot, and Moen (1999) and Majchrzak (1984).

Policy Instruments Affecting U.S. Websites

A first step in conducting an assessment of Federal websites in terms of their compliance with government information policy requires an identification of the information policy instruments that may affect the development and management of those websites. Techniques to accomplish this task include:

- Online searching of appropriate databases;
- Traditional searching of print based resources including Federal laws, policies, and court decisions; and
- Interviews and focus groups with government and non-government information policy experts.

Once a candidate list of possible policy instruments is developed, detailed analysis of those instruments regarding the degree to which they may affect websites can be done.

There are two types of policy instruments that may affect the development and management of Federal websites. The first type of policy instruments are general in nature, and although they may not mention networked resources and services or websites directly, the instrument has impacts and implications for website management. Examples of these include privacy and security policies. A second type of policy instrument is specific to networked and web-based services. Examples of these include the Government Paperwork Elimination Act (PL. 105-277) that prescribes how digital signatures will be implemented in electronic services delivery.

The McClure, Sprehe, and Eschenfelder study (2000) identified a broad range of Federal information policy instruments that direct agencies in designing, developing, and managing their websites in terms of: privacy, security, access by the handicapped, records management, intellectual property rights and copyright, public access, ongoing assessment programs, digital signatures, and more.

Figure 1 is an overview and summary of selected policy instruments that affect web development and management. Indeed, the extent to which Federal information policy affects the development, management, and evaluation of agency websites is significant. A detailed listing and discussion of these policy instruments is in Chapter 2 of the McClure, Sprehe, and Eschenfelder study and will not be repeated here.

Assessing Policy Instruments

A next basic step once a list of policy instruments has been identified that may affect web development and
management is to assess those instruments. This assessment can be based on a number of criteria. Figure 2 offers a preliminary set of criteria that can be used to compare and contrast these policy instruments.

Such an analysis can be done by assessing each policy instrument as it relates to website development and management – or completing the far right column on Figure 1. Typically this analysis requires a careful reading of the policy instrument and a determination of both direct and indirect applications of the policy to website development and management. In addition, the analysis can also be done in terms of:

- Comparison of government-wide policies against other government-wide policies;
- Comparison of agency-based policies against other policies within that agency;
- Comparison of agency-based policies against other agency policies; and
- Comparison of government-wide policies against other agency policies.

An example of such an analysis can be found in an assessment of the U.S. Department of Education websites (Hert, Eschenfelder, and McClure, 2000).
### Figure 1. Summary of Selected Federal Policies Pertaining to Agency Websites

<table>
<thead>
<tr>
<th>Statute, Presidential</th>
<th>Topic</th>
<th>Directive, or Other Document</th>
<th>Implementing Guidance</th>
<th>Website Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. General Government Policy</td>
<td>A. Performance</td>
<td>Government and Results and Results Act</td>
<td>OMB Circular A-11, Performance</td>
<td>Performance plans, Part II goals, and measures for agency programs</td>
</tr>
<tr>
<td></td>
<td>B. Customer Service</td>
<td>E.O. 12862, Setting Customer Service Standards</td>
<td>-</td>
<td>Identify customers, their needs, and set standards and benchmarks</td>
</tr>
<tr>
<td></td>
<td>C. Accessible Information Technology</td>
<td>Rehabilitation Act, section 508</td>
<td>Information technology</td>
<td>accessible to persons with disabilities</td>
</tr>
<tr>
<td></td>
<td>D. Electronic Government</td>
<td>Pres. Memo on Electronic Government</td>
<td>-</td>
<td>Standardized access to and ease of finding government information, plus privacy and security</td>
</tr>
<tr>
<td>II. Federal Information Policy</td>
<td>A. National Information Infrastructure</td>
<td>NII Agenda for Action</td>
<td>-</td>
<td>Make govt. information more easily and equitably accessible</td>
</tr>
<tr>
<td></td>
<td>B. Privacy and the NII</td>
<td>Principles for Providing and Using Personal Information</td>
<td>-</td>
<td>Guidelines to personal information users and providers</td>
</tr>
<tr>
<td></td>
<td>C. Copyright</td>
<td>Digital Millennium Copyright Act</td>
<td>-</td>
<td>Protecting copyright in electronic media</td>
</tr>
<tr>
<td></td>
<td>D. Rights of Access to Information</td>
<td>Freedom of Information Act</td>
<td>-</td>
<td>State FOIA procedures on websites</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electronic Freedom of Information Act</td>
<td>-</td>
<td>Establish electronic reading room on websites</td>
</tr>
<tr>
<td></td>
<td>Privacy Act</td>
<td>OMB Circular A-130, Appendix I</td>
<td>-</td>
<td>Handling of personal information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pres. Memo on Privacy and Personal Information in Federal Records</td>
<td>-</td>
<td>Review privacy policies and practices; update notices of systems of records</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M-99-18 on Privacy Policies on Federal Websites</td>
<td>-</td>
<td>Display privacy policies on websites</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M-00-13 on Privacy Policies and Data Collection on Federal Websites</td>
<td>-</td>
<td>Discouragement of and restrictions on use of “cookies” on websites; comply with COPPA</td>
</tr>
<tr>
<td></td>
<td>E. Paperwork Reduction Act</td>
<td>Paperwork Reduction Act</td>
<td>OMB Circular A-130</td>
<td>Framework for agency information management plan, including information dissemination</td>
</tr>
<tr>
<td></td>
<td>F. Clinger-Cohen Act</td>
<td>Information Technology Management Reform Act</td>
<td>E.O. 13011, Federal Information Technology</td>
<td>Websites to be interoperable and standardized across government</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proposed Revision of OMB Circular A-130, April 13, 2000</td>
<td>-</td>
<td>Mission based performance measures for information systems</td>
</tr>
</tbody>
</table>
At issue here is developing a coherent understanding of what the policy instruments require, how they are to be implemented, how they relate to website development and management, and what constitutes compliance. In fact, the U.S. policy instruments related to the development and management of web sites are complex and agency interpretation of what is, or is not, required regarding their website can have a number of interpretations.

Figure 2. Criteria for Assessing Information Policy Instruments

- **Ambiguity**
  - Can a reasonable outsider infer what the policy is (briefly summarize the policy)?
  - Can the policy be interpreted in multiple ways, and if so, how?
  - What is the extent or length of the policy?
  - Are key terms carefully defined?
  - Does the policy contain examples or application to minimize confusion?
  - Does the policy cover one topic or multiple topics and are there clear links between the various topics?

- **Contradictions**
  - Do policies appear in the same document, which contradict this particular policy?
  - Do policies appear in other government-wide documents, which contradict this particular policy?
  - Do policies appear in (internal) agency documents, which contradict this particular policy?
  - Are there judicial decisions that contradict this particular policy?

- **Duplication**
  - Does the same policy or wording appear more than once within the same document?
  - Does the same policy or wording appear in other government-wide or agency documents?

- **Gaps**
  - Are there areas where additional guidance in how to interpret or implement the policy is needed?
  - Should more detail or explanation or justification be provided in the policy?
  - Would specific examples clarify how to implement the policy?

- **Inconsistencies (gray areas that are not necessarily contradictions)**
  - Are different directions for implementation of policies provided within a given document?
  - Are different directions for implementation of policies provided across similar policy instruments?
  - Are responsibilities and roles of policymakers the same for similar policies across different policy instruments?

- **Enforcement**
  - Are there explicit statements as to how the policy will be enforced?
  - Are there explicit statements as to who, or which agency, will have oversight for agency compliance?
  - Are penalties and consequences for non-compliance made explicit?
• Modifications and Updates
  – Is there an explicit process for collecting user feedback (users both within and outside the agency)?
  – Are details provided on the process by which the policy can be modified, updated, rescinded, etc.?
  – Is there a process that insures regular and ongoing review of the policies given the passage of time and the likelihood that other similar policies have been passed or approved?

These criteria offer a beginning sense of the types of questions to ask and the analysis criteria that can be employed in assessing the various policy instruments as they relate to websites.

Determining Compliance

Next, the policy analyst determines the degree to which the agency has or has not complied with the policy instruments. A number of techniques can be employed to make such a determination:

• **Analysis of Website.** In this approach, the policy analysis determines the degree to which the website itself is in compliance with policy instruments. For example, is there a privacy statement (as required by law) on the homepage? Does the website use cookies? Depending on the nature of the assessment a list of criteria or factors can be developed and the policy analyst can look for physical evidence on the website to indicate that these criteria are being met.

• **Analysis of Agency Guidelines and Policies.** This approach requires the policy analyst to do a “Side By Side” analysis of agency guidelines and policy related to their website against the government-wide policy instruments (side by side analysis techniques discussed in McClure, Bertot, and Moen, 1999). For example, are there internal documents at the agency that describe how the website is evaluated and the performance measures in use for the website as per requirements of GPRA?

• **Interviews and Focus Groups.** Especially useful are conducting a number of interviews, focus groups, and/or discussion sessions with key informants in the agency. Discussion questions can probe the degree to which they are knowledgeable about various policy instruments that affect their website; how they have implemented those policies; and the degree they think the agency is in compliance with the government-wide policy instruments.

• **Analysis of Management Structure.** To what degree does the agency have an organizational and management structure that plans and evaluates the website (in general) and considers compliance with existing Federal policies? Such a structure is essential to coordinate such assessments and to insure that there is assigned responsibility to determine the degree of compliance.

• **External Expert.** Another approach to employ is to have an external expert (i.e., someone from a policy-making unit of Congress or a policy-enforcing unit from the Executive branch review the website and/or interview key informants at the agency). Oftentimes, the people who wrote the policies or who have to enforce the policies are best qualified to assess the degree to which the agency is in compliance with the policy instruments.

These techniques are not intended to be a comprehensive listing of possible approaches for assessing the degree to which an agency is compliance with particular information policy instruments. Other traditional evaluation approaches, e.g., surveys can also be used (Rossi, Freeman, and Lipsey, 1999).

Basically, however, the policy analyst asks, “To what degree is the agency in compliance with specific aspects of appropriate information policy instruments?” Given the expanse of policy instruments that can be considered, usually a checklist that is most appropriate for a particular agency can be employed. Figure 3 is an example of such a checklist.
### Figure 3. Checklist of Policy Conditions To Assess Federal Agency Websites

<table>
<thead>
<tr>
<th>Statute/Policy</th>
<th>Checklist Question</th>
</tr>
</thead>
</table>
| 1. Privacy     | A. Does the website contain a privacy notice that complies with the OMB guidance and model language for federal websites?  
                 B. Does the website avoid the use of "cookies" or observe OMB-stipulated restrictions?  
                 C. Does the website comply with the Children's Online Privacy Protection Act, particularly with regard to collecting personal information from children? (Same as 9-B below) |
| 2. Freedom of Information Act | A. Conventional FOIA: Does the website contain clear procedures for requesting agency records under FOIA?  
                                    B. Electronic FOIA: Does the website contain an Electronic FOIA Reading Room? |
| 3. Copyright   | A. Does the website management include provisions to ensure that copyrighted materials are not posted without permission from copyright holders?  
                                    B. Reuse Restrictions: Can the site content be freely reused without restriction? |
| 4. Accessibility| Does the website make provision for accessibility for persons with disabilities? |
| 5. Security    | Does the website management include adequate provisions for protecting the security of agency information systems? |
| 6. Paperwork Reduction Act | Do information collections undertaken via the website have appropriate OMB clearances?  
                                   Does the website comply with provisions for the Government Information Locator Service? |
| 7. Government Paperwork Elimination Act | A. Does the website permit and encourage electronic information collection?  
                                           B. Does the website permit use of digital signatures? |
| 8. Federal Records Act | Does the website management include adequate provision for identifying website records and transferring records to agency record keeping systems? |
| 9. Access for Children | A. Does the website comply with the President's April 1997 guidance on expanding Internet access for children, parents, and teachers?  
                             B. Does the website comply with the Children's Online Privacy Protection Act, particularly with regard to collecting personal information from children? (Same as 1-C above) |
Selected Issues

The above discussion of conducting an assessment of the degree to which government websites are in compliance with information policies is, at best, only a summary. Detailed descriptions of methods, techniques, data collection instruments, etc. can be found in Hert, Eischenfelder, and McClure (2000) and in McClure, Sprehe, and Eischenfelder (2000). Given the approach outlined above, this section describes a number of issues yet to be resolved in conducting this type of assessment.

DETERMINING SPECIFIC LEGISLATIVE OR EXECUTIVE INTENT

The original legislative or executive intent of a particular policy instrument may be problematic to determine. Often times, the intent of the Congress versus that of the Administration may be different or even at odds. Determination of original intent may require the review of Congressional committee reports and hearings or position papers and other documents from the Administration that were used to shape the policy instrument. Discussion with Congressional staff who had responsibility for the development of the legislation can also be useful.

INTERPRETATION OF POLICY INSTRUMENTS

Related to determining Congressional or Administrative intent is the difficulty of interpreting what, exactly, the law means in terms of application. For example, reasonable people can disagree on the extent and level of evaluation and performance assessment required under GPRA. How an agency interprets the mandate to have performance measures for its website versus how a Congressional oversight committee interprets “performance measures” may be quite different. In some cases, for example the Freedom of Information Act, final interpretation and how a law is to be applied results only after a decision from the courts.

DEGREE TO WHICH AN AGENCY IS IN COMPLIANCE WITH A POLICY INSTRUMENT

While the checklist suggested in Figure 3 is a useful beginning point to determine compliance, it is only that - a beginning point. In fact, these questions cannot usually be answered by “yes” or “no” as the figure suggests. The typical answer is that the website has some level or degree of compliance with a particular policy. For example, the website may have a privacy statement on the homepage but it only partially meets the guidelines from the Office of Management and Budget. Thus, determining the degree to which a website meets policies can be problematic. It can be especially problematic when different people within the same agency have different views on the degree to which that policy is, in fact, being met.

AGENCY RESOURCES TO IMPLEMENT POLICY INSTRUMENTS

The degree to which agencies have the resources, staff, technical support, and time to implement the policies that affect website development and management is also a key issue. In previous studies conducted, web managers knew they were not in compliance with a particular policy but had no resources to implement the policy. Agency managers often refer to such policies as “unfunded mandates” as they were told to manage their websites a certain way but were not given additional resources to do so.

A recent example of this issue is implementing provisions of the Rehabilitation Act as amended in 1998 (P.L. 105-220 Section 508). This law requires that Federal agencies’ electronic and information technology be accessible to people with disabilities, including employees and members of the public. After numerous delays in implementing the policy due to significant costs, the law is to be in effect as of June 2001. No additional resources were budgeted to agencies to comply with the law and there are still numerous problems for agencies to be in compliance with the law (Matthews, 2001).

MULTIPLE WEB SITES WITHIN THE SAME AGENCY

The U.S. Department of Education, similar to numerous other Departments, has literally hundreds of websites throughout various agencies and offices in the Department. The extent to which one website is in compliance with Federal policy can vary significantly from another website within the same department. Oftentimes, there is limited coordination and contradictory management of the websites within a department or agency. Thus, compliance by a particular website within a department of a particular policy instrument does not insure that other units of the department also are in compliance.

IMPORTANCE OF ASSESSMENT PROCESS

Developing and implementing the process for policy assessment and compliance (including agreement on which indicators or criteria to use) may be more important than the actual results of the assessment. Lakos (1999) notes the importance of a “culture of evaluation” that needs to be established in an organization prior to successful and ongoing assessment. Developing a process for assessing compliance with information policy related to websites and obtaining a buy-in from staff to participate in that process is a critical success factor for such assessment as outlined in this paper.

FLEXIBILITY AND IMPORTANCE OF MULT-METHOD APPROACHES

The methods and data collection techniques outlined in this paper suggest the importance of multi-method
strategies. The experience of this investigator is that some methods work best in some governmental organizational settings and others do not. On one hand the policy analyst needs to employ an “If….Then…. “ approach for method and data collection. If the agency has minimal knowledge of information policies affecting websites, then the analyst may need to first inform and educate the agency staff about the policies and why they are important.

Further, the policy analyst needs to be “fleet-footed” in the selection and use of specific methods and data collection. If one approach (e.g., staff surveys) is not successful then perhaps an analysis of agency documents, reports, guidelines, and other policies may be successful. In the selection of method and data collection techniques careful thought must be given to the level of effort it will take to obtain the data versus the usefulness of the data received. Finally, we have found that methods and data collection that would seem to work in all agencies simply do not.

**GOOD ENOUGH DATA**

It is unclear if traditional quality of data concerns with reliability, validity, usability, and generalizability are appropriate when utilizing naturalistic data collection and analysis approaches - “good enough” data may replace “high quality” data for purposes of decision making regarding website information policy compliance. For most agencies trying to comply with a host of information policy requirements, they need prescriptive advice for how best to move toward more or better compliance. Website managers have little patience with academics who want in-depth analysis of data as opposed to practical recommendations for how to solve a particular problem.

**Improving Policy-Based Assessments**

Preliminary findings from work done to date suggest that assessment techniques, measures, and indicators can be developed that assess the degree to which Federal agencies are in compliance with information policy laws, regulations, and guidelines that affect the development and management of those websites. While there certainly are a number of issues to address and resolve, techniques for conducting such assessments are possible.

There is less confidence that there is the interest, knowledge, skills, and motivation at the government agency level to engage in such assessments. As suggested above, agency officials have numerous demands on their time and resources. The extent to which they can commit those resources to evaluating compliance with information policies is problematic at best. Past experience from this investigator suggests that the best motivator for agency compliance with information policy is litigation against the agency or the threat of litigation.

Further, the study team believes that the methods employed and the indicators under development can be utilized for assessing policy compliance for other governmental entities - especially at the state and local governmental levels. Remaining to be explored is the degree to which the techniques outlined here can be applied successfully to other countries.

Ultimately, the policy analyst must use very practical and reality-based approaches for conducting policy-based assessments. These include:

- Excellent working knowledge of the information policy instruments and implications of those instruments for website development and management;
- Having fewer measures and statistics that are most useful to the agency as opposed to a large collection of statistics and measures which are unclear and very time-consuming to produce;
- Efficient data collection methods that do not require significant time on the part of agency personnel;
- Straight-forward data analysis that does not include complicated statistical computations; and
- Short, concise reporting with specific, practical, and do-able recommendations that are easily understood by agency staff.

Methods and measures for assessing agency compliance with information policy are only in their infancy. A significant amount of work is still needed in this evaluation area, but work is progressing. Indeed, better assessment techniques and more useful measures are essential if U.S. and other governmental organizations are to provide better websites that comply with existing laws and regulations.

**References**


Swiss librarians have been grumbling about ‘their’ statistics forever. The national library statistics publication, *Schweizerische Bibliotheken: Statistische Übersichten*, is published annually by the Federal Office for Statistics and contains primary data of 47 libraries. On the one hand they go on about how the set of data published each year is too small and not defined clearly and unambiguously enough and that not enough libraries can participate; on the other hand they complain about the time-consuming process of collecting data.

This paper outlines a benchmarking project that was initiated by a group of librarians who tried to overcome this rather vague discontent. We were looking for a means to compare ourselves with each other, to introduce a ‘best practice’ model and for an instrument for evaluation and controlling. After a very brief introduction to Switzerland and its libraries, how the benchmarking project came about, its first results, its main difficulties, and the perspectives of the project will be presented.

The author is indebted to colleagues from the benchmarking group. Without their work, benchmarking would still only be a daydream. The benchmarking group consists of Dr. Hermann Romer, Deputy Town Librarian of the Town Library Winterthur and coordinator and motor of our group, Dr. Christine Holliger and Peter Probst of the Zentralbibliothek Solothurn, Eliane Latzel of the Kantonsbibliothek Uri, Dr. Gerhard Matter of the Kantonsbibliothek Baselland, and the author of this article, Ulrich Niederer.

**Introduction**

*Basics about Switzerland…*

Switzerland, set in the middle of Western Europe, is surrounded by five countries representing three major languages: Italy, France, and Germany, Austria and the Fürstentum Lichtenstein. Switzerland itself has four national languages: German (spoken by roughly 65% of the Swiss population), French (ca. 25%), Italian (9%), and Romansche (1%).

How big, then, is Switzerland really? Its surface is 41,285 km² or 15,940 sq mi, half of that surface being inhabitable. 7.1 million people live in Switzerland. By way of comparison: US New Jersey has a surface of 7,419 sq mi and 8 million inhabitants, or the German Bundesland Niedersachsen, Lower Saxony, has 18,384 sq mi and 7.8 million inhabitants.

… and about its libraries

There are four types of libraries open to the public. First, there is the Swiss National Library (SNL). One of a kind, it could be described as a special library in that it collects exclusively Helvetica (i.e. materials in any form published in Switzerland or by Swiss authors or dealing with Switzerland).

Second, there are the university libraries of the 12 universities. They all entertain more or less closely knit networks between the central university library, department and faculty libraries, and quite often also other special libraries. There are also two major cooperative networks, which include all university libraries (the ‘Réseau Romand’, RERO, in the French speaking part, and the IDS, the ‘Informationsverbund Deutschschweiz’ in the German speaking part).

Third, there are the public libraries. They come of course in all sizes, from large metropolitan networks in Zurich, Geneva, Basel and Berne, to small, one person community libraries, and they cater for a wide public interested in almost everything, though not on an academic level. Perhaps their most distinctive feature is that they usually do not keep or archive what they buy.
Fourth, there are the “Studien- und Bildungsbibliotheken” which could be translated to “libraries for general education and culture”. These libraries are somewhere between university libraries and public libraries, and their customers form a wide and unspecified group whose information needs are ‘more academic’, go beyond that which could be found at a large public library, but ‘not academic’ in the sense that they do not need scientific literature or information on a research level. Usually, these libraries archive at least part of their collections, which is why they often have substantial holdings and perhaps also special collections departments.

Now, to complicate things, there is the concept of “cantonal libraries”, libraries that preserve the cultural heritage of a canton and collect all material published about the canton, published within the canton, or published by its citizens. This is a function, not a type! Though it is mostly libraries for general education and culture that have this function, it could also be assigned to a university library or a public library. University libraries, like the University Library of Basle, or the Bibliothèque Cantonale et Universitaire de Lausanne, have taken over that function and thus have special regional collections. Then again, there are public libraries, like the Cantonal Library of Schwyz, or the Bibliothèque Cantonale Jurassienne, which have fairly extensive special collections with manuscript and regional holdings.

This differentiation might seem like a lot of definitional tightrope walking. The combination of function and type has been practiced for so long now that it hardly raises discussions any more. On the contrary, it is seen as an important advantage – after all, if you can offer dual services, you have one library where otherwise you would have to have two. What is more, a university library that is open to the general public acts as a natural interface between worlds which universities want to link rather desperately elsewhere. It is thus a potentially powerful PR agent for the university and the library itself! In our context, however, that combination of function and type has two important consequences, which this differentiation might help to clarify.

1. Quite often, libraries do not represent a pure type, but perform dual services: University libraries are open to a general public, libraries for general education and culture are a combination of public and ‘research’ library, and public libraries have more archived holdings than they would usually have. They therefore cater for a fairly heterogeneous public.

2. This makes a lot of sense as far a library politics go, especially in a small country such as Switzerland. But it is responsible for a major problem for our benchmarking project! Usually, if you compare university and public libraries, you compare apples and pears – but here, all of a sudden, your apple has a pear-like bottom…

I shall come back to these difficulties after a brief outline of our project.

The benchmarking project: aims and first results

It was the Libraries for General Education and Culture Group, which decided to do something about the discontent with the existing national library statistics. Today they are collected and published by the Federal Office of Statistics, they give only primary data, which are purely input-oriented, they contain no indicators, and they do not allow for comparisons between targets and balances.

Another major driving factor to start the project was the change to New Public Management, which has taken or is still taking place in many city and cantonal administrations and in the federal administration, too. This means, among many other things, a switch from input to output and outcome oriented controlling and a need for new, meaningful figures and reporting frameworks.

The task group that was set up consisted of six members, acknowledged in the abstract to this article, and the following aims were defined:

The group should propose a benchmarking framework that allows to

- Compare libraries;
- Thus evaluate effectiveness and efficiency of their services and of their workflow processes;
- Develop an effective controlling instrument; and,
- Define a reporting framework usable in npm contexts.

It should as well

- Remain open to include other types of libraries; and,
- Thus help bring about a change in the national library statistics.

And, need I mention, the framework to be suggested should be a very pragmatic, easy-to-use instrument (remember Charles McClure’s “brutal world out there”?). (McClure, 2000)

Phase 1 of our project started in January 1999. Its most important goal was to establish a set of data and precise definitions and to elaborate the indicators. We soon decided not to start from scratch but to adopt the framework of the “Betriebsvergleich”, the inter-library comparison project for public libraries which the Bertelsmann Foundation started in the mid-nineties and which led to the BIX, the library index that Petra Klug presented at this conference. (Prohl and Windau, 1997) The Bertelsmann Foundation kindly gave their
In elaborating our set of data, we tried to remain as close as possible to the adopted framework while taking into account various Swiss specifics, such as the facts that most libraries for general education and culture have more or less extensive special holdings, that the public for our libraries is very difficult to define strictly, etc. But we wanted to remain close to the Bertelsmann framework to see whether we could also use the BIX and how that would compare to the German results.

Our phase 1 came to a close in June 2000 when we presented our first results at a meeting of the Libraries for General Education and Culture Group: a data framework, a handbook and a first, still tentative test of the data done with the task group members’ libraries. What were the data we suggested?

There is a set of 87 primary data in 7 groups:

1. local demographics (how many potential customers?)
2. customers (how many active customers? how many new customers? how may visitors – i.e. people coming to the library without getting a card – to the library?)
3. staff (how many FTEs? how many staff hours per year?)
4. access (opening hours per year? how much space for the public? how long till the new media are ready?)
5. finances (gross costs? income? sponsoring?)
6. holdings (size? growth? how much in open access? how much weeding?)
7. services (circulation figures? guided tours? events?).

These primary data allow for 41 indicators in 4 groups: achievement of mission, customer focus, economics, and staff focus. Examples for the first group, achievement of mission, would be

- Holdings per capita of population you want to reach (how rich are your holdings in relation to the population of your service area?);
- % of new media to all holdings (how up-to-date are your holdings?);
- Staff hours per capita of population; and,
- Public area surface in your library per capita of population (how is your infrastructure?).

Indicators for the second group, customer focus, comprise

- Active users per capita of population (what ratio is there between active and potential users?);
- Circulation per capita of population (how well accepted is your collection?); and,
- Circulation compared to holdings.

This last figure is one of the very early standards for public libraries, and it has long been one of the most important controlling figures: if the circulation figure is four to five times as high as the complete holdings, your library does, over all, well. If it is lower, then you should look at your holdings: perhaps they are just too large for the population you serve, but probably they are not quite what that population would like. In most of these cases, they are too old and/or not attractive enough (e.g., not enough weeding is done). If it is higher, your holdings are overused, and you will have too few items on your shelves at any given time – you should start a campaign for more acquisition money!

Of course this indicator does not work properly if your holdings comprise a large and growing archival part because you collect and keep part or all of the acquired books. And, comparisons between libraries that keep media for good and libraries that don’t are not really working.

Before continuing to discuss the difficult points, let’s have a look at the other two groups of indicators. The third, economics, has, among others:

- Financial resources;
- Total costs per capita of population, per visitor, per active user;
- Media costs per capita of population; and,
- Staff resources (circulation per staff hour, visitors per staff hours).

Finally, the fourth group, staff focus, centers really on personnel administration:

- Hours of absence (sick leave etc.) Per total staff hours;
- Hours of further education per total staff hours; and,
- Hours of meetings per total staff hours.

When we did the first tests with the framework within our group, we quickly discovered that there were a few rather stubborn difficulties. We included some very diverse libraries – even among the original group of five, there were strong differences that influenced the outcome considerably: e.g. ‘pure’ public libraries vs. libraries that have significant archival holdings. When we compare indicators like ‘circulation compared to holdings’, or ‘total costs per capita of population’, the figures are not on the same level at all! The solution to that difficulty, however, seems to be
fairly easy as soon as the number of participating libraries grows: sectorize the libraries, organize them in groups that contain the libraries that are comparable.

Another difficult point was the indicator ‘staff hours per hour of service to the public’ - is it good to have a high or a low figure? Among libraries of the same type there was a difference between 5 and 12 hours. What does ‘best practice’ mean here? We do not know yet.

These difficulties have to do with the interpretation of the results. Another kind of difficulty has to do with the definition of primary data, one in particular: the population in your service area. This is easily the single most difficult factor. It is, however, a pivotal figure - it is at the core of all comparisons of what you actually do against your claim. To name but a few: How much does a library spend on media per capita of the population served? Or: how many media does a library have per capita of population? And, of course: how many of the whole population are active customers?

It is a very difficult figure to define, especially in our mixed type and function environment: How do you define the service area of a small town library which caters for its town but also for a few communities near that town? What do you do in a situation where the periphery of a large canton is closer to the center (or at least the next bigger town library) of another canton? Or, how can you define that figure for a university library that is also a cantonal library - but in a really very small canton (14 sq mi!), and you know that a significant number of users come from at least two more cantons... What is more: the nearest cantonal library certainly has a conflicting service area! (It is interesting to note that the Bertelsmann BIX project has encountered the same difficulty, as is explained in the latest publication on BIX). (Klug, 2001) In our case, we will try out various definitions during phase 2, among others the definition for several agglomerations as given by the Federal Office for Statistics to find out what will work best.

Phase 2 of our project started in June 2000 after we presented the results to the Libraries for General Education and Culture Group. The Group approved of our findings and of the suggestion to go on with a larger test group. Thus the second test, now under way, is run with 15 participants, and is done for the years 1999 and 2000. The overall aim here is fine-tuning the set of primary data. This phase should come to an end in November 2001, when a meeting of the Group will have to decide whether to carry over the project into a regular and continuous benchmarking process. If so, it would be of paramount importance to have a professional infrastructure, and to have help with the evaluation procedures for the result as a whole, but also on various aspects of the results. That could be a research and development project for our library and information science schools. And we will of course go on to develop the framework: in the next version, we will include data and indicators for the usage of the digital library.

We will also make sure that our project has due influence on the reform of the national library statistics. In fact, one member of the statistics task group the Swiss Libraries and Librarians Association set up recently belongs to our benchmarking group. This guarantees networking at close range!

Above all, it should bring about less grumbling about library statistics, more interest, and perhaps a certain pleasure or at least a lively curiosity in comparing. Or, as the French saying has it: “l’appétit vient en mangeant” – appetite comes with eating – in this case with comparing!

References


Developing performance measurement and quality evaluation in Estonian research libraries: Survey of current situation

Anu Nuut
Library Science and Development Department, National Library of Estonia

Aira Lepik
Department of Information Studies, Tallinn Pedagogical University, Estonia

Toomas Liivamägi
Tartu University Library, Estonia

Abstract
The importance of economy, efficiency and effectiveness of library performance set us new goals in the library management and decision-making processes. Performance measurement and quality appraisal are important and useful for libraries of every type. Library performance evaluation is a political process, because it includes allocation of resources. Effectiveness, efficiency and economics have to be considered in library strategic planning, especially financial and policy planning.

Over the years there have been several studies on performance measurement, mostly involving academic libraries. This paper gives an overview of some recent surveys and of the Estonian Science Foundation’s project Performance Measurement and Evaluation of Research Libraries in Estonia. Finance for scientific research is allocated in the form of grants from the Estonian Science Foundation.


Introduction

Concepts and Theoretical Background
We are living in a changing environment. Organisational change involves large areas of activity including mission statements and goals, the role of the library in the information society, structure of the organisation, use of information technology, culture of the organisation, qualification of librarians and finance.

Performance measurement in libraries supports the management process and involves evaluation. The need for better management information and decision support techniques within libraries has long been recognised and librarians require information relating to the provision of information services to help them understand the success of individual operations as well as their impact on the organisational environment and its development (Cullen, 1998).

Because every library has specific objectives, goals and responsibilities there is need to develop specific performance indicators for every library type, to adequately reflect their performance quality, quantity and effectiveness.

Performance evaluation is a political process, because it includes allocation of resources. Allocation of resources requires judgement about what is important and setting priorities for spending financial resources (Van House, 1995).

Library development and effectiveness depend on public support, national economic, cultural and information policies, valid legislation and adequate finance. The status of a library in the state information system can be enhanced by its skill in evaluating its activities, measuring its performance and effective use of benchmarking. Effective library networks are firmly rooted in meeting users needs. That means, in planning library activities and developing library and information policies the following concepts have to be considered – effectiveness, efficiency and economics (Ramsdale, 1997).

These concepts have become the basic concepts of organisational development in time of change. It is important to analyse the integration of library services and goals into a social development framework while planning the library’s activities and to assess performance within a framework of feasible targets (Nuut, 1999a).

Library performance measurement and assessment are a part of the library management process, and information necessary for measurement (for instance, library statistics) is management information. The results of the evaluation process should form the basis of library network and library system development.

The planning of library activities, drawing up a library development plan, developing library and information policies cover a whole complex of management information, including financial planning and a rational distribution and use of income and expenditure. The results of analysis and evaluation form the basis for developing informational infrastructure, avoid redundant duplication of activities and support rational use.
of resources whilst at the same time meeting the needs of customers. This principle applies at the national level. It is especially important for East European countries, which have regained their independence and where the financial framework for libraries is not yet fixed and the state budget is lower and the financial possibilities much smaller than in the EU. (Sumasion, 2001)

Library network/system in Estonia

Libraries in Estonia come under different ministries and other authorities. Changes in the library system have taken place mainly in connection with the transformation of the economic structure, the changing territorial and administrative situation and a result of optimising library services. It is broadly true that there have been no unjustified library closures caused only by lack of funds. A legal framework for libraries exists similar to the general practice of library legislation in the democratic world. The Law of Public Libraries regulates activities and functions of public libraries. The National Library is regulated by the National Library Law and academic libraries follow university legislation. The Estonian libraries network is co-ordinated by the Ministry of Culture and Ministry of Education (Valm, 2000).

The network of Estonian libraries consists of 5 main levels: research libraries (national library, universal libraries, university libraries, special research libraries); libraries of other higher institutions (libraries of a private universities, libraries of a state nonuniversity higher educational institutions, library of a private nonuniversity higher educational institutions); special libraries (government libraries, health service/medical libraries, libraries of a professional or learned institutions and associations, industrial or commercial libraries, libraries of a cultural institutions, other special libraries); public libraries (central libraries, municipal libraries, children libraries, community libraries, rural libraries, other public libraries); school libraries (elementary school libraries, basic school libraries, secondary high school libraries, vocational school libraries, evening school libraries and hobby school libraries) (Appendix 1).

The total number of Estonian Libraries is 1,220. Among them 585 are public libraries, 542 school libraries and 93 research and special libraries. They employ 3,159 librarians, 1,180 in research and special libraries, 1,300 in public libraries and 679 in school libraries. Summarised reports of Estonian libraries statistics of all library types are issued every year in paper form (from the year 1994) and from the year 2001 published electronically too on the homepage of the National Library of Estonia. (Eesti raamatukogud, 2001)

National, academic, research and special libraries are an indispensable resource of science, research and development for Estonian scientists, students, specialists of various fields, organisations, institutions, enterprises and the whole academic and intellectual community of the country. The creation of the suitable research library network started at the beginning of the 1990, when as a result of optimising services some special and university libraries were merged.

There are 13 research libraries in Estonia - 1 National Library; 2 Universal libraries, 6 University libraries and 4 special research libraries. Eleven of them are central research libraries. The national library information system that involves mostly special, academic and research libraries is an inseparable part of the Estonian information infrastructure. The existing system enables to compile central bibliographic catalogues and make information resources accessible to every user. In order to co-ordinate acquisition of central research libraries, the Decree of the Minister of Culture and Education in 1995 specified their subject areas of acquisition. Today the basic principles of the financing of research libraries are being worked out, in particular for acquisition. There is now a law to regulate the work of all research libraries. A little problematic had been the financing of central research libraries because lack of finance prevents libraries acquiring all they need in their areas of specialisation. The distribution of the financial resources for acquisition between research libraries is under review, which involves discussing the use of acquisition sums allocated from the state budget (Nuut, 2000) with a view to co-ordinating the acquisition of scientific literature in the light of need. The budget for research institutes has decreased, increasing the importance of research libraries. There is a need to define target financing from the state budget to purchase and acquire scientific information.

In the course of reforming Estonian science in 1997, the Estonian Academy of Sciences, which had been an association of institutions, was reorganised into a personal academy, and its former institutes and research institutions were merged with universities. Financing two different systems of research institutions is too expensive for a small state. Now there is one joint system of universities for higher education and scientific research. The rather complicated reform has become effective and the majority of research institutions continue their work with universities. Universities also draw together the users of research libraries. In Estonia, financing for scientific research is allocated in the form of grants from the Estonian Science Foundation according to concrete subjects and applications.

In April 2001 the Organisation of Research and Development Act was passed, which regulates activities of research and archive libraries.

Performance measurement and quality evaluation studies in Estonia

Over the years there have been several projects on performance measurement in Estonia. There are long-term traditions of library user surveys in Estonian academic libraries. During the 1990s there were a lot of discus-
sions in academic libraries about the possibilities of measuring performance and a wide range of professional literature on performance measurement was consulted.

Three research libraries – the Estonian Academic Library, the National Library of Estonia and Tartu University Library were involved in the study of effectiveness of library services using the same methods based on the methodology and methods described in Measuring Academic Library Performance. A Practical Approach, a manual approved by the IFLA and used internationally (Van House 1990). The study carried out in Estonian libraries during 1994–1996 was a part of a major research program covering the Nordic and Baltic countries and led by the Royal Library of Sweden (Nuut, 1998).

The project of the evaluation of library services and performance measurement conducted in co-operation with the Royal Library of Sweden and Estonian research libraries was one of the largest joint research projects launched in Estonia over the last five years. The main objective of the project was to estimate the scope and results of user services, including reader satisfaction with services rendered by library. The task of the research was to identify the requirements of the reader body and evaluate their satisfaction with the level of services, the indicators of which were:

- The availability of the library resources,
- The quality of the services provided,
- The operating possibilities and working conditions at the library.

The experience of applying an international standard method of measuring library performance in major Estonian research libraries was certainly very illuminating. The experience had been considered in developing the future complex and unified surveys. The study brought forward a lot of valuable information, which has been processed, interpreted and reported at various scientific conferences as well as publications of the libraries (Research libraries in public information systems, 1998).

Some research projects of a larger scope were initiated in 1994–1999 to pursue the study in the field of performance measurement at a more advanced level to analyse information needs and general satisfaction of target populations and quantity of library performance, including library statistics analysis. Most academic libraries initiate studies on the quality of library performance every year (Nuut, 1999b).

Current project Performance Measurement and Evaluation of Research Libraries in Estonia

At present the grant application to Estonian Science Foundation on the subject library performance measurement survey, Performance Measurement and Evaluation of Research Libraries in Estonia, is accepted. The project will be carried out from 1 January 2000 to 31 December 2002. The institutions involved are the Tallinn Pedagogical University (Grant holder Aira Lepik, Department of Information Studies), National Library of Estonia and Tartu University Library.

The aim of the project is to analyse the performance optimality of research libraries, which are a part of the state system of information dissemination, under the present economic and financial conditions, and analyse research libraries’ activities.

The main objectives of the project are:

- Adaptation of performance measurement methods to Estonian research libraries;
- Developing an econometric model to evaluate and optimise activities of Estonian research libraries (resources and costs, allocation of finances);
- Selection and analysis of performance indicators for research libraries to measure quantity, quality and effectiveness;
- Testing the model in the libraries who have joined the consortium of Estonian Libraries Network (ELNET);
- Monitoring library performance to support practical steps forward in the implementation of quality and quantity assessment and management; identify practical measures covering performance indicators (monitoring) – efficiency (use), economy (cost) and effectiveness (quality);
- Specification of the levels of performance measurement and their use in measuring and evaluating research library performance on resource, activities, function, service and library level;
- Standardisation to support the adaptation and use of international standards (ISO) on library performance measurement and quality evaluation, to optimise and harmonise standardisation;
- Benchmarking to encourage research libraries to use benchmarking models for library performance assessment, to start comparing libraries’ activities with good practice and good ideas; and,
- Education and training of information professionals
- Organise training courses, seminars and scientific conferences for librarians on library performance measurement and quality evaluation, introducing the subject, methods and methodology, and encouraging collaborative research projects;
- Introduce the principles of TQM (Total Quality Management); and,
Further develop the Library Information Science (LIS) curriculum of Bachelor of Arts (BA) and Master of Arts (MA) studies with new subjects on library performance measurement and quality, quality of library services (new research methods on service quality as LibQUAL+, SERVQUAL, and Scorecard), and library economics.

**Proposed importance of the project:**

The functioning of research libraries as an information environment for Estonian science, culture, economy and education requires a thorough and many-sided analysis, and scientifically well-grounded planning of these libraries activities. As the result of the project, there will be a well-founded basis for regarding academic libraries as the development-inducing factors in the society, and it will enable to achieve better results in dealing with the problems of managing the quality of information dissemination. This analysis supports and promotes the position of Estonian research libraries on the information highway of Europe and the whole world.

**The study should:**

- Be useful to librarians of all library sectors;
- Be useful for policy makers;
- Lead librarians to an improved understanding and more effective use of library statistics as management information, and encourage them to cooperate in and standardise their recording methods;
- Examine the feasibility of maintaining the statistical and associated econometric information about library activities.

The project, *Performance Measurement and Evaluation of Research Libraries in Estonia*, will focus on LIS education and studies, including defending of MA degrees and concerning the following subjects:

- Library performance measurement and evaluation: possibilities for extending performance measurement (PM) and benchmarking methods in Estonian research libraries in 1995–2000;
- Estonian academic libraries’ information system and optimisation of their activities; and,
- Information users at the National Library of Estonia: information needs and the quality of services.

As this is a three-year project and application for financing is submitted every year, the above-mentioned objectives are submitted for the overall project period 2000–2002.

The first stage of the project in 2000 included:

- Preparations for the survey;
- Introduction of objectives to Estonian librarians and the students and post-graduate students of Tallinn Pedagogical University;
- Choosing methods for performance measurement and analysis;
- Choosing performance indicators to be analysed; and,
- Performing quantitative analysis of Estonian research libraries’ performance using library statistics.

**Current approach to library performance measurement in Estonia in 2000 under the project Performance Measurement and Evaluation of Research Libraries in Estonia:**

1. Introduction of performance measurement, benchmarking and the Estonian research libraries’ recent project by the authors of paper (Benchmarking for quality assessment and management for libraries; Choosing the library performance indicators: specifics of academic libraries; Library performance measurement and benchmarking survey in Estonian research libraries in 1998–1999; Overview of SERVQUAL methods on library performance quality; Library performance indicators: Definition and assessment; Scientifically information and academic libraries; Marketing and research libraries: customer satisfaction and service quality; Complex survey on music and art information use of the National Library, Music Academy Library and Art Academy Library customer target groups).

2. Development of the course *Library Performance Measurement and Quality Evaluation, Benchmarking* for the MA degree (Benchmarking in librarianship: the tool of quality management; Use of scorecard methods in library performance measurement and service quality assessment). Elective course *Library Performance Measurement and Quality* (3.0 credit points) on the curriculum of Information Science Master Studies program of Tallinn Pedagogical University was accepted in the University Council (full accreditation on May 2001). The course will start in spring 2002 and course handbook *Library Performance Measurement and Quality* will be compiled for the year 2003.

3. Determine and choose statistical and sociological study methods on library performance measurement and quality evaluation. To meet the requirements of the project and find suitable methodology, we have turned to several specialists and
experts from the UK (David Fuegi, Phillip Ramsdale) and Germany (Roswitha Poll, Jürgen Heeg), who have provided their expert evaluation and advocacy during training courses held in Tallinn on performance measurement and benchmarking in 1999 and 2000.

4. The principles, guidelines and recommendations of UNESCO, ISO and IFLA have been followed in finding the methods of quantitative analysis of library performance, and establishing the basis for gathering and analysing library statistics. In recent years the questionnaire forms and instructions of library statistics have been improved according to the internationally used basis for keeping statistics, statistical definitions and requirements for gathering statistics and processing the data presented by the EC project LibEcon2000.

In Estonia gathering, analysing and providing overviews of state statistics is regulated by State Statistics Act (approved in 1997 and amended in 2000). The Estonian State Statistical Office is responsible for organising statistical surveys and provides overviews in annual collections for education, culture and science. The National Library of Estonia is a national statistical centre that is gathering and publishing surveys and analysis of library statistical data in annual collections for all library sectors (the obligation fixed in the National Library of Estonia Act) and, at the same time, responsible for gathering and providing statistics of print production.

ISO 2789:1991, Information and Documentation: International Library Statistics, where the basic principles of gathering library statistics, the definitions of statistical units and guidelines for gathering statistical data are published and ISO 11620:1998, Information and Documentation: Library Performance Indicators, where the basis of the analysis of library statistics, performance measurement and library economics are published. Both above mentioned ISO standards are adopted as Estonian standards by the National Standards Board of Estonia (EVS-ISO 11620:2000).

Activities in the field of standardisation in Estonia had been directed and co-ordinated by the National Standards Board since 1991, after the re-establishment of independence in Estonia. The translation and adoption of the standards ISO 2789 and ISO 11620 as Estonian national standard was initiated by the Library Science and Development Department of the National Library of Estonia. The aim of adaptation of these standards was to promote the activities of performance measurement and quality assessment in Estonia.

5. The study, Library performance measurement and evaluation: possibilities for extending PM and benchmarking methods in Estonian research libraries in 1995–2000, was also carried out. The study focused on the possibilities to use the analysis of the statistical data of 1995–2000 of four Estonian major research libraries – The National Library, Estonian Academic Library (universal library), and two academic libraries – Tartu University Library and Tallinn Technical University Library.

The survey focused on library resources (collections), library services (visits, loans), librarians (education and qualification), and financial resources (income and expenditure). The statistical analysis focused on three aspects and was presented on three stages:

1. The descriptive statistics analysis, which presents graphical analysis of the data and brings out current trends;
2. The inferential statistics analysis, which treats the second stage of data analysis, comparison of four libraries – benchmarking; and,
3. The library economics analysis, which presents the econometric concepts and results of econometric surveys.

At the first stage of statistical analysis – the descriptive part of the analysis on the institutional level – the time series of the four libraries' indicators are given:

- **Collection development and changes indicators** – additions, the three-year average of additions, rate of additions, the proportion of additions and weeding, acquisition sources;
- **Expenditure indicators** – main expenditure (staff expenditure, costs of acquiring documents for the collection, communal expenditure, investments) in 1995–2000;
- **Cost indicators per user and per visit** (yearly expenditure per user, cost per library visit, acquisition expenditure per user, staff expenditure per user) in 1995–2000;
- **Library service indicators** – the number of library users, visits and loans in 1995–2000;
- **Indicators of library staff** (total number of staff members, including librarians) and education of librarians (librarians with higher education, including the employees with higher library education).
The following performance indicators have been chosen for analysis:

C**ollections:**

1) Resources additions rate (% new stock added in year)
2) Acquisition rate
3) The proportion (%) of books among annual additions
4) The proportion (%) of serials among annual additions
5) The proportion (%) of electronic documents among annual additions
6) The number of documents placed to open access (shelves)

L**ibrary service**

1) Usage frequency
2) Frequency of attendance
3) Users per librarian
4) Loans per librarian
5) The proportion (%) of requests supplied by interlibrary lending

T**he librarians’ qualification**

1) Librarians with higher education among library staff
2) The proportion (%) of employees with higher library education among library staff with university education

E**xpenditure and cost indicators**

1) The proportion (%) of the costs of acquiring documents for the collection from total expenditure
2) The costs of acquiring documents for the collection per user
3) Cost per document (Expenditure per document from acquisition budget)
4) Cost per user
5) Cost per visit
6) The proportion (%) of staff expenditure from total expenditure
7) The average staff expenditure per user


The analysis of presented performance indicators provides an opportunity to draw conclusions on the collection acquisition, library use, frequency of attendance, librarians education and competency, as well as distribution and use of financial resources of libraries. The study results of the four research library indicators helped us to optimise research libraries’ acquisitions policy and acquisition budget delivery. The coefficient of additions rate in Estonian research libraries was 99% in 1996–2000. However, there occur big differences between different libraries, including university libraries. That means that the financing of acquisition is unstable.

The proportion of books among annual additions of research libraries is approximately 60% and the proportion of serials – approximately 21%; the proportion of electronic documents among additions is quite low – 5%. Documents placed on open shelves only make up 4.2% of total resources of the analysed four libraries. The average frequency of attendance of the four research libraries in 1995–2000 was 16 visits per user; university libraries were visited more frequently – the rate was 30–40 visits per user. There were 140 users and 3283 loans per librarian of the research libraries. The average percent of supplied interlibrary loans was 66%, the rate being, however, higher in the National Library – 84%.

In 2000 the staff of the four research libraries, on average, included 79% of librarians with higher education (the average of the six years was 83%). The proportion of employees with higher LIS education among the staff with university education was 50%. However, there are big differences between research libraries. University libraries employ numerous subject librarians with university diplomas in other fields than LIS.

A cost analysis indicated that the average acquisitions expenditure of research libraries was 36% and staff expenditure 42% of the total budget. The average acquisitions cost per user in research libraries was 364 EEK (20 $), with big differences between libraries. Annual expenditure per one unit was approximately 283 EEK (16 $). The average cost per user was 797 EEK (44 $) and average cost per visitor – 77 EEK (4 $) (Appendix 2).

**Conclusion**

The first stage of the project focused on the analysis and organisation of Estonian library statistics with an aim to provide it to libraries as a valuable management information, for better organisation of their acquisition, services, work and financing. The statistical analysis was based on the methods used for analysing statistical data, mathematical formulas, compiling time series, and methods used for calculating performance indicators. Original statistical questionnaires provided by libraries were used as sources of statistical data. The demand for
quantitative analysis of research library performance has been increasing for years.
Such surveys are necessary for:

• Drawing up library development plans;
• Working out the financial basis for the library system;
• Working out the financial basis for research libraries' acquisitions;
• Developing an integrated research libraries acquisition policy, which would determine every libraries' responsibility areas, and acquisition principles of a resource library to avoid duplication and cut the costs;
• Evaluating library effectiveness; and,
• Strategic planning of library activities and making changes in library work organisation, budget planning and redistribution.

The National Library of Estonia has kept Estonian library statistics, managed statistical data, the basis for record keeping and analysing methods, as well as provided data analysis for the different library sectors since 1993. The methodology of quantitative analysis of statistics needs to be improved with new methods, including methods for analysing library performance indicators in the electronic environment, and the introduction of benchmarking models for assessing library work. Quantitative analysis is only a part of library performance measurement which requires additional research of library work quality – user surveys for determining overall user satisfaction, analysing the needs of information consumers, market research of services using various questionnaires and accepted methods of LibQUAL+, SERVQUAL and balanced scorecard (Lepik, 2000, 2001). Every library is different, despite the existence of fixed types. This is especially felt in the case of research libraries. The role, goals and tasks of research libraries differ to a great extent. Thus, we need to consider the distinct features of each research library, its mission statement and social impact while assessing its performance.

Estonian libraries have started with quantitative and quality analysis. However, this has not yet developed into a systematic and regular process to develop organisational activities, provide basis for planning activities, development policies, state financial policy and procurement of state resources. There is a need to draw up a library development policy and financial basis, based on research. At present, library statistics is still the only compact data gathering on which we can provide data analysis of all library (types) sectors.

The development plan of Estonian research libraries was initiated in the spring of 2001. Today, research libraries have discussed it, and it will by forwarded to the Commission of Culture of the Estonian Parliament for discussion and approval in autumn 2001 (Eesti raamatukogud 2001).

Estonian libraries have been consulted and trained for gathering and analysing library statistics within the framework of the EC projects, LibEcon 2000 (Nuu 1999c), and they have been recommended to follow Guidelines for the preparation of plans (DCMS – Department for Culture, Media and Sport. Libraries Information and Archives) UK, in drawing up our development plan and further activities of libraries, as well as the library economics analysis of European libraries presented in the final report of LibEcon 2000, Millennium Study (Sumision, 2001).

In the future, it would be rational to focus on working out library performance indicators considering the types of libraries, and apply performance measurement to all library sectors. It is necessary to get a complete overview of the quantitative and qualitative aspects of performance in all library sectors to ensure the development of the Estonian library network, drawing up a development policy and developing an integrated state financing policy.

References


the 6th Congress of Baltic Librarians. October 5-6, 2000, Vilnius, Lithuania: 256-259. Vilnius: Lithuanian Librarians’ Association


Appendix 1

Table 1. ESTONIAN LIBRARIES NETWORK

RESEARCH LIBRARIES
- national library
- universal library
- university library
- special research library

LIBRARIES OF OTHER HIGHER INSTITUTIONS
- library of a private university
- library of a state non-university higher educational institution
- library of a private non-university higher educational institution

SPECIAL LIBRARIES
- government library
- health service/medical library
- library of a professional or learned institutions and associations
- industrial or commercial library
- libraries of a cultural institution
- other special library

PUBLIC LIBRARIES
- central library
- municipal library
- children’s library
- community library
- rural library
- other public library

SCHOOL LIBRARIES
- elementary school library
- basic school library
- secondary high school library
- vocational school library
- evening school library
Appendix 2


Acquisition expenditure of European libraries (EUR) in 1998

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Appendix 2

Libraries in Europe: acquisition expenditure in 1998 (EUR)

Libraries of higher education in Europe: acquisition expenditure in 1998 (EUR)
DG INFOS of the European Commission is to fund for 3 years from mid 2001 a project called LIBECON, which is of great interest and crucial importance to everyone interested in library performance. LIBECON will continue, expand and develop earlier work known as LIBECON2000 (see www.libecon2000.org), which has just ended. IPF, the executive arm of CIPFA, the Chartered Institute of Public Finance and Accountancy [UK] is responsible for the work and will work through its expanding network of international contacts (“country coordinators”).

The project will collect, publish and interpret library statistics aggregated at the national level not only for the 30 countries included in LIBECON 2000 (all countries of the EU, EFTA and Central and Eastern Europe) but will also extend its coverage to the following countries: Australia; Canada; Korea; New Zealand; USA; Japan; Mexico; Turkey and Russia and to any other country willing to participate. At least 5 years’ data will be sought from the new countries and 3 years’ new data will be added for LIBECON2000 countries. LIBECON will thus expand from its European roots and assume truly international stature.

The overall project aims are to build on the previous work of DG INFOS, ISO 2789 (International standard on library statistics), ISO 11620 (Library Performance Indicators) and of IFLA and UNESCO so as to:

[i] Improve the quality of implementation of standardised methods in the collection and publication of data relating to library economics and statistics.

[ii] Make the data “user-friendly” and disseminate the results to policy makers, managers and the European Commission itself as a benchmarking tool, thus facilitating a more European approach to library policy.

[iii] Provide an advocacy tool for key stakeholders such as library associations at national and international levels.

[iv] Accelerate implementation of new measures in the new draft of ISO 2789 when it is finalised and provide a means to pilot possible new measures at the international level.

[v] Examine the feasibility of extending the LIBECON model to other cultural sectors (museums and archives).

LIBECON will have an advisory committee consisting of all key stakeholders in this field, not simply those from Europe.

LIBECON will produce the following results:

The LIBECON website will be available from day one.
• It will be updated with 3 years new data in 2001, 2002 and 2003
• New countries will be added (from 2001)
• Results will be summarised and communicated to stakeholders (each year)
• Feasibility study on archives and museums will be produced and validated (year 1)
• New data lines will be added in consultation with the Strategic Advisory Committee (each year).

The result will be a management tool for advocates, policy makers, researchers and managers for economic monitoring and benchmarking of the libraries sector and possible knock-on effects in the museum and archives sectors.

The second part of the article summarises the findings of LIBECON 2000 as published in the Millennium Report.

Introduction

The LIBECON Project, funded by DG INFOS of the European Commission, officially began work on July 1, 2001 and will run for 3 years. This article describes the project’s plans for the next 3 years and also what was achieved by the predecessor project, LIBECON2000. The LIBECON2000 Project was funded by DG13 under FP4. On its website (libecon2000.org) statistics on the libraries of 29 European countries are found, constituting an indispensable resource for policymakers and
others with an interest in libraries at the European level. The Millennium Report (which can be seen in full on the website) evaluates the main trends and lessons from the financial and statistical data over the last 10 years.

The LIBECON2000 website, where statistics on the libraries of 29 European countries (2) are found, constituting an indispensable resource for policymakers and others with an interest in libraries at the European level, will continue and be enhanced by LIBECON. This has been achieved with the assistance of EBLIDA, IFLA, UNESCO and colleagues throughout Europe. During 2001-2004, we will add on 3 more years of data.

Our aim is to create a virtual community of those who create and use library statistics. There are a number of advantages arising from this approach:

- Potentially achieve more rapid publication;
- Achieve wider dissemination to users who are scattered and mainly require facts rather than whole publications;
- Overcome language barriers;
- Facilitate communication between producers and users.

LIBECON, like LIBECON2000 before it, ensures that data is recent, formulated to a common standard, validated and grossed up in appropriate cases to produce valid trend lines. Financial data for LIBECON2000 was standardised on the Euro to allow comparisons between countries and over time. As LIBECON will extend the database to countries outside Europe, currency standardisation is under review. It is most likely that the U.S. dollar will also be used. The website provides quick and easy access to the data and to the sources. Besides providing a tool for research, monitoring, benchmarking and comparison, LIBECON2000 impacted on the revision of ISO2789 (library statistics) and influenced a number of countries to adopt ISO2789 or to carry out surveys for the first time or in an improved format.

LIBECON could become a key focus for international library statistics in the future. UNESCO, which has pioneered the production of international library statistics since the 1970s has reduced the numbers of its statistical staff and the consequences of this for library and other cultural statistics will not be good. EUROSTAT, which collects statistics for the European Union, has recently been asked to compile cultural statistics at the EU level but has not included libraries in its program. A considerable onus thus lies on LIBECON to first maintain the series of statistics and secondly develop their utility for policy makers and advocates of libraries and library managers. The challenge is to develop the international framework for producing reliable statistical information to monitor the success or otherwise of libraries. LIBECON2000 made a start in Europe. LIBECON is going global.

Scope of LIBECON

LIBECON has decided to invite ALL countries to contribute to the database. Because of its European roots, its initial strength is in Europe, but we expect data from other countries to come on stream rapidly. Invitations to contribute were dispatched in July 2001 and new data is added continuously as it arrives and is validated.

ISO2789

A major problem in assembling meaningful statistics is gaining access to information prepared to consistent definitions. UNESCO pioneered standardisation in this field and has been publishing library statistics of many countries for many years and formulated the six [former] standard sectors (3) that they respectively survey on a three-year cycle. ISO, the worldwide federation of national standards bodies (ISO member bodies) undertakes the work of preparing International Standards through its technical committees. International organisations, governmental and non-governmental, in liaison with ISO, also take part in the work of refining the definitions, and LIBECON seeks to inform the standards debate. Our ability to do this arises from the fact that we are one of the few to have attempted to collate and compare library statistics from many countries and thus have first-hand experience of the pitfalls.

What LIBECON does is both more extensive and more limited than UNESCO. More limited in that we cover only 29 countries at present though this will change rapidly in the light of our new “open house” policy. We are more extensive in that we ask more questions and attach importance to financial data which are presented in standardised form (euros and soon, probably, US dollars) and not in national currencies. We also have the resources to check more thoroughly with our sources and, unlike UNESCO, we gross-up to account for missing data and provide a bibliography, list of contacts and translations of major column headings in the original publications. Like UNESCO, LIBECON surveys countries, not libraries. In other words, we do not undertake primary survey work. We go beyond UNESCO also in publishing a commentary on trends. Previous publications in the series include Library Economics in Europe (Fuegi and Ramsdale, 1997) and Library Economics in Central and Eastern Europe (Ramsdale, 1995).

LIBECON2000 piloted certain data elements for the revision of ISO2789, especially the revision of the library sectors resulting in dropping of the “other major non-specialised libraries” sector and the subdivision of the “specialised” sector. LIBECON would like to increase its contribution. We have not only revised our questionnaire in light of the ISO2789 revisions (which should accelerate their adoption) but have created a LIBECON Strategic Advisory Committee to advise on how LIBECON can best be used as an agent for change.
and compliance. Links with international stakeholders will be formalised through the Committee that will consist of such players as UNESCO, ISOTC46, IFLA [Statistics Section] and Eurostat. This group will ensure that maximum synergies are achieved between players and stakeholders in the relevant field. It will meet once a year to consider major issues on content, marketing and synergies between the players.

Website Development

All the data from predecessor projects will be maintained on the website and data for later years and new countries will be added, as already described. A new interface will make it possible for users to select and manipulate data for specific countries, groups of countries and years. A site server search function will also be added in 2001.

Other LIBECON Developments

LIBECON will investigate the feasibility of extending its coverage to museums and archives. If this seems to be feasible, LIBECON would need to obtain additional funding to actually do the work.

Early in 2002, LIBECON will organise a workshop to bring together stakeholders in this field for mutual learning and group planning for the first time since 1997 (in Europe). This workshop will provide stakeholders with an opportunity to validate and influence the direction of LIBECON and to clarify LIBECON's role in international standardisation. Many of the people we wish to involve are attached to statistical institutes and are not librarians and do not attend major library events nor do they meet each other anywhere else. All LIBECON country coordinators will be invited plus other key stakeholders (UNESCO, ISO, EUROSTAT, IFLA, EBLIDA, CoE). Papers and conclusions will be published on the web.

Outline of the LIBECON2000 Millennium Report

The Millennium Report and the website cover Central and Eastern Europe, the EFTA countries and the European Union and all library sectors - schools, higher [tertiary] education, national, public, special [broken down for the first time into sub-sectors] and other major non-specialised. For the sake of brevity, comment is here restricted mainly to the public library and tertiary education sectors. For details and for the full text, please visit the website. The Report is available from IPF on CD Rom and is soon to be published by the European Commission.

1. Operational Trends [All Sectors]

i. Staff

We estimate that about 374,000 staff were employed in libraries, an increase of 3.7% since 1991. This increase in staffing numbers is weighted towards the professional staff whose numbers increased by 4.9% over the period. The increase in Trained staff occurs mostly in EU States.

The number of trained librarians in all sectors of libraries (206,000) is higher than previous estimates for the mid-1990s (175,800 for 1991). However, the number of other support staff is substantially lower than previous estimates. Proportionately the returns for ‘Other Staff’ are appreciably lower in the CEE than in the EU.

Table 1 Staff FTE* (000s)

<table>
<thead>
<tr>
<th>Year</th>
<th>Qualified</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>196</td>
<td>165</td>
<td>361</td>
</tr>
<tr>
<td>1992</td>
<td>195</td>
<td>163</td>
<td>357</td>
</tr>
<tr>
<td>1993</td>
<td>191</td>
<td>164</td>
<td>355</td>
</tr>
<tr>
<td>1994</td>
<td>195</td>
<td>163</td>
<td>357</td>
</tr>
<tr>
<td>1995</td>
<td>199</td>
<td>162</td>
<td>361</td>
</tr>
<tr>
<td>1996</td>
<td>201</td>
<td>159</td>
<td>360</td>
</tr>
<tr>
<td>1997</td>
<td>206</td>
<td>160</td>
<td>367</td>
</tr>
<tr>
<td>1998</td>
<td>206</td>
<td>168</td>
<td>374</td>
</tr>
</tbody>
</table>

* Full Time Equivalent, i.e. part time staff count as fractions in proportion to hours worked

ii. Materials

The overall position and trends are summarized in this table:

Table 2 Trends in Materials Provision (millions)

<table>
<thead>
<tr>
<th>RESOURCES</th>
<th>1991</th>
<th>1998</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book stock</td>
<td>2,778</td>
<td>2,944</td>
<td>+ 6</td>
</tr>
<tr>
<td>Audio Visual stock</td>
<td>104</td>
<td>127</td>
<td>+ 22</td>
</tr>
<tr>
<td>Periodical subscriptions</td>
<td>19.5</td>
<td>21.3</td>
<td>+ 9</td>
</tr>
<tr>
<td>Manuscripts</td>
<td>29.5</td>
<td>32.0</td>
<td>+ 8</td>
</tr>
<tr>
<td>Microforms</td>
<td>316</td>
<td>313</td>
<td>- 1</td>
</tr>
</tbody>
</table>

ANNUAL MOVEMENTS:

<table>
<thead>
<tr>
<th>RESOURCES</th>
<th>1991</th>
<th>1998</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book Additions</td>
<td>171</td>
<td>171</td>
<td>=</td>
</tr>
<tr>
<td>A/V Additions</td>
<td>9.7</td>
<td>12.1</td>
<td>+ 25</td>
</tr>
<tr>
<td>Inter Library Loans (received)</td>
<td>15.2</td>
<td>29.0</td>
<td>+ 91</td>
</tr>
</tbody>
</table>
The trends in annual additions to stock appear to vary between sectors. National libraries report a growth in their annual additions in books and audio-visual materials. Public libraries' book acquisitions fell between 1991-1995 but have since stabilized, while their audio-visual materials have increased steadily. With a large increase in the population served by Tertiary Education, so have their book acquisitions grown hugely, but there has been a decline in audio-visual additions.

iii. Use and users

The count of Registered Members increased in total from 126 million to 139 million, an increase of 10.5 per cent. As this count includes those who use several libraries, the proportion it represents out of the total population (484 million) - 29 per cent - is disappointingly low. But the trend is moving upwards. Estimates for Loan Transactions at 3,543 million and Visits at 3,468 million are close and show only a small difference in trend: + 5.2% against - 1.3%. When taken together the ratio for Loan Transactions per Registered Member point to high intensity of use - moving from 26.8 to 25.5.

iv. Modernisation

Overall total estimates show the following: Workstations for users increased more than four-fold from 74,000 in 1991 to 310,000 in 1998. The stock of CD ROMs went up exponentially during the second half of the period, going from an estimated 456,000 in 1991 to 2,500,000 in 1998. The percentage of catalogue records automated is estimated to have gone up from 36 to 46 per cent.

v. Service points

Including all sectors, it is estimated that in 1998 there were 224,000 service points throughout the study area. There has been a considerable contraction since 1991, averaging 7.1%, but this has taken place particularly in the Central & Eastern European countries (CEE) where the proportionate drop was 14% and where the main closures took place in public libraries.

2. Financial Trends (4)

There has been greatly increased activity in Tertiary Libraries and lack of growth - overall - in the Public Library sector, with modest growth in National Libraries. The obvious expectation from this is that levels of expenditure have increased more in the Tertiary sector than in others. Here we look at the situation overall.

<table>
<thead>
<tr>
<th>EXPENDITURE</th>
<th>1991</th>
<th>1998</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td>5,007</td>
<td>6,697</td>
<td>+ 34</td>
</tr>
<tr>
<td>Materials</td>
<td>2,342</td>
<td>3,121</td>
<td>+ 33</td>
</tr>
<tr>
<td>Electronic info</td>
<td>317</td>
<td>528</td>
<td>+ 67</td>
</tr>
<tr>
<td>Total revenue exp.</td>
<td>10,347</td>
<td>13,965</td>
<td>+ 35</td>
</tr>
</tbody>
</table>

**Table 3 Main trends in financial results**

(All sectors of library)

**INCOME ITEMS**

- Fees & Charges: 382 → 648 (+70)
- ‘Other’ (i.e. special funds): 432 → 1,034 (+139)

**CAPITAL PAYMENTS**

- 487 → 695 (+43)

Since staffing costs represent the largest part of the budget, expenditure on staff has increased at a rate reflected by the charge in total expenditure.

The total expenditure on conventional materials also shows an average increase, but this average conceals an estimated + 64% for Special Libraries, + 40% for Tertiary, + 27% for National, + 33% for Schools, and only + 1% for Public Libraries.

The data show a dramatic (67 per cent) increase in expenditure on electronic materials. This is heavily concentrated in the Tertiary and Special Libraries sectors - and Special Libraries are more fully represented in these statistics than ever before.

It is significant, however, that the 1998 results show electronic information still at only 15 per cent of total materials expenditure - so confirming that conventional materials are still dominant.

Perhaps the most surprising revelation in this set of statistics lies in the specifically identified ‘Income Items’. The magnitude of the increase in Fees & Charges - 70 per cent - is impressive, and the pattern is virtually universal across all countries. This is a new trend.

i. The importance of the library sectors

One would expect, even over a lengthy period, to find little change in the relative size of the various library sectors. Estimates in previous surveys showed that, between 1981 and 1995 public libraries and higher education libraries increased their share of total spending on libraries - with the share of other sectors largely unchanged. In this survey we find a very different result - as illustrated in this table:
Table 4 Library sector shares

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>PREVIOUS ESTIMATE</th>
<th>PRESENT ESTIMATE</th>
<th>by total expenditure</th>
<th>by total staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>6.0%</td>
<td>5.9%</td>
<td>5.4%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Higher Education</td>
<td>15.3%</td>
<td>16.9%</td>
<td>19.9%</td>
<td>16.5%</td>
</tr>
<tr>
<td>Public</td>
<td>47.3%</td>
<td>49.5%</td>
<td>45.0%</td>
<td>45.2%</td>
</tr>
<tr>
<td>Special</td>
<td>8.6%</td>
<td>8.6%</td>
<td>21.3%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Other Major</td>
<td>4.9%</td>
<td>4.5%</td>
<td>0.8%</td>
<td>2.2%</td>
</tr>
<tr>
<td>School</td>
<td>17.8%</td>
<td>14.7%</td>
<td>7.7%</td>
<td>15.5%</td>
</tr>
</tbody>
</table>

* EU States only § estimated in The Historic Database, LIBECON2000 Project Deliverable D, 1998

The main reason for these changes is the stricter application of sectoral definitions and better returns for the Special Library sector in this later canvass. In view of this major change Table 4 above also includes a column to show how different the sector proportions appear when analysed by the numbers of staff employed rather than by expenditure.

ii. Tertiary education sector

Between 1991-1998 staff plus Student totals in Tertiary education went from 1,534,000 to almost 2 million.

Changes in expenditure are as shown in the following table 5.

Table 5 Tertiary libraries expenditure and income – all states

<table>
<thead>
<tr>
<th>Responses</th>
<th>No.</th>
<th>%</th>
<th>EXPENDITURE</th>
<th>1991 in millions</th>
<th>1998 in millions</th>
<th>% change</th>
<th>1991 %</th>
<th>1998 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>86</td>
<td>%</td>
<td>Employees</td>
<td>799</td>
<td>1,210</td>
<td>+ 51</td>
<td>44.7</td>
<td>43.5</td>
</tr>
<tr>
<td>22</td>
<td>93</td>
<td>%</td>
<td>Materials</td>
<td>559</td>
<td>780</td>
<td>+ 40</td>
<td>31.3</td>
<td>28.1</td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>%</td>
<td>Electronic materials</td>
<td>17</td>
<td>81</td>
<td>+ 376</td>
<td>1.0</td>
<td>2.9</td>
</tr>
<tr>
<td>4</td>
<td>34</td>
<td>%</td>
<td>Automation</td>
<td>59</td>
<td>81</td>
<td>+ 37</td>
<td>3.3</td>
<td>2.9</td>
</tr>
<tr>
<td>6</td>
<td>36</td>
<td>%</td>
<td>Premises</td>
<td>170</td>
<td>277</td>
<td>+ 63</td>
<td>9.5</td>
<td>10.0</td>
</tr>
<tr>
<td>5</td>
<td>53</td>
<td>%</td>
<td>New Building &amp; Ref’t</td>
<td>2</td>
<td>5</td>
<td>**</td>
<td>**</td>
<td>0.2</td>
</tr>
<tr>
<td>17</td>
<td>56</td>
<td>%</td>
<td>Other expenses</td>
<td>183</td>
<td>347</td>
<td>+ 90</td>
<td>10.2</td>
<td>12.5</td>
</tr>
<tr>
<td>17</td>
<td>62</td>
<td>%</td>
<td>TOTAL EXP’RE</td>
<td>1,788</td>
<td>2,780</td>
<td>+ 55</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

INCOME

<table>
<thead>
<tr>
<th>Responses</th>
<th>No.</th>
<th>%</th>
<th>EXPENDITURE</th>
<th>1991 in millions</th>
<th>1998 in millions</th>
<th>% change</th>
<th>1991 %</th>
<th>1998 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>53</td>
<td>%</td>
<td>Institutional</td>
<td>1,686</td>
<td>2,466</td>
<td>+ 46</td>
<td>94.0</td>
<td>88.7</td>
</tr>
<tr>
<td>12</td>
<td>51</td>
<td>%</td>
<td>Fees &amp; charges</td>
<td>38</td>
<td>77</td>
<td>+ 103</td>
<td>2.2</td>
<td>2.8</td>
</tr>
<tr>
<td>12</td>
<td>51</td>
<td>%</td>
<td>‘Other income’</td>
<td>64</td>
<td>237</td>
<td>+ 270</td>
<td>3.8</td>
<td>8.5</td>
</tr>
<tr>
<td>7</td>
<td>32</td>
<td>%</td>
<td>CAPITAL PAYMENTS</td>
<td>83</td>
<td>78</td>
<td>- 5</td>
<td>4.6</td>
<td>2.8</td>
</tr>
</tbody>
</table>

iii. National Library Sector

Financial trends for national libraries are as shown in the following table.

Table 6 National libraries expenditure & income – all countries

<table>
<thead>
<tr>
<th>Responses</th>
<th>No.</th>
<th>%</th>
<th>EXPENDITURE</th>
<th>1991 in millions</th>
<th>1998 in millions</th>
<th>% change</th>
<th>1991 %</th>
<th>1998 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>68</td>
<td>%</td>
<td>Employees</td>
<td>272</td>
<td>373</td>
<td>+ 37</td>
<td>50.2</td>
<td>49.2</td>
</tr>
<tr>
<td>21</td>
<td>66</td>
<td>%</td>
<td>Materials</td>
<td>78</td>
<td>99</td>
<td>+ 27</td>
<td>14.3</td>
<td>13.1</td>
</tr>
<tr>
<td>10</td>
<td>8</td>
<td>%</td>
<td>Electronic materials</td>
<td>3</td>
<td>11</td>
<td>+ 267</td>
<td>0.5</td>
<td>1.4</td>
</tr>
<tr>
<td>13</td>
<td>79</td>
<td>%</td>
<td>Automation</td>
<td>$1</td>
<td>3</td>
<td>**</td>
<td>0.1</td>
<td>0.4</td>
</tr>
<tr>
<td>11</td>
<td>39</td>
<td>%</td>
<td>Premises</td>
<td>41</td>
<td>51</td>
<td>+ 24</td>
<td>7.5</td>
<td>6.7</td>
</tr>
<tr>
<td>14</td>
<td>44</td>
<td>%</td>
<td>New Building &amp; Ref’t</td>
<td>29</td>
<td>40</td>
<td>+ 38</td>
<td>5.3</td>
<td>5.3</td>
</tr>
<tr>
<td>19</td>
<td>77</td>
<td>%</td>
<td>Other expenses</td>
<td>120</td>
<td>181</td>
<td>+ 51</td>
<td>22.1</td>
<td>23.9</td>
</tr>
<tr>
<td>21</td>
<td>78</td>
<td>%</td>
<td>TOTAL EXP’RE</td>
<td>544</td>
<td>757</td>
<td>+ 39</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

INCOME

<table>
<thead>
<tr>
<th>Responses</th>
<th>No.</th>
<th>%</th>
<th>EXPENDITURE</th>
<th>1991 in millions</th>
<th>1998 in millions</th>
<th>% change</th>
<th>1991 %</th>
<th>1998 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>52</td>
<td>%</td>
<td>Institutional</td>
<td>434</td>
<td>608</td>
<td>+ 40</td>
<td>79.8</td>
<td>80.3</td>
</tr>
<tr>
<td>16</td>
<td>46</td>
<td>%</td>
<td>Fees &amp; charges</td>
<td>73</td>
<td>103</td>
<td>+ 41</td>
<td>13.8</td>
<td>14.0</td>
</tr>
<tr>
<td>16</td>
<td>49</td>
<td>%</td>
<td>‘Other income’</td>
<td>35</td>
<td>44</td>
<td>+ 26</td>
<td>6.4</td>
<td>5.7</td>
</tr>
<tr>
<td>12</td>
<td>30</td>
<td>%</td>
<td>CAPITAL PAYMENTS</td>
<td>33</td>
<td>127</td>
<td>+ 285</td>
<td>6.1</td>
<td>16.8</td>
</tr>
</tbody>
</table>
iv. Public libraries sector

Over the seven years, service points have decreased by 18 per cent. The scale of this decline is much influenced by the position in Poland (decrease from 10,300 to 3,565). But most countries show decreases between 8 and 15 per cent.

The following general conclusions emerge from the data:

- There is a huge difference in the scale of public library operations between those countries which have had a well resourced public library service for many years and those countries without this historical tradition.

- There are some countries developing their public libraries from a low base showing significant increases since 1991 - and others with no apparent development. Many countries have a long way to go to begin to match the activity levels accepted as normal elsewhere.

- There are obvious connections between high levels of Stock, Loans and Additions to Stock - which can be studied in the statistical database.

- There are well-publicized initiatives to develop networking, IT and the Internet in public libraries. So far, with the possible exception of the UK, this does not seem to have diminished the take-up of traditional services.

Table 7 Public libraries expenditure and income – all countries

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td></td>
<td>in millions</td>
<td>in millions</td>
<td>%</td>
<td>in millions</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>75</td>
<td>Employees</td>
<td>2,585</td>
<td>3,348</td>
<td>+30</td>
<td>50.2</td>
<td>53.3</td>
</tr>
<tr>
<td>22</td>
<td>77</td>
<td>Materials</td>
<td>758</td>
<td>762</td>
<td>+1</td>
<td>14.7</td>
<td>12.1</td>
</tr>
<tr>
<td>4</td>
<td>26</td>
<td>Electronic materials</td>
<td>0.8</td>
<td>4.6</td>
<td>x6</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>5</td>
<td>24</td>
<td>Automation</td>
<td>103</td>
<td>167</td>
<td>+62</td>
<td>2.0</td>
<td>2.3</td>
</tr>
<tr>
<td>7</td>
<td>30</td>
<td>Premises</td>
<td>726</td>
<td>808</td>
<td>+11</td>
<td>14.0</td>
<td>12.9</td>
</tr>
<tr>
<td>10</td>
<td>38</td>
<td>New Building &amp; Ref't</td>
<td>58</td>
<td>60</td>
<td>+3</td>
<td>1.1</td>
<td>0.9</td>
</tr>
<tr>
<td>21</td>
<td>63</td>
<td>Other expenses</td>
<td>914</td>
<td>1,130</td>
<td>+24</td>
<td>17.8</td>
<td>18.0</td>
</tr>
<tr>
<td>20</td>
<td>59</td>
<td>TOTAL EXP'RE</td>
<td>5,146</td>
<td>6,279</td>
<td>+22</td>
<td>99.9</td>
<td>100</td>
</tr>
<tr>
<td>15</td>
<td>37</td>
<td>Institutional</td>
<td>4,870</td>
<td>5,632</td>
<td>+16</td>
<td>94.6</td>
<td>89.7</td>
</tr>
<tr>
<td>13</td>
<td>44</td>
<td>Fees &amp; charges</td>
<td>135</td>
<td>316</td>
<td>+134</td>
<td>2.6</td>
<td>5.0</td>
</tr>
<tr>
<td>13</td>
<td>32</td>
<td>'Other income'</td>
<td>142</td>
<td>331</td>
<td>+133</td>
<td>2.8</td>
<td>5.3</td>
</tr>
<tr>
<td>12</td>
<td>51</td>
<td>CAPITAL PAYMENTS</td>
<td>353</td>
<td>448</td>
<td>+27</td>
<td>6.9</td>
<td>7.1</td>
</tr>
</tbody>
</table>
Some Future Challenges

The report’s recommendations cover the need for further work and for improved statistical representation of information technology in libraries. More importantly, perhaps, they draw policy makers’ attention once again to issues such as the small average size of university libraries in some countries and of public library authorities in others. Disparities in provision are quite marked and stand out from the data. The report calls upon governments to use the information provided to benchmark aspects of their services with a view to improving to the standard of the best.

References


Notes

1. John Sumsion was involved in drafting the Millennium Report and the section of this article relating to it.

2. The LIBECON2000 survey area included the States in Central & Eastern Europe (CEEC): Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic, and Slovenia; the member states of the European Union (EU): Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the UK; and these other states within the European Free Trade Agreement (EFTA): Iceland, Liechtenstein, Norway, and Switzerland.

3. Library sectors, as defined in (ISO 2789): NATIONAL LIBRARIES, typically functioning as a “deposit” library and normally compiling a national bibliography; LIBRARIES OF INSTITUTIONS OF HIGHER EDUCATION, primarily serving teaching at the tertiary level; PUBLIC LIBRARIES, serving the population free of charge or for a nominal fee; SPECIAL LIBRARIES, catering for government, health services, professional associations, industrial & commercial concerns, and other specialised interests; OTHER MAJOR NON-SPECIALISED LIBRARIES, those libraries of a learned character with collections in excess of 150,000 stock items; and SCHOOL LIBRARIES, attached to all types of schools and colleges below the tertiary level of education.

4. Estimates of expenditure and income have been derived by a careful and sophisticated set of calculations aimed to extract the maximum value from those data provided, but there are particular notes of caution to be borne in mind. First, data for some large countries are missing. This weakness affects estimates of absolute value much more than it does estimates of trends over time, where there can be good confidence. Second, there are some heads and categories with a particularly low response where the confidence in the total estimates has to be qualified. For example, the tables on spending on electronic materials and on automation were completed by very few responders.
Recent developments to the national framework to evaluate public library performance in the UK

Phillip Ramsdale and Martin Jennings
Institute of Public Finance Ltd., Chartered Institute of Public Finance and Accountancy, United Kingdom

David Fuegi
LibEcon Project, Chartered Institute of Public Finance and Accountancy, United Kingdom

Abstract
IPF is the executive arm of CIPFA, the Chartered Institute of Public Finance and Accountancy (CIPFA) and is involved in the development of public library performance in the UK in a number of ways. On behalf of the Department of Culture, Media and Sport (DCMS) it has developed the framework for the submission and evaluation of annual public library plans and has evaluated the plans submitted to DCMS for the last 3 years. It has provided the secretariat to support DCMS in developing public library standards for England, which were published and adopted in early 2001. It supports the Committee on Public Library Statistics to specify what statistics will be collected for UK public libraries and publishes the results. It provides the PLUS [Public Library User Survey] service, which constitutes a de facto national standard in user surveys for public libraries. It operates a sophisticated network of metric and process benchmarking clubs to which a high percentage of public libraries subscribe.

Introduction
In the time since the Annual library plans were described to the last Northumbria Conference two years ago, there have been a number of highly significant developments towards the provision of an integrated suite of inter-related performance enhancing tools which are of significant importance nationally and internationally. Whilst the public library planning framework first introduced 3 years ago encouraged public libraries to plan carefully and to have regard to significant policy initiatives, and gave DCMS a formal framework in which to raise concerns with service providers, the lack of agreed standards for service provision was perceived by all to be a significant handicap. In early 2001 this gap was filled by the publication by DCMS of public library standards for England. These standards are of international interest. They depend heavily on data provided by the Chartered Institute of Public Finance and Accountancy (CIPFA) Public Library Statistics and the PLUS user survey. Both of these are described.

The United Kingdom (UK) Government has selected Best Value as a key tool in improving local government performance. One of Best Value’s key concepts is comparison [benchmarking]. To achieve economies of scale in this field and to allow all library authorities to participate, CIPFA has created benchmarking clubs for many local government services, including libraries. The metric benchmarking club has just completed its second year of operation and the process benchmarking club its first. The methodologies could be adapted for use outside the UK. Taken together, all these recent developments at national level in the UK, provide an increasingly coherent framework for improvement of public library performance, many elements of which could be adapted for use outside the UK.

The roots: “CIPFA statistics”
In 1885, the Institute of Municipal Treasurers in the United Kingdom initiated the first formal exchange of statistics covering the operation of the “Free library service”. With the one exception (in 1942), the series of statistics has been collected annually, and enjoys the participation of every library authority in the United Kingdom. The activity is, perhaps, unique in that the canvass represents the cooperation of two professional bodies – accountants and librarians – whilst government is content to observe and support the function by endorsing the independent Committee on Public Library Statistics. Thus, the survey has no statutory basis and therefore the participation of each library authority is based on their recognition of the benefits deriving from the database. Upon this traditional base, much has been built, so that the United Kingdom public library service now has an efficient mechanism for producing consistent performance indicators. This paper seeks to describe what benefits this established base has brought to the development and application of performance indicators.

The surveys described above are known colloquially as the “CIPFA statistics” [The Chartered Institute of Public Finance and Accountancy. This is the parent body of the Institute of Public Finance Limited, of which the author is Executive Director.], and they include two annual canvasses, respectively covering the intentions assumed in the budget for the year of account (“Estimates”), followed by a second request for data on the outturn (“Actuals”). Consequently, there is a rich source of information for each library authority to keep...
track of its own activities compared with the current plans made by other authorities and within the national trends. Further, context is derived from the availability of similar data collated by the Library Council for the Republic of Ireland. In all, the statistics represent a complete picture for 240 library authorities, describing the activity of 4,525 static service points in five countries comprising the UK and RoI. Despite this, the statistical archive shows that there is still as much variation in the expenditure on public library services now, as there was more than a century ago.

Table 1: Distribution of authorities’ expenditure on public libraries

<table>
<thead>
<tr>
<th>Year</th>
<th>Per 1,000 population excluding zero rated councils per head of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1885</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
</tr>
</tbody>
</table>

| Less than £10 | 38% | 4% | 20% |
| £10 < £15 | 27% | 42% | 53% |
| £15 < £20 | 23% | 35% | 15% |
| £20 < £25 | 8% | 13% | 3% |
| £25 < £30 | 2% | 3% | 2% |
| £30 or more | 2% | 3% | 1% |

Given the accountability interests, it would be easy to gain the false impression that the compilation is heavily weighted towards financial measures. However, the Committee on Public Library Statistics (CPLS) boasts only one finance professional out of a membership of 18 other librarians and the development priorities are focused on a mixture of outcome and input rather than input measures. Furthermore, the professional cooperation leads to both activity and financial data being collected on the same form, so the resultant unit cost measures have a degree of consistency which otherwise would be missing if drawn from different sources. Whereas, the standardisation of the forms of account was the main concern in past years, the major interest of the CPLS now lies in developing tighter activity definitions and extending these over the digital agenda. The CIPFA statistics therefore provide a database to service the continuously developing national and local research agenda.

Measures of accountability

The voluntary participation in the open survey method adopted by managers of public library services has certain advantages; the most noticeable of which is the profession’s influence over the choice of headline performance indicators. In recent years (since 1980) the government has placed emphasis on the publication of measures which can be reported to the public at large thus inviting a closer scrutiny of the services they are entitled to receive. However, public librarians in the UK can justifiably take pride in the fact that such measures were already available and that the various auditing bodies could benefit from a long established and tested framework of statistical survey definitions.

Furthermore, such headline indicators (which provide a rather crude analysis of overall performance) can be placed in context by a whole series of explanatory indicators on the public record. The resulting system produces statistics which demonstrate accountability as bi-product of the normal management information system.

Even so, just as there are different views expressed by different audiences on what constitutes the best measure of performance, there are equally divergent views on how to interpret such measures. In 1980, after a period of substantial growth in public expenditure, being high on the league table of public library expenditure per head exposed the managers of the authority to more intense pressure to make reductions. More recently, local authorities at the bottom of this league table are under the same sort of scrutiny to increase their spending on materials to redress a prolonged period of “under-investment”. Even the crude measures can be turned on their head. So with a wider audience (public and government as well as management) scrutinising the so called “performance indicators” there has been a tendency to develop more specific measures to cater for the different circumstances in which such performance is reported. These have met with mixed success.

There is a hierarchy of indicators, so to speak. At the highest level are the measures of account to the public. The current name for these in the United Kingdom is the “Best Value Performance Indicators”. For Public Library services there are three:

- **BVPI 115** The cost per visit to public libraries.
- **BVPI 117** The number of physical visits per head of population to public libraries.
- **BVPI 118** The percentage of library users who found the book / information they wanted, (or reserved it, and were satisfied with the outcome.)

The first two ratios are simple measures of volume, whilst the third seeks to quantify the success of the service in meeting the expectations of users. However, if these are meant to be “easy to understand”, they defy easy interpretation. We have already seen that the first measure may indicate parsimony or profligacy. Consequently, it may be assumed that the public for whom this measure is provided will tend to believe that the correct level of investment equates to the norm (i.e. best to be average in this situation).

Furthermore, if the service is meant to be “free”, as the legislation insists, and if a standard level of service and choice is to be made available to all users, then the fixed cost of provision will be shared amongst a variable number of visitors. How can the user reasonably judge whether or not they are getting value for public expenditure in such circumstances? To help answer (or perhaps avoid) this question, the Best Value regime
suggests that better value is located at the top quartile point rather than the average. However, at which end of the distribution is the top?

As the number of visitors increases, then the unit cost per visit decreases. So if the number of visits decreases, then it is necessary to reduce expenditure by a larger proportion, constraining choice for the remaining visitors.

**Figure 1:**

![Diagram of Cost per Visitor vs Number of Visitors]

**Figure 2:**

The last indicator (BVPI 118) suffers from indistinct definition. Typically, two out of every three persons immediately find the book they were seeking. Some argue that if users need to reserve books, then the library has insufficient stock. However, the public library services in more rural areas argue that they need to spread the same amount of stock over a larger number of smaller libraries than those serving more urban populations of the same size. Consequently, the choice available to users is more limited. All in all, it will be clear that even the most simple measures are imperfect, and it is probably true to say that many service practitioners regard the Best Value performance indicators with a degree of cynicism simply because they reduce the opportunity to give proper account of the quality and depth of the service.

For this reason, it is possible that there has been considerable activity in recent years in developing alternative performance measures. These include:

1. New marketing indicators (users’ views and catchment population characteristics) – these are being developed within an agreed framework known as PLUS (Public Library User Surveys);

2. In-depth management indicators where comparisons are made in benchmarking clubs; and,


The remainder of this paper seeks to describe these developments.

**PLUS**

In the early 1990s, the profession were seeking a key indicator of service quality based on the success or otherwise of library visitors being able to borrow the books of their choice. [This performance indicator is known as the “Needs fill rate”, and was developed from earlier surveys undertaken in Higher Education libraries in the United States.] This led the CPLS, with the joint assistance of the Audit Commission and the Office of Arts and Libraries, to undertake a sample survey of users in a number of authorities to test the questionnaire. [The Audit Commission in England and Wales is the body appointed by government to scrutinise the accounts of local municipal activities including locally delivered health services. The body supervises the audit of local authorities’ accounts and has powers to undertake inspections of the manner in which such services are managed.] The approach required that the question to be asked in a consistent way by all authorities and it was soon realised that further benefits would derive from the specification of a standard set of questions to be used in local surveys. Nationally consistent data sets would add value to local survey results, and the system offered the prospect of comparing service points of similar type in different parts of the country. After several tests of the extended questionnaire a national standard was agreed, and a standard survey methodology agreed. PLUS was born.

From the outset, postcodes were sought and hence the survey results can be used for mapping catchment areas and cross referencing to small area population census characteristics. [The Government Office now known as the Department for Culture Media and Sport.] The standards recommend all authorities mount the survey in all libraries although for larger administrative units it is suggested that the survey is phased such that a representative number of service points are included in each of three successive years. The methodology recommends good practice in statistical approach, and to date 185 of 208 possible UK public library services have adopted the guidelines and implemented the survey recommendations. Thus in 2000, approximately 350,000 users of public libraries completed the standard questionnaires and in the current year (2001) the expectation is that at least 500,000 users will be included. A central database has been assembled, from which it is possible to monitor national and regional trends and the PLUS activity produces an annual report highlighting the summary results each year.
One unforeseen but significant outcome of the PLUS initiative is that the Public Library Service can demonstrate the highest user satisfaction rates of all the public services in the United Kingdom. [Based on pre-publication draft results of user satisfaction surveys compiled by the Department of Transport, Local Government and the Regions. (Summary results due for publication in late 2001).] Despite this the profession is seeking to extend the portfolio of survey instruments: A survey standard exists for Children and new surveys are currently being tested on the use of electronic services. Indeed, the development of PLUS highlights one of the more successful outcomes of performance indicator research, in that the initial objectives simply sought to generate information capable of monitoring whether or not library users were provided with sufficient choice, whilst the final outcome is complete marketing system which now includes a protocol for undertaking surveys in the community. All in all a satisfactory outcome for a framework which also underpins the demand for high level performance indicators specified by government.

Benchmarking

Given the long tradition for generating comparative statistical data in the United Kingdom, one might be forgiven for wondering whether even more detailed “benchmarking” could add further value to the research activities undertaken by library service managers. Indeed the term means different things to different people. For some time there has been an active interest in making more of the established and available databases by exploring trends and restricting the comparisons within similar groupings of administrative units. However, the concept of forming clubs to dictate the common research agenda and collect new data specifically to inform a particular review has only recently evolved. In this connection, there are two main types of club activity: One concentrates on “Metric” or statistical comparison of service activities; The other, examines “Processes” for delivering the services, comparing methods and practices. Both are complementary, and now that the clubs have been operating for three years there is a tendency towards merging the interests of these approaches.

Thus, the aim of the benchmarking clubs is to combine the benefits of networking through groups such as quality circles with a set programme of investigations into processes and methods of service delivery. The research is founded on statistical or process analysis between library authorities. The enquiries lead to an examination of management processes and the effectiveness of policies. Regular exchange of information and a continuous cycle of research topics provides the appropriate forum for all authorities wishing to support their best value initiatives. The emphasis is directed towards how best to ‘add value’ to efforts and the menu of supporting research is debated at meetings and workshops. The groupings or “Clubs” range in size with as few as 6 library services and as many as 100 members.

Benchmarking informs all rational management and is a major tool for improving performance. It can both act as a diagnostic tool and give a steer towards the medicine needed to ensure improvement. Because of its potential power as a management tool, it is making the most practical use of performance indicators in public library authorities in the United Kingdom. In this context, “Benchmarking” is key to:

- The “Best Value” regime;
- Annual (Public) Library Plans;
- Public Library Standards.

Figure 3:

The Committee on Public Library Statistics is overseeing the approach and is keen to maintain and develop standardisation in the framework of library performance indicators for the benefit of all the stakeholders. The club’s methodologies often offer ready-made tools for internal benchmarking between libraries in the same authority, however, external benchmarking (between public libraries and other types of organisations) is not part of the programme. The approach concentrates on diagnosis. Local management remains, as always, responsible for initiating and managing change and improvement on the ground. To this end, current topics have been selected for their importance and feasibility in consultation with club members in earlier years:

1 - Metric Benchmarking of Services
2 - Best Practice in Stock Management
3 - Best Practice in ICT Service Applications
4 - Best Practice in Social Inclusion
5 - Marketing Practice in Public Libraries
6 - Best Practice in Reservations and Inter Library Loans Service
7 - Statistical Profiling

All benchmarking involves networking of interested individuals and to assist potential contacts with com-
mon research interests, a "Nearest neighbour" tool can be used to identify other library services with common characteristics. This model allows users to select relevant characteristics (e.g. scale of enterprise, staffing ratios, book fund investment) and the most similar other public library services are identified.

A key point concerning the benchmarking approach is its technical focus. Participants are assured that all the information they pool will be restricted to the club, and details about any single library service are kept confidential – the option being given to use code labels rather than names of organisations. Given the traditional open exchange within the profession, the option to remain anonymous is rarely requested and this demonstrates a healthy interest in maintaining a transparent and open approach where best practice can be transferred efficiently. In practice the UK benchmarking activities also provide a useful framework for researching the more detailed performance measures.

Annual Library Plans and Service Standards

The requirement to produce and review an annual library plan is the single most important process determining the use and definition of performance indicators. Public Library services have been required to submit their plans to the responsible Secretary of State since 1998. [The Secretary of State for Culture, Media and Sport is the responsible Government Minister for Public Libraries in England.] Each Public Library service is administered by a municipality, or local authority which is required to formulate proposals for investment three years ahead. The emphasis is placed on practicable plans and hence the limited planning horizon. The first three year cycle of planning was completed in 2000 and the process was particularly successful in drawing attention to the paucity of investment in the public library services in recent years. Indeed, this attention has been influential in ensuring that a framework of service standards were defined and linked to the future planning process.

The first real attempt to define national standards for the public library service were set out in the the Bourdillon report, published ahead of the Public Libraries and Museums Act, 1964. This set out some basic standards against which it is interesting to see how local authorities perform today:

**Figure 4:**

![Figure 4: Population per FTE member of Staff](image)

**Figure 5:**

![Figure 5: Professional as % of all FTE staff](image)

**Figure 6:**

![Figure 6: Stock Acquisitions per 1,000 population](image)

**Explanation:**

These figures are representations of the distribution of values recorded for each local authority. These are shown by class of authority.
The distributions are represented by bar charts where the median (the value for the authority half way down the distribution) is represented by a broad band.

The shaded box about this median represents about two-thirds (68%) of the authority values, and the thinner line enclosed within the bars shows the limits for nearly all other authorities (95%) in the distribution.

The positions of “outliers” (i.e. those authorities which occupy an extreme position beyond the normal range), are shown individually relative to the main distribution.

(The 68% and 95% proportions referred to above respectively represent one and two standards deviations about the mean.)

• Staffing was to be set at the rate of one member of staff per 2,500 resident population. Figure 4 shows that this ideal is mainly only met in the urban authorities.

• Furthermore 40% of these staff were meant to be professionally qualified, which is an aspiration which is rarely met by any authority to-day, as demonstrated in figure 5.

• Annual stock acquisitions were set at 250 per thousand population to sustain the service, but this level of stock investment is only met by about 10% of authorities outside Inner London, as shown in figure 6.

Plainly, if any new standards were to be set, they would need to be specified in a regime which might allow such targets to be met. However, many of the trends in the statistics describing investment and output were showing a decline. The link between opening hours and visitor counts to UK Public Libraries is undeniable and so it is difficult to avoid the connection between the reduction in overall hours of access experienced in recent years and a fall-off in the overall number of visitors to libraries. Whilst it is difficult to establish whether the fall-off in visitors to public libraries is a direct consequence of the reduced hours of access, the sustained reduction in the number of service points makes this very likely. With reduced access, the opportunity for libraries to react to customer demands is limited. So economies may have been made in expenditure (10.4% in real terms since 1994/95), which have been realised in staffing reductions (-4.8% since 1994/95) and a decline in annual additions to stock (-13.6%). Therefore, there was a pivotal reason for introducing standards to defend against the diminishing “opportunity for access” to a public library service which has gathered pace in recent years.

The debate over the formulation of the revised national service standards was inclusive and involved several iterations of consultation and discussion. Systems adopted in other countries were studied and an initial model specified, which might be measured as follows:

**Deployment of the service:**
- Proportion of the population resident within 5 kms of a public library.

**Service availability:**
- Average branch opening hours which extend beyond normal business hours.
- Visitor weighted average opening hours per week.

**Servicing special needs groups:**
- Proportion of the resident population with access to a mobile library.
- Proportion of the registered disabled population who hold library membership.
- Proportion of children resident in the authority who hold library membership.
- Proportion of the elderly resident in the authority who hold library membership.

**Satisfaction with the service being provided:**
- Proportion of users satisfied with requests for information (PLUS).
- Composite needs fill rate (PLUS).

**Utilisation of the service by the community:**
- Proportion of members who have visited the library(ies) in past twelve months.
- Stock available for borrowing divided by annual loans.
- Book stock per head of resident population.
- Count of visits to the library in the year divided by the resident population.

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- Stock available for borrowing divided by annual loans.
- Book stock per head of resident population.
- Count of visits to the library in the year divided by the resident population.
Resources management in support of the service:

- Net expenditure on the library service divided by annual visitors.
- Net expenditure on the library service divided by registered members.
- Net expenditure on the library service divided by resident population.

The indicators were acceptable, but the overall model was thought impracticable.

Figure 8:

A simpler approach was sought and it was eventually agreed to specify target levels of service in accordance with the “Best Value” framework where all authorities should strive to meet the value occupied by those at the top quartile position in the statistical distribution. The overall objectives were specified and published under the title “Comprehensive, Efficient and Modern Public Libraries – Standards and Assessment” in the 150th year since the passing of the Public Libraries Act, 1850 (DCMS). In the following list “LAs” stands for Library Authorities:

LAs must enable convenient and suitable access for users of libraries

PLS 1. Proportion of households living within a fixed distance of a static library.

PLS 2. Proportion of the planned time that service points were not available to visitors.

LAs must provide adequate opening hours of libraries for users

PLS 3. Aggregate opening hours per 1,000 population for all libraries.

PLS 4. Percentage of larger libraries open at least 45 hours per week.

LAs must ensure satisfactory services for the issuing and reserving of books

PLS 5. Authority’s normal book issue period (in weeks)

PLS 6. Percentage of requests for books met within:
- 7 days
- 15 days
- 30 days

LAs must encourage the use made of the public library service

PLS 10. Number of visits to the library website per thousand population.

PLS 11. Number of library visits per thousand population. (Virtual visits to be phased-in).

LAs must ensure user satisfaction with the services provided


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PLS 4. Percentage of larger libraries open at least 45 hours per week.

LAs must ensure satisfactory services for the issuing and reserving of books

PLS 5. Percentage of libraries open more than 10 hours a week that have access to on-line catalogues.

PLS 6. Total number of electronic workstations available to users per thousand population.

LAs must encourage the use made of the public library service

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PLS 11. Number of library visits per thousand population. (Virtual visits to be phased-in).

LAs must ensure user satisfaction with the services provided

PLS 13. Percentage of library users reporting success in gaining information as a result of a search or enquiry.

PLS 14. Percentage of library users rating the knowledge of staff as “good” or “very good”.

PLS 15. Users rating the helpfulness of staff as “good” or “very good”.

As must provide choice in books and materials made available to users

PLS 16. Quality index for adult fiction; adult non-fiction; children’s books; reference materials; large print books and books on tape.

PLS 17. Annual items added through purchase per thousand population.

PLS 18. Time taken to replenish lending stock.

PLS 18i. Fund for purchasing library items per thousand population.

PLS 19. Staff per 1,000 population with appropriate management and ICT qualifications.

The final stages of consultation brought the overall resource implications of the national standards into sharp focus. After all these defined service levels which by definition 3 out of 4 library services would need to improve. To do so they would need to set out plausible and practicable strategies in their Annual Library Plans (ALPs). In this connection, it does not necessarily follow that improvements in service levels under all the objectives require increased investment. Also the options exist to take a more flexible approach to meeting the requirements. For instance, an increase in the provision of mobile access to the population not at present living within the specified distance standards of a static service point. Therefore, not including capital charges, the overall estimated full year revenue cost consequences of raising all public library services up to the standard levels would be to increase the national budget by between +9% and +13%. This in part explains the reason why there are no explicit standards specifying the minimum expenditure levels each authority should invest. Hence the measure PLS 18i, listed above, is a simply a contextual indicator which the auditor or inspector would regard should the authority show insufficient improvement under the other standard headings. Even so the potential resource impact of implementing the standards argues for a phased and planned approach, and the relevance of the Annual Library Planning process and the performance indicators that inform their review take on added significance.

The planning cycle starts each year with the publication of overall guidelines followed by the provision of a statistical profile for each Public Library service. The profile is unique to each authority – i.e. the data are specific to the authority and the group of other authorities with which the comparisons are made. However, the indicators and presentation are consistent across all the profiles. The presentation falls into two parts: One reporting the progress of the authority in meeting the standard levels of service; The second set out more general statistics on financial performance and related input and output measures.

Full profiles for each library service are available on the web-site devoted to supporting the Annual Library Plans process: (www.LibPlans.ws)

Figure 9 - Extracts from a “Planning Profile” provided to inform the review of the plan.
### Public Libraries Standards Checklist

<table>
<thead>
<tr>
<th>Standard Number</th>
<th>Standard</th>
<th>Standard met or exceeded</th>
<th>Standard figure</th>
<th>Authority figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLS 1(i)</td>
<td>Proportion of households % residing within 1 mile of static branch</td>
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<td>95%</td>
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<td>100%</td>
<td>100%</td>
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<td>PLS 5</td>
<td>Percentage of libraries open more than 10 hours a week that have access to on-line catalogues</td>
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<td>100%</td>
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<td>PLS 6(i)</td>
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<td>PLS 6(ii)</td>
<td>Percentage of static service points providing public internet access</td>
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<tr>
<td>PLS 7</td>
<td>Normal book issue period (weeks)</td>
<td>✔</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>PLS 8</td>
<td>Number of books that library users are allowed to borrow at one time</td>
<td>✔</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>PLS 9(i)</td>
<td>Percentage of requests for books met within 7 days</td>
<td>✔</td>
<td>80%</td>
<td>75%</td>
</tr>
<tr>
<td>PLS 9(ii)</td>
<td>Percentage of requests for books met within 15 days</td>
<td>✔</td>
<td>70%</td>
<td>81%</td>
</tr>
<tr>
<td>PLS 9(iii)</td>
<td>Percentage of requests for books met within 30 days</td>
<td>✔</td>
<td>85%</td>
<td>89%</td>
</tr>
<tr>
<td>PLS 11</td>
<td>Number of library visits per 1,000 population</td>
<td>✘</td>
<td>6,000</td>
<td>4,181</td>
</tr>
<tr>
<td>PLS 12(i)</td>
<td>Percentage of adult library users reporting success in obtaining a specific book</td>
<td>✘</td>
<td>65%</td>
<td>57%</td>
</tr>
<tr>
<td>PLS 13(i)</td>
<td>Percentage of adult library users reporting success in gaining information as a result of a search or enquiry</td>
<td>✘</td>
<td>75%</td>
<td>71%</td>
</tr>
<tr>
<td>PLS 14(i)</td>
<td>Percentage of adult library users rating the knowledge of staff as “good” or “very good”</td>
<td>✘</td>
<td>95%</td>
<td>90%</td>
</tr>
<tr>
<td>PLS 15(i)</td>
<td>Percentage of adult library users rating the helpfulness of staff as “good” or “very good”</td>
<td>✘</td>
<td>95%</td>
<td>91%</td>
</tr>
<tr>
<td>PLS 17</td>
<td>Annual items added through purchase per 1,000 population</td>
<td>✘</td>
<td>216</td>
<td>204</td>
</tr>
<tr>
<td>PLS 18</td>
<td>Time taken to replenish the lending stock on open access or available for loan</td>
<td>✘</td>
<td>8.5</td>
<td>13.9</td>
</tr>
</tbody>
</table>

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**Figure 10** – Extract from a “Planning Profile” provided to inform the review of the plan.
Relevant web-sites:

www.ipf.co.uk

This site covers the spectrum of public services in the United Kingdom, including statistics on their diverse services (alphabetically form “Archives” to “Waste Management”). Public Library Statistics for individual library authorities relating to the budgets for the current year of account (Estimates) and outturn data for the latest financial year completed (Actuals) are available to subscribers – commentaries and summary statistics are available to all site visitors.

This site also houses the information about Public Library User Surveys – PLUS.

www.LibPlans.ws

This is the administrative site for supporting the Annual Library Plans in England. The plans for each Public Library service are lodged here. Individual Planning Profiles (Reports setting out a number of performance measures for each Public Library service are also available).

Copies of planning guidance, administrative materials, an interactive “Nearest neighbour” model and FAQ facilities are provided.

www.LibEcon.org

The site for international library statistics - the existing coverage is confined to European Countries but surveys are at present being undertaken across many more. Participation is not restricted. Volunteer coordinators for any country are invited to contact the web-site to initiate the inclusion of as wide a community of interests as possible.
Measuring performance within the bidding culture

Kathryn Ray and Graham Coulson
School of Information Studies, University of Northumbria at Newcastle, UK

Dr. Ken Harrop
School of Social, Political and Economic Sciences, University of Northumbria at Newcastle, UK

Abstract

This paper examines how aspects of performance measurement and competitive funding are affecting English public library provision, as regards the extent to which such assessment serves as a barrier to participation in the competitive bidding arena. The consequent impact of such project monitoring mechanisms on service provision, staff and users also will be discussed. The research project and methodological context from which this paper arose will be detailed.

Introduction

In the United Kingdom, from 1979 through to 1997 under the Conservative government public services were reduced, externalised, starved of resources and put out to ‘competitive tender’ in a crusade to reduce public expenditure (Hendry, 2000:272). One increasingly important option available to managers was to look outside conventional sources of funding and to bid for money to develop their services. Resource allocation by competition has become a reality of contemporary public policy (Foley, 1999:806), and this has resulted in public sector services actively vying with each other in order to secure additional capital and revenue monies. Competitive bidding has become a characteristic of contemporary public service management under the current Labour government.

Local authority archive, library and museum services have not been insulated from these developments. UK public libraries in particular have been hard hit by the erosion of traditional forms of funding and over the last decade in particular competitive bidding for additional funds has become a mainstay of many libraries' activities. What may be termed a culture of bidding has developed, with a host of funding opportunities for public libraries, diverse in both range and purpose. Some of the main initiatives are listed chronologically in Figure One.

Figure 1. The bidding culture: major competitive bidding initiatives for UK libraries

<table>
<thead>
<tr>
<th>Year of Introduction</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>Single Regeneration Budget</td>
</tr>
<tr>
<td>1994</td>
<td>Arts Council of England</td>
</tr>
<tr>
<td>1994</td>
<td>European IST Framework programme</td>
</tr>
<tr>
<td>1995</td>
<td>National Lottery Heritage Fund</td>
</tr>
<tr>
<td>1997</td>
<td>DCMS/Wolfson Public Libraries Challenge Fund</td>
</tr>
<tr>
<td>1998</td>
<td>New Opportunities Fund</td>
</tr>
<tr>
<td>1999</td>
<td>British Library Co-operation and Partnership Programme</td>
</tr>
<tr>
<td>1999</td>
<td>Culture 2000 – European Union</td>
</tr>
</tbody>
</table>

Within this diverse and highly competitive arena some organisations have been active and successful in bidding for such funds and thus their services and communities have benefited financially. Others have not been so successful and some have found it difficult to enter this competitive arena. The advantages of allocating funds in response to competitive bids, rather than by traditional methodologies revolving around statistical indicators of “need”, were deemed to include less bureaucracy, cost savings, better value for money, more innovative, enterprising and imaginative proposals, sharper strategies, greater flexibility, more local choice and enhanced responsiveness as well as greater policy integration through partnership. Critics, on the other hand, pointed to finite and diminishing resource bases, the substitution of core by opportunistic funding, the large financial and human costs of bidding, fragmentation and the distorting allocative and distributional effects of sexy bids, glossy submissions and slick presentations succeeding at the expense of genuine indicators of local need.

Beginning before but accelerating with increasing zeal alongside the emergence of the bidding culture is another trend indicative of the new UK local government agenda, that of the development of a climate of performance measurement within public libraries. There has admittedly been a long tradition of UK pub-
lic libraries using quantitative measures for assessing their performance, but as Favret notes:

In common with other local authority sectors, public libraries have responded to the new public management agenda by undertaking a number of new quality initiatives. (Favret, 2000:342)

A wide range of compulsory performance indicators has been introduced across the local government and the wider public sector. This has naturally included public library authorities, as the following timeline reveals:

**Figure 2: Performance measures in libraries timeline**

<table>
<thead>
<tr>
<th>Year of Introduction</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>Chartered Institute of Public Finance and Accountancy (CIPFA) Public Library Statistics</td>
</tr>
<tr>
<td>1964</td>
<td>The Public Libraries and Museums Act</td>
</tr>
<tr>
<td>1998</td>
<td>DCMS Annual Library Plans</td>
</tr>
<tr>
<td>1999</td>
<td>Best Value</td>
</tr>
<tr>
<td>2000</td>
<td>Consultation on Public Library Standards</td>
</tr>
<tr>
<td>2001</td>
<td>Public Library Standards</td>
</tr>
</tbody>
</table>

Such performance measures have the aim of ensuring that UK public library authorities meet their main statutory duties, as set out in the Public Libraries and Museums Act 1964 to ‘provide a comprehensive and efficient library service for all persons desiring to make use thereof’. In line with this emergent performance culture all competitive funds have adopted an output driven approach; the requirement of project evaluation being driven by value-for-money (Fordham et al., 1999:133). This emphasis on performance indicators and highly visible outputs fits snugly into New Labour’s new local government agenda (Parker, Harrop, Ray and Coulson, 2001:18) with its stresses on:

- Hands-on professional management;
- Explicit standards and measures of performance;
- Focus on results and outputs rather than procedures;
- Moves to greater competition, contracts and tenders; and
- A general shift to private sector styles of management. (Favret, 2000:341)

It can then be argued that the rise of performance measurement and competitive bidding in libraries both arose as part of the same paradigm shift in UK public sector management. Public library services are developing rapidly and in the present funding and performance climate library managers - by necessity - have to adjust their strategies in order to facilitate continuous development and must learn to ‘play the game’. As one commentator contended:

Never has there been such a test of the entrepreneurial skills of the local librarian (Manley, 1998:191)

In addition to bidding for funds; implementing and sustaining externally funded projects; undertaking best value audits; preparing annual library plans; meeting DCMS’s library standards; developing partnerships (with a wide range of public, private and community-based interested parties, on local, regional and national stages) library managers must not forget that they also have to meet the needs of those using the service on a day-to-day basis both efficiently and effectively.

This paper will examine how aspects of performance measurement and competitive funding are affecting English public library provision, as regards both the extent to which such assessment serves as a barrier to participation in the competitive bidding arena, and also the consequent impact of such project monitoring mechanisms on service provision, staff and users. First however, it is useful to briefly consider the research project and methodological context from which this paper arose.

**The research project**

In early 2000 Resource, the UK Council for Museums, Archives and Libraries funded the Information Management Research Institute at the University of Northumbria in Newcastle to investigate the effects of competitive funding on the development of public libraries, registered museums and archives in England. More particularly the objectives were to:

- Document the extent and scale of competitive bidding;
- Identify successful bidding strategies and to investigate the effects on service provision;
- Identify and report on apparent good practice, and to identify barriers to effective change;
- Investigate unsuccessful bids and to assess the organisational and management implications for services, staff and stakeholders;
- Investigate non-bidders to assess the effects, if any, on service provision; and,
- Investigate alternative sources of funding and to examine any possible partnerships within this wider context.

**Methodology**

A major postal questionnaire survey of all local authority archives, public libraries and registered museums in England provided a comprehensive audit of the inci-
dence and significance of competitive bidding for these services. A total of 1,511 questionnaires went to:

- 145 English archive authorities (with a 49% response rate)
- 1,220 registered museums (with a 20% response rate)
- 148 library authorities (with a 41% response rate)

63 in-depth interviews were conducted with representatives of over 30 archive, library and museum services in twelve case study local authorities nationwide as well as an additional 28 with representative regional bodies and a further three with funding bodies. These interviews allowed the exploration of services within a broader context, thereby identifying aspects of organisational, corporate and cultural significance in addition to the service-specific focus of the questionnaire survey. A full account of methodology and methods may be found in the final report from the research, which has been accepted by Resource (Parker, Harrop, Ray and Coulson, 2001).

**EXTENT AND SCALE OF BIDDING IN UK PUBLIC LIBRARIES**

The overwhelming majority of libraries are actively engaged in bidding for external funds with 97% having submitted bids for at least one or two major projects (i.e. £10,000 or more) during the three year study period 1997-2000. Whilst acknowledging that respondents may be better able to provide details of current or recent projects more readily than those from earlier years, Figure 3 demonstrates there has been a marked rise in bidding activity. Over the three-year period investigated there was a rise of 197 percent.

**Figure 3: The Rise of Competitive Bidding, 1997-2000**

(Source: Bidding Culture questionnaire survey, 2000)

This rise may be attributed to more experience, expertise and confidence in bidding as well as necessity – it being the only way to develop and maintain services. The parlous state of existing core provision of services has led to a great number of library services becoming increasingly reliant on external funding sources. Bidding has simply become essential with traditional sources of funding being constrained and it is now accepted in the library domain as the main means of securing additional revenue:

This represents the only opportunity for growth in the service. (Interviewee)

Interestingly competitive funding appears to be increasingly necessary in order to meet libraries’ performance measurement targets:

It all comes down to continuous improvement of service delivery. We have to be in a bidding culture. (Interviewee)

Frankly, we need to bid in order to fulfil some of our service objectives, for example the creation of learning centres using DfEE and NOF money. (Interviewee)

Successful bidding helps demonstrate to the local authority the cost effectiveness of the public library. (Interviewee)

One of the greatest concerns for librarians when considering whether or not to bid for funding is the fact that the process is a gamble with very scarce resources. They gamble with staff time and motivation against the possibility of investment. The research has shown that while a large proportion of bidders who suffered rejection claim to pursue alternative funding only 40% were successful. However, many thought that the process was still beneficial as the following interviewee suggests:

Bidding has certainly become a way of life within the service over the past 5 years and to some extent has overcome the feeling of isolation that library services have experienced in the past. Partnerships with external agencies have been extremely rewarding and the profile of the library service has been raised considerably. Our service has benefited by carefully thought out bidding strategies. (Interviewee)

Bidding cultures, performance cultures: challenges facing modern UK public libraries

The research findings have revealed that a diverse range of factors exist that may influence or dictate the extent to which different services are able to and/or willing to participate in the competitive bidding arena. Strategic issues include having the available resources, in terms of both finance and staff time; staff expertise; existing support mechanisms; partnership working; regionalism and cross-sectoral working. Libraries and any externally funded schemes are also subject to performance measurement from two directions, the funding body and local and central government.

Accountability procedures required by the grant giver (performance targets; evaluation; financial accounts/returns) both at the bid writing stage and throughout the project were seen by a large number of respondents as either wholly prohibitive or overly onerous. In addition performance indicators required
by the parent local authority and central government (Best Value; Annual Library Plans; Public Library Standards) were seen as shaping participation in the bidding culture.

The increasing convergence of these two forms of performance measurement appears to influence both success and participation within the bidding culture. The UK government has introduced a wide range of performance indicators for public libraries, a mainstay of the new political agenda of reinforcing and reinvigorating local democracy through consultation with and the involvement of service users and the wider community (Liddle, 1999:206). As commentators have observed however such performance measurement has a less benevolent aspect:

It is also a mechanism through which central government’s objectives and policies will be delivered by local government. (Liddle, 1999:207)

Benchmarking for example necessitates the comparing of an organisation and its processes and protocols with those of other similar bodies in order to establish strengths, weaknesses and areas of good practice. Indeed such appraisal helps form the backbone of the new UK ‘Best Value’ scheme, to which all local authority services in England, including libraries, museums and archives, must subscribe. Whereas Best Value drives libraries to compare with each other for mutual benefit, the competitive bidding process demands libraries to compete with each other for the benefit of some rather than all.

The notion of public library local authorities competitively challenging each other is ridiculous. The public library service is built on co-operation and should not have competition between them as you then get disparities and this is where collaboration falls down. (Interviewee)

The emergence of a bidding culture through competitive funds can be seen as another strand of this trend towards central governance. External competitive funds are often seen as a means of enforcing central governance by proxy, leading services to concentrate on developing services in certain directions in line with government agendas. As with the new Public Library Standards, fund eligibility criteria focus on familiar buzzwords such as ‘social inclusion’; ‘lifelong learning’ and ‘access for all’. Some public librarian respondents to the research commented that the focus of these funding opportunities often did not address the areas of real need in the service, such as structural repair or renovation, staffing or book funds.

In addition to those formal performance measurement processes overseen by government, the administrators of the competitive funds all have their own project performance indicators in place. Most funders – in their guidelines or award criteria – stress that project applications must detail performance indica-
is that of quality management and performance measurement, and a stress is placed on the longer term impact of funds - how will externally funded projects be sustained after the funding ends? Successful bidders noted that the key to success is good project management, being clearly aware of the need for sustainability at all stages of the project, and understanding at the outset which monitoring mechanisms are involved. This is crucial because, as one library indicated:

It is not only actually having the bid and going through the bid and putting the bid together, it is actually implementing that once it is successful – one of the dangers is that you have the successful bid and then you can’t sustain what you started. That would have such a negative effect on the users and staff who are delivering those services that we wouldn’t want to put ourselves in that position. (Interviewee)

Sustaining projects after the source well of funding has dried up is believed by many respondents to be the most important sustainability issue, and as the fund criteria highlight, funding bodies themselves place great emphasis on this aspect. No one wants to see good schemes wither on the vine. The necessity of fitting the objectives of any bid into those of the service strategy or annual plans was stressed as the key to longer-term sustainability:

You have no sustainability if a bid simply stands on its own; it’s never going to survive. For us every bid is strategic and has to tie in to our key strategic aims. So very little actually stands alone. (Interviewee)

Sustainability is a problem - how do we do this and generate more money? Service objectives are critical, projects are not detached from the core library business but if they are relatively remote from these objectives then they tend to stay as a project ‘external’ to the service and when the money dries up so does the project. (Interviewee)

It’s the time involved in putting the bids together, it’s the time involved in project managing those, because there are no additional resources for that, and then it’s the sustainability and additional revenue, during and when the capital funding runs out. (Interviewee)

For some, the onus of performance indicators intrinsic to competitive funding initiatives served as a barrier to participating in the bidding culture at all:

The biggest problem is that if we were successful in bidding we would be scared witless because we wouldn’t be able to deliver it, we certainly couldn’t sustain it. (Interviewee)

In the Audit Commission’s latest consultation document ‘Delivering Improvement Together, Strategy Consultation 2001’ it is acknowledged that the wide range of performance indicators demanded of public sector services is in itself causing another problem:

Many people in public services are concerned about ‘initiative overload’. We recognise the need to be more supportive in helping to bring about change in the face of growing shortages of managerial capacity and skills. We need to provide timely and relevant information, including commentaries and reports, so that the public can better understand and judge their services and see more clearly how their money is being spent. (Audit Commission, 2001)

This ‘initiative overload’ also extends to the arena of competitive bidding, with library managers increasingly finding the constant necessity to tender bids and keep up to date with a wide range of funds and sometimes poorly publicised calls for proposals taxing:

We are starting to find it really difficult to juggle all these different balls, Best Value, Standards, bidding and so on. We simply don’t have the capacity or energy to do all these things properly. (Interviewee)

It was widely recognised by the research that successful bidding has indeed yielded real benefits to libraries, to the quality and accessibility of their products and services and to their various users, communities and stakeholders. In addition it was also observed from some quarters that the culture of bidding with the attendant formalised attention to performance and success had helped crystallise thinking and sharpen strategies for organisations. Nevertheless, given the findings of the research there is an underlying concern detected that a two-tier system of cultural provision in England may be arising.

As a result of different capacities for undertaking bidding activity, there is a discernible trend towards an upper stratum of well-resourced large organisations able to participate and benefit from competitive bidding, and a sub-stratum of impoverished, increasingly unsustainable smaller library services. As a result of funding criteria ineligibility, unfamiliarity with process and protocol and the drain of resources that bidding activity represents some organisations and some communities are losing out, creating a country of cultural and information ‘have’ and ‘have nots’.

In qualitative responses to both the survey and interviews the ability to secure both the necessary resources (financial or otherwise), maintain the enthusiasm necessary to undertake bidding activity and, significantly, meet project targets were raised as issues. For some library managers in smaller services the resource implications were simply too great. For such beleaguered libraries there may be light on the horizon; in Resource’s recently published action plan for public libraries Building on Success under the heading of ‘service planning, development and quality assur-
It cannot be said that this babel of measures and activity has as yet produced any significant improvement in the overall level of service delivery across the country. Many public library managers have expressed concern at the lack of co-ordination and the overhead involved in meeting the demands of surveys, plans and statistical returns. (Resource, 2001:13)

Resource is in favour of the new performance measurement culture within UK libraries, but stresses in its action plan that expenditure is required:

Welcome and overdue as these developments are in ensuring local authorities meet their statutory duties; they also raise issues of investment and sustainability. Major investment is needed, not only to redress the effect of the expenditure cuts of the 1980s and 1990s, but also to ensure that important new initiatives are adequately resourced and sustained. (Executive summary, Resource 2001)

It is imperative that Resource, local and central government, and the funding bodies themselves fully appreciate and cater for resource and training needs of these services in terms of understanding and implementing projects. Our research has shown emphatically that with the necessary skills smaller services can undertake highly successful projects that contribute greatly to the cultural life of their communities.

There is an inherent challenge in introducing performance measurement into the bidding culture, of attempting to measure the success of such schemes. It has been demonstrably proven that it is possible to introduce indicators to gauge how well externally funded ventures meet milestones and deadlines, standards that quantify improvements in ICT provision, or even - although much more complex - the rise or decline of library use per thousand local authority constituents in the wake of funded schemes or projects.

It is far harder to measure the effect of many schemes on the actual experience of the users who surely must be the focal point of benefit from these externally funded schemes. Most of the competitive initiatives open to British public libraries reflect in their focus wider government agendas, emphasising - quite rightly - social inclusion, access, and lifelong learning. Outside of formal education, along with museums and archives public libraries should, and increasingly are, epicentres of such activity. Significantly, they are being recognised as such focal points at local, regional and central government levels, not least through the introduction of the aforementioned funding streams. Once these projects are underway however, how does one measure the impact such schemes are having on the user, if any at all. The existing performance indicators operate only until the allotted funding stops.

Winkworth (2001, p.6) recognises that to suggest that one simple set of performance indicators exist that quantify the merits of a library service is an ‘optimistic illusion’. Perhaps as Revill observes experience has a part to play. To some extent the impacts of externally funded projects are realisable simply through experience:

Some things we know at an individual level through our own professional experience and history. (Revill, 2000, p. 9)

The extent to which this is satisfactory however is negotiable. Central government is moving towards much more tangible, quantifiable measurement of the impact of both service provisions, including those externally funded schemes. Funders what to see proof that their money has been spent effectively. The Department of the Environment, Transport and the Regions’ consultation on Best Value and Audit Commission Performance Indicators for 2001/2002 recognises that:

In developing indicators, we should move progressively towards measures of outcome, rather than measuring inputs and outputs. It is more important to measure the impact that best value has on people’s lives, than it is to gather data that is easy to collect. (DETR, 2000)

Attempts to find impact measures are then underway, yet it has been noted that it is extremely difficult for libraries to find functional, operable assessment tools in this area because:

Libraries usually function as an input to an input, with few unique, solely attributable outcomes (Winkworth, 2001: 9).

The emphasis on quantitative outputs which features as part of the assessment process of most funds, both UK and European, renders some projects unworkable (Ward, 1997:79). Benefits that are perhaps less tangible, such as the development of new sustainable strategic partnerships or the improvement of users’ knowledge or cultural experience may not be included in the bid as an outcome, or may be harder to measure (Parker, Harrop, Ray and Coulson, 2001:18). Research interviewees were conscious of this problem, one library respondent running a scheme involving local ethnic minorities observing:

It is going to be very difficult - long term - to assess and judge how successful it has been because the sort of people we are targeting may not be traceable. They may be children who move out of the area or asylum seekers living in the area short term. We are not going to be able to go back in 2 or 3 years and see if their literacy levels or their education levels have changed, which is a shame. (Interviewee)
The effective measurement of the impact on users of many competitively funded library developments in areas such as social inclusion and learning demands longitudinal study and measurement, tracking customers over time in order to reliably quantify the effects of the library service. Such methodology however is currently very often alien to the spheres of UK central and local governance.

**Conclusion**

In conclusion the requirement for performance measurement is one of the defining characteristics of the current bidding culture in UK public libraries. Competitively funded opportunities have enabled widespread service improvement, notably in the areas of information technology provision and social inclusion. For many libraries the bidding culture has facilitated interesting, innovative and worthwhile projects and schemes that have helped services successfully achieve and excel their statutory duty to provide a ‘comprehensive and efficient’ service.

There are however problems, and not least of these is the impediment to effective participation sometimes caused by performance measurement requirements, both from central government concerning the library service as a whole, and from funding bodies monitoring the successful implementation of externally funded schemes. Whilst the necessity of performance indicators and efficient project management were widely accepted, for some the resource implications of such activity are too costly; the burden of meeting all the different goals of Annual Library Plans, Library Standards and fund targets overly onerous. All this with worrying implications on the level of service provision for users. In something of a catch 22 situation at the same time respondents noted that they are increasingly having to bid for external funding in order to meet the demands of performance measurement. The introduction of recent performance measurements such as the Best Value regime would appear to suggest that the need for libraries to engage in effective bidding is not likely to disappear. More than ever therefore there is a need for libraries, in concert with other appropriate partners, to think through their approaches to bidding and the consequential organisational, performance measurement and management demands.

Resource at least acknowledges that the present raft of performance indicators needs to be homogenised, in order to ease the workload of library managers attempting to juggle all of these bureaucratic balls:

Resource recognises the complex pattern of planning and evaluation instruments that are used within museums, archives and libraries and is working to find the means of producing more convergence in the information that is gathered. (Resource, 2001:13)

In their action plan they also appear committed to investigating means of producing impact assessment for whole sector and specifically library sector. Funders too are in the process of streamlining their operations, notably the Heritage Lottery Fund and the New Opportunities Fund. The problems of performance management in the bidding culture, if not wholly addressed, have at least been acknowledged.

To hark back to the overarching theme of the conference, in the UK for public libraries a culture of bidding and performance measurement is the emerging reality. The main task still to be satisfactorily tackled is the discovery of meaningful, operable measures of the impact and actual effects of competitively funded projects and schemes.

**References**


The attributes of information as an asset, its measurement and role in enhancing organisational effectiveness

Charles Oppenheim and Joan Stenson
Department of Information Science, Loughborough University, UK

Richard M.S. Wilson
The Business School, Loughborough University, UK

Abstract

This paper reports early findings from a research study being conducted in the Department of Information Science and The Business School at Loughborough University. The Arts and Humanities Research Board (AHRB) is funding the research. This three-year project is due to conclude in December 2002.

Information assets such as market and customer information and management information identified by the Hawley Committee in 1994, are reviewed and updated. Reviewing and updating information assets was conducted in January 2001 using a discussion forum with senior British information managers. A matrix of revised information assets is then developed and some attributes of information assets are identified from the information science literature. A scoring mechanism for attributes of information assets is proposed. Finally, an interview with the Finance Director of a large UK organisation is reported. This interview uses repertory grid analysis to identify the attributes of information assets considered significant by this individual.

These attributes are then compared to the attributes of information as an asset identified from the information science literature. The latter show little relation to those identified by the Finance Director, an individual responsible for decision-making on information investment and budgeting in his organisation.

Introduction

The value of information and its identification as an organisational resource has long been discussed in the information science literature (e.g. Badenoch et al. 1994). There is little evidence, however, that the many models, formulae and equations (see, for example, Burk and Horton, 1988, Griffiths and King, 1993, Keyes, 1995) developed over the years have convinced many senior managers that information is an essential resource. The view that information and information services are luxuries seems to persist in many organisations and despite the numerous studies that have shown a link between the effective use of information and business success. For example, Abell (1994) linked an “information culture” to improved business performance, whilst Owens and Wilson (1997) identified high-performing companies as possessing an “information ethos”. Information has also been identified as a key driver of competitive advantage (Porter, 1980, Hamel and Prahalad, 1996) and as an effective method of strategic risk reduction (Marchand, 2000). Despite the high profile of these authors, their message has not been widely adopted.

It is, of course, not information itself which is useful, but the ability of people to exploit it for business advantage. However, unless information is collected, organised and made available, then opportunities for exploitation are limited. One approach to enabling better recognition and identification of information value is to define information as an “asset”.

Information as an asset

The Hawley Committee recommended the identification of information as an asset in 1994 (KPMG/IMPACT, 1994). The Hawley Committee comprised a leading group of business executives from the financial, retail and security industries. Dr Robert Hawley, former Chief Executive of Nuclear Power plc, explained that the failure of organisations to address their information resource and its value would result:

“…at best, in a lack of consistency in strategic understanding, planning, budgeting, management and control and, at worst, the very existence of organisations can be under threat”. (Hawley, 1995:237).

Hawley (1995, p. 237) pointed out that, while intangible assets like brands and intellectual property were discussed in the business literature and so brought to the attention of boards of directors, information was still a mysterious and little discussed resource. Information typically only came to the attention of senior management when disaster struck. The Committee recommended defining information as an asset because:

“…every board of directors can relate to managing and reporting assets”. (Hawley, 1995:237).
The Hawley Committee’s main aim was to bring information under the control and governance of boards of directors. This did not deny the dynamic nature of information, but did provide a framework for its management. This moved forward the perception of information as a resource established in Information Resource Management (IRM) to a perception of information as an “asset” in its own right. IRM identified information as an organisational resource that had a lifecycle of creation, distribution, use and disposal (Burk and Horton, 1988:18). The focus of this approach was to maximise productivity relative to costs (Black and Marchand, 1982:206). Such an approach limited an interpretation of information as a dynamic and changing resource which had the ability to acquire and lose value depending on “context and use” (Eaton and Bawden, 1991:163). Identifying information as an asset refocused attention on the information itself.

Information assets

The Hawley Committee (KPMG/IMPACT, 1994) argued that the first step in benefiting from the information held and used by organisations was a formal process of identification. They found that a number of information types or assets were consistently identified across organisations.

These information assets were:

- **Market and Customer Information** e.g. regional utilities have large amounts of data on every household in their region, trade names and marks.

- **Product Information** e.g. the depth of knowledge in particular technologies which support particular products such as fluid and thermal dynamics in the aerospace industry; this includes both registered and non-registered intellectual property rights (IPR).

- **Specialist Knowledge** and information for operating in a particular area, which is often in people’s heads e.g. retailing know-how amongst managers of grocery supermarkets who find even associated areas of retailing difficult to move into. This type of knowledge is now being addressed in part by knowledge management technique, but, at the time of the Hawley Report, knowledge management was not a well-established concept.

- **Business Process Information** that underpins the workings of the business e.g. economic, political, share price and other information in which the equity market trades.

- **Management Information**, particularly that on which major policy, competitive decisions or strategic plans will be based, e.g. economic statistics, or cost base information.

- **Human Resource Information** e.g. skills databases, particularly in project-based organisations such as consultants in a technology company who need to be brought together to support a client project. Again, these days knowledge management attempts to address this area.

- **Supplier Information** e.g. trading agreements or networks of contacts for services or product development.

- **Accountable Information** e.g. legally required information including shareholder information or information to deal with difficult public issues, e.g. information to defend health and safety cases or environmental pollution evidence. (KPMG/IMPACT, 1994:9-10).

These eight information assets formed the basis of a discussion forum held by us in London with a group of senior British information managers in January 2001. The discussions were intended to review and update the information assets identified by the Hawley Committee and to clarify them for the purposes of our further research. A small number of attributes of information as an asset were also presented and debated.

**Our research: revising the list**

The project team made two changes to the original listing by Hawley of the information assets before presenting them to the information managers’ discussion forum.

These were:

1) “Market and customer information” was renamed “Customer information” to reflect the widening application of customer information to inform all aspects of business.

2) “Competitor information” was added to differentiate this asset from management information as a whole. Highlighting competitive advantage gained from information assets requires its identification as a separate information asset.

The recommendations from the information managers’ discussion group were as follows:

- **Specialist Knowledge**: This term was considered confusing and out of place, especially as it brought all of the requirements to identify and define “knowledge” within the process. While recognising the importance of “knowledge” it was felt that concentration on types of information or information assets would provide a firmer foundation for later work.

- **Accountable Information**: This term was not understood by the information managers as referring to legal information, for example health and safety information in legal cases. This was identified as one of the most important information assets, one often only identified under pressure of legal action. Renaming the asset as “Legal and Regulatory” was recommended.

- **Human Resource Information**: This was regarded as an outdated term. The argument was that “people are not resources for an organisation; they are of
course people”. The term “People Management” was recommended instead.

Organisational Information: This asset was suggested as an important information type. It was not included in the Hawley Report (1994), but now is increasingly recognised by organisations as essential to organisational learning and change management.

“Organisations must be aware of the features of their organisational culture that they most value… and look at those features that make a negative contribution to corporate well-being” (Orna, 1999:131).

Of the remaining information assets, Business Process Information provided the most debate. Some participants argued that business process information should not be regarded as an information asset at all. Others pointed out that organisations like Cisco, the American technology giant, were packaging and selling their business processes, making such information a financial asset. The arguments for including business processes among information assets outweighed the arguments against.

The revised list of information assets based on the Hawley information assets and the discussion forum with information managers now form the columns of our proposed matrix of information assets. The matrix (Figure 1) is shown below.

The next stage of the research study was to identify the attributes of information that relate most strongly to each of these types of information asset.

Figure 1: Information assets

<table>
<thead>
<tr>
<th>Customer Information</th>
<th>Competitor Information</th>
<th>Product Information</th>
<th>Process Information</th>
<th>Management Information</th>
<th>People Management</th>
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Attributes of information as an asset

A literature review was undertaken to identify the attributes of information as an asset. Many of the attributes which have appeared in the literature over the years are summarised by Repo (1986):

- Information is human. It exists only through human perception;
- Information is expandable. The free flow of information maximises its use;
- Information is compressible;
- Information is substitutable. It may save money by substituting the use of other resources;
- Information is easily transportable by using applications of new information technology;
- Information is diffusable. It tends to “leak” though we try to contain it;
- Information is shareable, giving it away does not mean losing it (Repo, 1986:374).

While all of these attributes are significant, two of them have long histories in the information and economics literature making them particularly interesting for thinking about the value of information. These are the attributes “shareable” and “expandable”. Arrow (1984) explains that information cannot enter into traditional economic exchange because it becomes the possession of both buyer and seller:

“…information is inappropriable because an individual who has some can never lose it by transmitting it”. (Arrow, 1984:142)

Information is not lost when given to others. It is Shareable. As such it is unlike any other resource.

The second economic attribute identified by Repo (1986:374) is Expandable. Information expands as more uses are found for it. This does not mean that information cannot be out of date or defunct, but even out of date information can be reused and it is this reusability of information which again makes it unique as an asset.

Attributes of information assets relating to utility are also well documented. According to Boisot (1998:83) the “…value of an information asset is derived partly from the utility of the service and partly from its positional status”. Currency and Accuracy are necessary attributes for information assets (Burk and Horton, 1988:91-99). Another attribute related to quantity of information proposed by Burk and Horton (1988:91-99) is comprehensiveness. This was redefined as sufficiency for purpose on the recommendation of the information managers’ discussion group. Even a comprehensive information collection is not useful if it does not fulfill its purpose. These attributes form the rows of the matrix of information assets. These various attributes crosscut the different information assets. This is shown in Figure 2 below.

Figure 2: Attributes of information assets

<table>
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<tr>
<th>Customer Information</th>
<th>Competitor Information</th>
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<th>Process Information</th>
<th>Management Information</th>
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<th>Supplier Information</th>
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These attributes are by no means exhaustive, but they focus attention on some of the important features of information and on the need to manage information.
actively. It is also possible to think about scoring or rating the importance of attributes to individual information assets when they are presented in this way.

Scoring of attributes of information as an asset

The question of how to measure or score attributes of information assets once identified is a difficult one to answer. The project team first suggested a numeric system which assigned a one to five score for an attribute as related to each information asset. A score of one would mean this is a minor attribute, whilst a score of five would mean this is a crucial attribute of that particular asset. The information managers’ discussion group pointed out that the temptation to add these scores up meant that an attribute which scored one for many information assets would be rated more highly than one that scored five (and was therefore essential) for just one information asset. A more visual system involving scoring by the Olympic gold, silver, bronze categories and even tin was suggested and later approved by the project Advisory Committee. The benefits of such a system were that it could be easily understood by all managers and encouraged the visualisation of a varied collection of information assets and attributes. This system will be used during the development of case studies for the project.

Another difficulty with presenting an exhaustive list of information assets and attributes from the literature is that these may not be the attributes considered significant by the managers responsible for making decisions about investment in information and information services. Five interviews were conducted with senior finance directors, information managers and strategy directors to identify those attributes of information assets which were considered significant by them. The first of these interviews is reported here.

Interview with Finance Director – Company A

Company A was represented by its Finance Director. The company is a well-known services organisation. The purpose of the interview was to identify attributes of information as an asset, which were considered significant by this individual manager. The Finance Director’s position within the organisation carried responsibility for strategic and short-term decision-making about information. A technique known as repertory grid analysis was used, this technique was pioneered by the psychologist George Kelly (Kelly, 1955). Although originally developed for Kelly’s quite different purposes, this technique has frequently been used as a tool in management development and change (Easterby-Smith et al., 1996:12). Some examples of applications of repertory grid are job analysis, employee selection, task analysis, performance appraisal, management and development training and needs (Easterby-Smith et al., 1996:13).

**METHOD**

Company A’s representative was presented with the set of nine information assets specified in Figure 1 as a set of nine cards. Company A’s representative was then asked to consider a triad of the information assets (Customer Information, Competitor Information and Product Information) and chose two which had similar attributes, and one which had different attributes. He then had to describe why the two chosen were similar and why one was different creating “constructs” or attributes which could then form opposite poles on a one to five scale. The remaining six information assets were then positioned along the one to five scale in relation to the attributes identified for the triad. This process was then repeated, until in all, four triads were presented. These were 1, 2, 3 as above; 4, 5, 6 Business Processes, Management Information, People Management; 7, 8, 9 Supplier Information, Legal and Regulatory; Organisational Information and finally, 1, 5, 9 Customer Information, Management Information, Organisational Information.

The findings were then analysed using WebGrid II software (available at: http://tiger.cpsc.ucalgary.ca/). WebGrid II uses a “city block” distance measure (Shaw, 1980). This measure when applied to the “constructs” or attributes as described by the individual allows natural clusters to emerge. These may then be grouped as part of a coherent concept, for example Future – Quantitative. In Figure 3 below the darker green areas, mainly in the centre for Finance Director, Company A, show a high score i.e. the asset is felt to be more significant to the right attribute. The white areas show a low score i.e. the asset is felt to be more significant to the left attribute.

**Figure 1:** Finance Director, Company A: Attributes of Information as an Asset.

The findings for Finance Director, Company A were as follows:

**FOCUS** Company A, Domain: Information as an asset

**Content:** Identification of attributes of information as an asset, 9 information assets, 4 attributes

**Figure 2:** Diagram showing the Scoring of attributes of information as an asset

**ASSETS**

High matches indicate that the relevant assets share a similar or identical rating. For the Finance Director of Company A information assets are clustered into four main groups.
**Attributes**

The attributes identified by the Finance Director of Company A are made up of two main groups:

*Group one* contains Past – Future and Qualitative – Quantitative and match at 80.5%. The linking of these attributes suggests that information presented either in qualitative or quantitative form is essential for both future planning and evaluating past performance.

*Group two* contains Priority – Sub-Priority and Flexible – Prescriptive and match at 72.2%. This appears to suggest that information is viewed as a means to an end, it can be prioritised according to business needs. Information format is also important, either providing flexibility or limiting and prescribing use.

*Group one and group two* link at 57.3%.

It is clear that the attributes identified by the Finance Director of Company A do not have similarities with those identified in the information science literature. The participant's perspective is much broader and concerned with business direction and development rather than individual types of information. The overarching impression is of an organisation comfortable with its information and secure in the view that it can acquire any necessary information externally to fulfil a future business need.

**Conclusion**

This paper has identified information assets and some attributes of information assets as discussed in the information science literature. It has also presented an analysis of the attributes of information assets considered significant by a Finance Director in a large information intensive UK organisation. It is clear from these initial findings that the attributes identified in the literature are not those on the mind of this particular senior manager. Further interviews will illuminate this further and add to the list of attributes identified.

**References**


Abstract

This presentation covers a brief introduction to the “skills” agenda currently operating in most of the developed world, with specific references to the UK, the US and Australasia. The consequent development of concepts of “information literacy” are described, and related to the recent work of the UK Society of College, National and University Libraries (SCONUL) Information Skills Task Force. The main body of the paper is devoted to reporting the results of a series of workshops undertaken to define what is important about information skills education using a standard Critical Success Factors methodology. This will help to define a standard set of performance measures for this activity. In the final section the issue of outcome measures is addressed by proposing the development of a measurement system using the SCONUL Seven Pillars Model of Information Literacy.

The “Skills” Agenda

During the last decade most of the developed world has become explicitly concerned about the skills of its citizens, the development of these skills within educational programmes, and their subsequent application in the workplace. The main contextual driver in the UK was the desire for improved national performance and competitiveness in the global economy, and led to the desire to provide coherent packages for lifelong learning for UK citizens. These would develop a defined set of “key skills” for learning, for careers, and for personal life. Six skill areas were identified as:

- Number application
- Communication
- Information technology
- Working with others
- Improving own learning and performance
- Problem solving

When this approach was applied to UK Higher Education, the Dearing Report (NCIHE, 1997) identified a concept of “graduateness” defined by the following skills:

- Communication skills
- Numeracy
- Use of information technology
- Learning how to learn
- Subject specific skills

These may be compared with skills identified earlier in the US (SCANS, 1991):

Foundation skills

- Basic
- Thinking
- Personal

Competencies

- Resources
- Interpersonal
- Information
- Systems
- Technology

and with those from Australia (Mayer Committee, 1992):

Competency strands

- Collecting, analysing & organising information
- Communicating ideas and information
- Planning & organising activities
- Working with others in teams
- Using mathematical ideas and techniques
- Solving problems
- Using technology

In both the UK cases the concept of information skills is not recognised as a separate domain, in contrast to the US and Australian lists. This gap in the UK analysis leads to a failure to identify a requirement for information literacy, in spite of the recognition of a requirement for skills, which relate to information technology.

In my opinion this confusion has also lead to a UK mindset in which the solution of the information skills problem is considered to be through providing “welfare” rather than in creating “wisdom”. Welfare may be defined as “organised efforts to improve conditions for the poor or disabled” (Oxford English Dictionary). The UK response has been to a perceived problem of IT...
shortage and network inaccessibility, not to one of information illiteracy. The solution so far has consisted of organised efforts to put the technology in place, and training only those who host the technology. A government minister, Alan Howarth, highlighted this by suggesting, “Anyone with a library ticket can become a full member of the Information Technology society”. The heart is in the right place and an important role for libraries is recognized, but the underlying assumption is that supplying the technology is sufficient to solve the problem.

Wisdom may be defined as “possession of expert knowledge together with the power of applying it practically”. The information skills needed for modern societies and economies are much closer to being a “wisdom” rather than a “welfare” problem. The solution requires education rather than training, and an agreed framework on which to build sound information literacy programmes. Perhaps because the initial analyses were sounder elsewhere, workers in this field outside the UK have already constructed such frameworks for information literacy. Three of these are provided in Figure 1.

**Figure 1: Doyle’s Information Literacy**
(Doyle, 1992)

1. Recognizes that accurate and complete information is the basis for intelligent decision making
2. Recognizes the need for information
3. Formulates questions based on information needs
4. Identifies potential sources of information
5. Develops successful search strategies
6. Accesses sources of information including computer-based
7. Evaluates information
8. Organizes information for practical application
9. Integrates new information into existing body
10. Uses information in critical thinking and problem solving

**Bruce’s Conceptions & Definitions**
(Bruce, 1997)

1. IT conception: using IT
2. Information sources conception: finding information
3. Information process conception: executing a process
4. Information control conception: controlling information
5. Knowledge construction conception: building up personal knowledge in new areas of interest
6. Knowledge extension conception: working with knowledge and personal perspectives adopted to develop novel insights
7. Wisdom conception: using information wisely for the benefit of others

**EDUCATE Objectives** (Fjallbrant, 1996)

1. Awareness of sources available
2. Systematic search method
3. Develop database searching techniques
4. Citation searching
5. Cite bibliographic references
6. Construct personal bibliographic system
7. Compare and evaluate information from various sources

**SCONUL Information Skills Task Force**

In the UK, the most significant work in the field of information skills education (ISE) has been that of the SCONUL Information Skills Task Force (ISTF). The drivers and antecedents for the creation of this body were:

- The development of the web and related electronic information resources, and the consequent need to re-engineer “library induction” and “user education” programmes to incorporate the changes
- SCONUL recognising that in periods of rapid change a Task Force approach to some issues was needed, and that information skills were not addressed by any of its existing committees
- The substantial growth in ISE activity undertaken by library staff, demonstrated by the LISU database of SCONUL statistics
- Partnership issues between library and academic staff engaged in this activity
- Different forms and methods of approach in ISE, identified through the SCONUL benchmarking pilots (Town, 2000a)
- Issues which arose from overlap with IT skills training and education, especially in “converged” library and computing services

The objectives of the ISTF included the following:

- To define and demonstrate the importance of ISE
- To clarify the distinction to IT skills
- To clarify the scope of activity and of contributions to it
• To identify good practice
• To relate ISE to institutional and national strategies, including information literacy

Amongst the action lines and deliverables of the ISTF are:

• A Briefing paper and the Seven Pillars model (SCONUL, 1999)
• A UK Conference and published proceedings (Corrall & Hathaway, 2000)
• Relating the model to UK Quality Assurance Agency subject benchmarks
• Designing a generic skills course module, in association with the Open University
• Co-operation with the JCALT “Big Blue” ISE research project
• Developing performance measures for ISE

Performance Measures for Information Skills

Reporting progress so far on the last strand of action mentioned above forms the main body of this paper. In order to define performance measures for information skills education a standard critical success factors (CSFs) approach has been chosen (Oakland, 1993). This sets out to define what is important (those factors critical to the success of information skills education programmes) about the activity. This may then help to identify the key processes involved and thus some relevant measures. The SCONUL method has been to undertake the CSFs exercise with different groups of respondents in a variety of settings. This will incorporate as many stakeholder groups as possible.

Firstly the ISTF itself, representing a broad spectrum of UK HE institutions, suggested the following CSFs:

• “Satisfy our users”
• “Make a difference”
• “Integrate with academic programmes”
• “Achieve wide market penetration”
• “Use staff competent to deliver”
• “Be properly equipped to deliver”
• “Use the best value approach”

The SCONUL Annual Conference in Glasgow at Easter 2001 offered the opportunity to run a workshop involving leaders of UK academic libraries. Thirty-five participants were assigned to five groups on the basis of statistical clustering of the SCONUL membership. Resulting CSFs identified were as follows (Town, 2001):

Group A
• To ensure that academic programmes proceed in harmony with, and are supported by, our information skills programmes
• To get into learning and technology strategy at the highest level
• To make sure that teaching skills are central to recruitment, training and retention measures
• To make students feel that information skills training is relevant and helpful to current study progress and beyond
• To be properly organised and equipped to deliver
• Adequate funding for training and its many impacts

Group B
• To assess learning skills levels
• Accurate knowledge of what students need to know at what point
• Good relationships with academic staff and a policy supported by the institution
• Library staff to understand how to teach information skills and to be accepted as part of the learning and teaching team

Group C
• A programme for students
• The right attitude from academic staff
• Management of the programme
• A curriculum and delivery
• Resources

Group D
• A Policy statement agreed by the University and an implementation plan agreed for budgetary purposes
• Agreed curriculum delivery of information skills to agreed evaluative standards
• Co-operation between LIS and academic staff
• To define content based on pedagogic imperatives

Group E
• To develop a process to assess initial skills
• To develop differential routes
To define purposes/measurable outcomes

Representation on curriculum development groups

An evaluation and feedback process

To ensure materials are available

A collections development policy

A validation process linked to resources

Materials and delivery fit for purposes

To be able to motivate students

Staff at Southampton University also undertook the exercise, elaborating each CSF as follows:

- **Competent library staff**, with the skills, knowledge, understanding and motivation necessary to fulfil their education role e.g. IT and communication skills, professional knowledge awareness of teaching and learning issues, subject understanding and enthusiasm

- **Sufficient organisational resources** to deliver information skills e.g. adequate numbers and types of staff, allowing time for preparation and assessment as well as delivery; accommodation, equipment and materials fit for their purpose

- **Identifiable student outcomes** which are a formal course requirement and combine academic/study skills with the transferable skills needed for lifelong learning and employment (equated with the concept of “graduateness”)

- **Effective multi-dimensional partnerships** within and beyond the university e.g. with academic units, other service/skills providers, institutional partners and professional bodies

- **Institutional strategic framework** which embeds information skills in the curriculum and ensures parity of provision and equality of standards alongside other academic elements

- **Sustained pedagogic quality** manifested in programme designs, learning materials and delivery methods that are fit for purpose and meet the needs of a diverse student population

Specific Measures

The resulting measures, or perhaps more precisely areas in which to develop measures, from each exercise were identified as follows:

From the ISTF:

- Immediate after session satisfaction (or later?)
- Effect on library use, and/or wider impact

From the SCONUL Conference:

- User satisfaction
- Student/market participation rates
- Student skills level on arrival
- Student motivation
- Student time spent in information skills training
- Formal policies
- Academic staff attitude
- Visibility within Institutional plans
- Library Staff skills
- Library Staff time spent on information skills training
- Courseware quality
- Survey feedback
- Space, equipment, hours of use
- Budgets, business plans

From the Southampton results:

**Competent Staff**

- Institute of Learning & Teaching membership
- Teaching qualification
- Enquiry statistics
- Peer observation
- Self-assessment
- Student feedback via library via department

**Resource**

- Demand versus supply
- Staff stress levels
- Currency of materials
- Suitability of delivery
- Utilisation of facilities

**Student Outcome**

- Academic feedback
• Course assessment
• Employer feedback/careers service data
• Reports from professional bodies
• Graduate feedback

Partnership
• Inclusion of information skills in departmental and faculty plans
• Library membership of course teams
• Invitations to meetings, working groups

Strategy
• Reference to information skills in the university strategic plan, strategies for learning and teaching and widening participation, unit specifications, policy documents, quality frameworks

Pedagogic Quality
• Evidence of student progression
• Conformance to academic standards
• Feedback from academics and students
• Peer review

Further exercises will be undertaken with academic library staff involved in ISE on a regional basis. Five further workshops are planned and the results will be added to this corpus. At that stage a synthesis will be undertaken and some specific recommendations made, probably in the form of a briefing paper. For this reason no discussion of the results so far will be entered into here.

Outcome Measures

One key issue to be addressed in this field is how to measure the outcome of information skills education or information literacy programmes in the individual. This requires an understanding of what makes an individual “information literate”. The frameworks given above in Figure 1 seek to address this issue. The SCONUL Task Force was however keen to develop a distinctive model for UK higher education. This arose from the following drivers:

• A need for specific relevance to UK higher education students and staff
• A clear linkage to the knowledge production role of Universities
• A linkage to “graduateness” requirements of employers and stakeholders
• A linkage to existing UK skills lists (see above)

The SCONUL Seven Pillars model was developed and subsequently published in the Task Force briefing paper (SCONUL, 1999) and elaborated (Town, 2000b) at the conference mentioned above. The make-up of the model is as follows:

The Seven Headline Skills

1. The ability to recognise a need for information
2. The ability to distinguish ways in which the information “gap” may be addressed
   - knowledge of appropriate kinds of resources, both print and non-print
   - selection of resources with “best fit” for task at hand
   - the ability to understand the issues affecting accessibility of sources
3. The ability to construct strategies for locating information
   - to articulate information need to match against resources
   - to develop a systematic method appropriate for the need
   - to understand the principles of construction and generation of databases
4. The ability to locate and access information
   - to develop appropriate searching techniques (e.g. use of Boolean)
   - to use communication and information technologies, including terms international academic networks
   - to use appropriate indexing and abstracting services, citation indexes and databases
   - to use current awareness methods to keep up to date
5. The ability to compare and evaluate information obtained from different sources
   - awareness of bias and authority issues
   - awareness of the peer review process of scholarly publishing
   - appropriate extraction of information matching the information need
6. The ability to organise, apply and communicate information to others in ways appropriate to the situation
   - to cite bibliographic references in project reports and theses
   - to construct a personal bibliographic system
   - to apply information to the problem at hand
   - to communicate effectively using appropriate medium
   - to understand issues of copyright and plagiarism
7. The ability to synthesise and build upon existing information, contributing to the creation of new knowledge
The model is generic in that it can be applied to most situations and contexts. It will require different interpretation when applied to different subject fields, and to differing levels of students, researchers or academic staff. One of the proposed applications is as a diagnostic tool for assessment of individual need, and some examples of this are provided in the paper mentioned above (Town, 2000b). Further work is required to develop an instrument for this form of measurement.

Acknowledgments and Further Work

I am grateful to Sheila Corrall for providing material used in the introductory parts of the paper, and for the results of the exercise undertaken by her staff at Southampton University. This paper would have been impossible without the support of SCONUL, its members and the Information Skills Task.

This work is ongoing, and comments and contributions are actively sought on any aspect. The Task Force is particularly interested in feedback on the Seven Pillars Model, and on examples of institutional objectives and measures for information skills education.

Bibliography


SEMINARY PAPERS

User-Centered Measures
Scaling for the LibQUAL+™ Instrument: A comparison of desired, perceived and minimum expectation responses versus perceived only

Colleen Cook
Executive Associate Dean, Texas A&M University Libraries, USA

Bruce Thompson
Professor & Distinguished Research Scholar Texas A&M University and Baylor College of Medicine, USA

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Colleen Cook may be contacted via e-mail at address: “ccook@tamu.edu”.
Bruce Thompson may be contacted via Internet URL: “http://www.coe.tamu.edu/~bthompson”.
A periodically updated bibliography of LibQUAL+™ studies may be accessed at: http://www.coe.tamu.edu/~bthompson/servqbib.htm

Abstract

The LibQUAL+™ web-based protocol was recently completed by 20,416 participants representing 43 universities. The present study investigated whether the perceptions of participants randomly assigned the LibQUAL+™ short form (target: 40% of respondents) were comparable to those of participants responding in all three response frameworks (minimally-acceptable service quality; perceived levels of service quality; and desired levels of service quality).

Those who use, fund, and work in contemporary research libraries increasingly recognize that “A measure of library quality based solely on collections has become obsolete” (Nitecki, 1996, p. 181). This realization led the Association of Research Libraries (ARL), whose membership includes the largest 123 research libraries in North America, to initiate the “New Measures” program. One of these initiatives is the LibQUAL+™ research and development project (Cook & Heath, 2000; Cook, Heath & B. Thompson, 2000).

The LibQUAL+™ research and development project is an ARL/Texas A&M University joint effort. This project is also supported, in part, by a multi-year grant from the U.S. Department of Education’s Fund for the Improvement of Post-Secondary Education (FIPSE).

Academic Year 1999-2000

During the 1999-2000 academic year, LibQUAL+™ was completed on the Web 4,407 times by participants from 13 ARL institutions. This form of the protocol included 22 items from the well-known SERVQUAL measure (cf. Parasuraman, Berry & Zeithaml, 1991; Parasuraman, Zeithaml & Berry, 1985, 1994). The SERVQUAL protocol has been used previously in library service quality research (cf. Cook & Thompson, 2000a, 2000b). Participants also completed 19 trial items that were developed, following qualitative analysis of interviews of library users at nine universities (Cook & Heath, 2001), to measure service quality features unique to the library setting.

A series of articles have been published to report analyses of these 1999-2000 data (Arnau, R.L. Thompson & Cook; 2001; Cook, Heath & B. Thompson, 2001; Cook, Heath, B. Thompson & R.L. Thompson, 2001; Cook, Heath, R.L. Thompson & B. Thompson, 2001; Cook & B. Thompson, 2001; B. Thompson, 2000; B. Thompson, Cook & Heath, 2000; B. Thompson, Cook & Heath, 2001). Following these analyses, protocol items were further revised.

Academic Year 2000-2001

In the spring of 2001, the items on the web-administered LibQUAL+™ protocol were completed by 20,416 participants from 43 campuses. Of these 43 libraries, 35 were members of ARL.

A series of reports associated with the final LibQUAL+™ measure have been written (cf. Cook, Heath & B. Thompson, 2001; Heath, Cook, Kyrillidou & B. Thompson, 2001; B. Thompson, Cook & R.L. Thompson, 2001). These various analyses have indicated that:

- the 25-item LibQUAL+™ survey yields reliable scores on 4 scales (i.e., Service Affect, Library as Place, Personal Control, and Information Access) as well as on the total scale;
- the factor structure underlying responses matches the expected structure;
- both individual and institutional normative tables for converting scale and total scores into standardized scores and percentile rank scores can (and have) been developed; and

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scale and total scores correlate highly with perceptions of service quality, but not with collections count measures, such as ARL Index scores, as expected.

Two Interpretation Frameworks

The 25 LibQUAL+™ items, the four subscales, and the total score are all measured on a 1-to-9 scale, with higher scores representing more positive user perceptions. Let’s assume that a given library received a total LibQUAL+™ score mean of 6.55. This mean is higher than the scale midpoint of 5.0.

This seems to be a positive result, given the scale midpoint. But is this result really positive, and if so, how positive? There are two interpretation strategies that are both considerably more informative than interpreting the mean of 6.55 against the reference of the scale midpoint of 5.0.

Score Norms

Preliminary score norms have been developed for LibQUAL+™ (cf. Cook, Heath & B. Thompson, 2001). Norm conversion tables facilitate the interpretation of observed scores using norms created for a large and representative sample. The LibQUAL+™ norm conversion tables have been created at both the individual and the institutional levels.

For example, individual norm tables might indicate that only 49% of library users rate their libraries 6.55 or lower. However, institutional norm tables might indicate that only 27% of all university libraries in the normative sample received a mean of 6.55 or lower. The example makes clear that interpretations of results using norms versus response scale midpoints may differ quite markedly!

Zones of Tolerance

The SERVQUAL protocol asks participants to rate service quality based on (a) minimally-acceptable service quality; (b) perceived levels of service quality; and (c) desired levels of service quality. The mean ratings of minimally acceptable and desired service quality ratings create a “zone of tolerance” for customer perceptions (cf. Parasuraman, Zeithaml & Berry, 1985, 1994). It is generally hoped that perceived service-quality ratings will fall within the zone, and that in particular perceived quality will not be below minimally acceptable service quality.

The “zone of tolerance” interpretative framework has intuitive appeal (Thompson, Cook & Heath, 2000). However, it must be remembered that interpretations in this framework may differ from those made in the normative interpretation framework. For example, library users seem to be uniformly dissatisfied with runs of journal titles, and thus mean perceived ratings of this item tend routinely to be lower than minimally acceptable ratings (cf. Cook, 2001). Only a normative interpretation reveals this sort of dynamic by framing scores within a reference group profile.

Purpose of the Present Study

A critical consideration in surveying is representativeness; response rates are also relevant to the extent that response rates impact representativeness (Thompson, 2000). For this reason survey researchers strive to maximize return. A comprehensive meta-analysis of factors impacting participation in web-based surveys indicates that survey length bears upon response rate (Cook, Heath & R.L. Thompson, 2000).

Web-based surveys have tremendous flexibility. An example of such flexibility with regard to LibQUAL+™ involved the potential to determine randomly whether respondents were asked to rate library service quality using all three response frameworks (i.e., minimally-acceptable, perceived, desired) or only perceptions of library service quality. Thus the boundaries of the interpretive zones of tolerance using only a subsample of responses could be benchmarked, while gathering complete data on perceptions, which are the primary focus of the evaluation.

The present study investigated whether the perceptions of participants receiving the short form (target: 40% of respondents) were comparable to those of participants responding in all three response frameworks (target: 60% of respondents). The analysis focused on the final pool of 25 LibQUAL+™ items that delineate four subscales (Service Affect, Library as Place, Personal Control, and Information Access) and total scores (cf. Cook, Heath & B. Thompson, 2001; Heath, Cook, Kyrillidou & B. Thompson, 2001; B. Thompson, Cook & R.L. Thompson, 2001).

Theoretically, if (a) response framework is randomly assigned and (b) the response format does not itself impact perceptions, then perceptions should be comparable across both frameworks. In the presence of random assignment to response format groups, such a finding might suggest therefore that the boundaries of the zones of tolerance may generalize across both groups.

Results

Table 1 presents the means and standard deviations of the four LibQUAL+™ subscales and total scores across forms. To evaluate result replicability, which is not addressed by statistical significance testing (Cohen, 1994; Thompson, 1996), separate analyses were computed across ARL and non-ARL participants.

The table also presents 95% confidence intervals about means. Confidence intervals are not yet widely used and are poorly understood (Fidler & Thompson, 2001; Finch, Cumming & Thomason, 2001). Nevertheless, confidence intervals are very useful statistical tools (Wilkinson & APA Task Force on Statistical

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Inference, 1999). As the American Psychological Association (2001) recently noted,
“The reporting of confidence intervals... can be an extremely effective way of reporting results. Because confidence intervals combine information on location and precision and can often be directly used to infer significance levels, they are, in general, the best reporting strategy. The use of confidence intervals is therefore strongly recommended.” (p. 22, emphasis added)

Table 1 also presents the eta squared ($\eta^2$) effect size that characterizes the percentage of variability of LibQUAL+™ scores that can be predicted from knowledge of whether participants received the short or the long form. As the American Psychological Association (2001) recently noted, “For the reader to fully understand the importance of your findings, it is almost always necessary to include some index of effect size or strength of relationship in your Results section.... The general principle to be followed... is to provide the reader not only with information about statistical significance but also with enough information to assess the magnitude of the observed effect or relationship.” (pp. 25-26, emphasis added)

Discussion

The means presented in Table 1 were consistently smaller for short form participants across scales and respondent groups. Furthermore, score standard deviations were larger for short form participants; long form participants gave responses that were somewhat less variable. However, the magnitudes of these differences were very small. All the eta squared ($\eta^2$) effect sizes (analogous to $r^2$) were less than 1%.

In the aggregate these results suggest that the protocol of randomly assigning the short form measuring only perceptions to some respondents can minimize response burdens on the participant pool while still providing reasonable estimates of the zones of tolerance boundaries. Of course, these results remain to be replicated during LibQUAL+™ phase two (2001-2002).

During the academic year 2001-2002, we anticipate that library users from roughly 200 institutions will participate in the LibQUAL+™ survey. Further information about the project may be accessed via URL: http://www.arl.org/libqual.

**Table 1: ANOVAs of LibQUAL+™ I Scores by Form**

<table>
<thead>
<tr>
<th>Group Count Mean (SD) 95% CI for Mean $\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ARL Participants (n = 16,918)</strong></td>
</tr>
<tr>
<td>Service Affect</td>
</tr>
<tr>
<td>Short</td>
</tr>
<tr>
<td>Long</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>$F_{calc}$ = 22.44; df = 1/16,916; $p_{calc}$ = .000002</td>
</tr>
<tr>
<td>Library as Place</td>
</tr>
<tr>
<td>Short</td>
</tr>
<tr>
<td>Long</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>$F_{calc}$ = 31.40; df = 1/16,916; $p_{calc}$ = .000002</td>
</tr>
<tr>
<td>Personal Control</td>
</tr>
<tr>
<td>Short</td>
</tr>
<tr>
<td>Long</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>$F_{calc}$ = 13.45; df = 1/16,916; $p_{calc}$ = .0002</td>
</tr>
<tr>
<td>Information Access</td>
</tr>
<tr>
<td>Short</td>
</tr>
<tr>
<td>Long</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>$F_{calc}$ = 19.95; df = 1/3,496; $p_{calc}$ = .000009</td>
</tr>
<tr>
<td><strong>nonARL Participants (n = 5,498)</strong></td>
</tr>
<tr>
<td>Service Affect</td>
</tr>
<tr>
<td>Short</td>
</tr>
<tr>
<td>Long</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>$F_{calc}$ = 4.24; df = 1/5,496; $p_{calc}$ = .040</td>
</tr>
<tr>
<td>Library as Place</td>
</tr>
<tr>
<td>Short</td>
</tr>
<tr>
<td>Long</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>$F_{calc}$ = 19.95; df = 1/3,496; $p_{calc}$ = .000009</td>
</tr>
<tr>
<td>Personal Control</td>
</tr>
<tr>
<td>Short</td>
</tr>
<tr>
<td>Long</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>$F_{calc}$ = 2.00; df = 1/5,496; $p_{calc}$ = .157</td>
</tr>
<tr>
<td>Information Access</td>
</tr>
<tr>
<td>Short</td>
</tr>
<tr>
<td>Long</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>$F_{calc}$ = 7.97; df = 1/5,496; $p_{calc}$ = .005</td>
</tr>
<tr>
<td><strong>LibQUAL+™ Total Score</strong></td>
</tr>
<tr>
<td>Short</td>
</tr>
<tr>
<td>Long</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>$F_{calc}$ = 10.16; df = 1/3,496; $p_{calc}$ = .001</td>
</tr>
</tbody>
</table>
References


Service quality in cataloging: The experience of the University of Kansas Libraries

George E. Gibbs
Assistant Dean, University of Kansas Libraries, USA (1)

In 1999 the Cataloging Department of the University of Kansas Libraries decided to survey KU library staff to determine the perception of services that the Department provides. Finding nothing in the literature about the use of SERVQUAL in library technical services, Cataloging staff, working together in a team approach, decided on its primary services and created questions about those services to include in a questionnaire. The questionnaire addressed the areas of reliability, responsiveness, assurance, and empathy. Working from the information gathered, the department has been addressing those issues for which the minimum level of user expectation did not at least meet the perceived level of service.

Background

In 1998 the Cataloging Department of the University of Kansas Libraries began to work on a SERVQUAL survey instrument. This process was a deliberate one, as it was sandwiched in among a number of other priorities. Marilu Goodyear, then the Associate Dean of Libraries, now the Vice Chancellor for Information Services at the University of Kansas, provided guidance for the effort. She had had experience with SERVQUAL while working at Texas A & M University. To provide technical assistance for this effort, she also arranged for the Office for Institutional Research and Planning (OIRP) at KU, the campus office that gathers statistics and prepares statistical studies, to work with the Department on preparing the survey instrument and analyzing the returns.

Since the death of the Head in 1997, the Cataloging Department has been working in a team environment without a person formally designated as Head. It is comprised of 27 staff, a combination of professional and paraprofessional librarians. Cataloging is the largest cataloging center on campus and provides services for the main humanities, social science, and science collections, the Art Library, the Music Library, and the Engineering Library.

The Cataloging Management Team (CatMaT), comprised of the heads of each of the subunits of the department plus the Assistant Dean, oversees the work of the department and directs the staff in the team effort. As part of the initial team building activities, the group identified its customers and the services it provides to them. Cataloging staff worked in functional groups, such as serials cataloging, authority control staff, and copy cataloging, and each group identified the major services it provided. CatMaT then took these lists and put together a unified list for the department:

Cataloging Department’s Most Important Services (in alphabetical order)

- Administer the Cataloging Department’s internal processes (training, evaluating staff, keeping statistics, team-building, etc.)
- Contribute original bibliographic and authority records to the international library community according to national and international standards.
- Interpret cataloging records for library staff and users.
- Participate in the making of the ‘catalog’ which provides access to collections owned by the Libraries and to resources not owned by the Libraries.
- Provide bibliographic access to electronic resources, which are either owned or not owned by the Libraries.
- Provide bibliographic records to the online catalog for older items not already represented in the online catalog through retrospective conversion cataloging projects.
- Provide bibliographic records to the online catalog for newly received items in all formats in the collections.
- Provide consistency within the catalog by maintaining authority control, solving problems, and correcting errors.
- Provide rush and priority processing for materials.
- Share cataloging expertise (rules, interpretations, software, documentation, etc.) with other campus cataloging agencies through consultation and training.
- Share the responsibility with other library units to provide and maintain holdings for monographs and serials.

Preparation of the Questionnaire

Associate Dean Goodyear introduced CatMaT and the Cataloging Department staff to SERVQUAL as part of the orientation to teambuilding. The department decided to cap these efforts by undertaking a SERVQUAL survey. This effort was very much one in which the whole department participated.
In looking through the literature search we were able to find SERVQUAL surveys in reader service settings but did not find any technical service surveys. Therefore, it was necessary to devise our own instrument. The Associate Dean suggested that we collapse the 10 SERVQUAL dimensions to 5—Tangibles, Reliability, Responsiveness, Assurance, and Empathy, as the ones most relevant to our situation.

**SERVICE QUALITY DIMENSIONS**

<table>
<thead>
<tr>
<th></th>
<th>Tangibles</th>
<th>Reliability</th>
<th>Responsiveness</th>
<th>Assurance</th>
<th>Empathy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5</strong></td>
<td><strong>5</strong></td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tangibles</td>
<td>Tangibles</td>
<td>Reliability</td>
<td>Responsiveness</td>
<td>Assurance</td>
<td>Empathy</td>
</tr>
<tr>
<td>Reliability</td>
<td>Reliability</td>
<td>Responsiveness, Access, Communication, Understanding the Customer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsiveness</td>
<td></td>
<td>Responsiveness</td>
<td></td>
<td>Competence, Credibility, Security</td>
<td></td>
</tr>
<tr>
<td>Assurance</td>
<td>Competence, Credibility, Security</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empathy</td>
<td>Courtesy, Understanding the Customer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We subsequently decided to eliminate Tangibles (the appearance of physical facilities, equipment, and personnel) from the survey, since it is not an important dimension of cataloging service. Department staff participated in a number of brainstorming sessions. The goal was to formulate statements for each of the four SERVQUAL areas based on the top six of the department’s essential services. These statements would then be turned into questions for the survey.

For example:

**Interpret Cataloging Records for Library Staff and Users**

**Reliability** (Ability to perform the promised service dependably)

1. Cataloging can explain the record in an understandable manner.
2. Cataloging can accurately interpret bib records.

**Responsiveness** (Willingness to help customers and to provide prompt service)

Includes: **Access** (Approachability and ease of contact); **Communication** (Keeping customers informed in language they can understand)

1. Cataloging staff answer questions without resorting to jargon.
2. Cataloging provides sufficient information about the types of information it changes in the online catalog.
3. Cataloging staff are always approachable.
4. Cataloging keeps staff informed about changes in personnel.
5. Cataloging staff are usually available to answer questions.
6. It is easy to know whom to contact with regard to a given problem.
7. When I call cataloging, I get an answer to my question.

**Assurance** (Knowledge and courtesy of employees and their ability to convey trust and confidence)

Includes: **Competence** (Possession of the required skills and knowledge to perform the service); **Credibility** (Trustworthiness, believability, honesty—people believe you to be competent, approachable, etc.); **Security** (Freedom from danger, risk, or doubt)

1. Cataloging staff answer my questions competently.
2. I am satisfied with the answers I receive.
3. I believe Cataloging should provide initial training for all campus cataloging agencies.
4. I believe that Cataloging should provide additional one-on-one tutoring for all campus cataloging agencies.

**Empathy** (Caring, individualized attention the department provides its customers)

Includes: **Courtesy** (Politeness, respect, consideration); **Understanding the customer** (Making the effort to know the customers and their needs)

1. Cataloging staff members verify what I’m asking before answering my question.
2. A Cataloging web-based FAQ is important.

In addition to providing the basic work on formulating questions for the questionnaire, the sessions had the side benefit of focusing the attention of the department on its own identity. Most of the questions were identified as falling under the dimension Responsiveness, followed by Reliability, Assurance, and Empathy.
<table>
<thead>
<tr>
<th>Essential Services</th>
<th>Tangibles</th>
<th>Reliability</th>
<th>Responsiveness</th>
<th>Assurance</th>
<th>Empathy*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpret cataloging records for library staff and users</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Provide bibliographic access to electronic resources</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Provide bibliographic records to the online catalog for older items not already</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>represented in the online catalog through retrospective conversion cataloging</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide bibliographic records to the online catalog for newly received items in</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>all formats in the collections</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide consistency within the catalog by maintaining authority control, solving</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>problems and correcting errors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share the responsibility with other library units to provide and maintain holdings</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>for monographs and serials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Empathy is checked because Listening (understanding the customer) applies to all services.

At this point in the process a staff member from the Office of Institutional Research and Planning joined the CatMaT group to clarify the service statements. OIRP staff then turned the department’s questions into the survey instrument. The survey was tested on several staff members, including several within the Cataloging Department. OIRP then prepared the final version of the instrument.

The body of the survey was 9 pages long. Included below is the first page of the survey, to illustrate that it follows the usual SERVQUAL pattern of asking for the minimum and desired service levels of the user, as well as the user’s perception of the level of service provided:

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**Watson Library Cataloging Department**

**Customer Satisfaction Survey**

*(Part 1)*

We would like your impressions about Watson Library Cataloging Department’s service performance relative to your expectations. Please think about the two different levels of expectations as defined below:

**Minimum Service Level:** the minimum service performance you consider adequate

**Desired Service Level:** the level of service performance you desire

Below are statements that ask you to evaluate Watson Cataloging Department with respect to **interpreting cataloging records for library staff**.

For each of the following statements, please indicate:

(a) your *minimum* service level by circling one of the numbers in the first column;
(b) your *desired* service level by circling one of the numbers in the second column; and
(c) your *perception* of Watson Library Cataloging Department’s service by circling one of the numbers in the third column.

---

... **interpreting cataloging records for library staff**
On the 10th page the user was asked to weight the 5 SERVQUAL dimensions. Below is the result of the weighting provided by staff outside the Cataloging Department:

### Distribution of Points Among Service Dimensions Other Library Staff

<table>
<thead>
<tr>
<th>Service Dimensions</th>
<th>Overall Quality of Service</th>
<th>Count</th>
<th>Mean</th>
<th>Median</th>
<th>Std</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>Cataloging’s ability to perform the promised service dependably and accurately</td>
<td>39</td>
<td>42.9</td>
<td>40</td>
<td>19.66</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Cataloging’s willingness to help library staff members and to provide prompt service</td>
<td>39</td>
<td>21.4</td>
<td>20</td>
<td>9.25</td>
</tr>
<tr>
<td>Assurance</td>
<td>The knowledge and courtesy of Cataloging staff members and their ability to convey trust and confidence</td>
<td>39</td>
<td>21.6</td>
<td>20</td>
<td>14.53</td>
</tr>
<tr>
<td>Empathy</td>
<td>The caring, individualized attention Cataloging provides library staff members</td>
<td>39</td>
<td>14</td>
<td>15</td>
<td>8.16</td>
</tr>
</tbody>
</table>
On the 11th and 12th pages the customer was asked to supply some demographic information, including whether or not s/he worked in the Cataloging Department. Additionally, the customer was given space in which s/he could provide free-form comments about the most liked and disliked activities of the department.

The survey was sent to the 168 members of the library staff in June 1999. As an incentive to return the questionnaire, a ticket was attached to the questionnaire that could be used for a drawing for a $25 gift certificate at the campus bookstore. Of the 168 surveys, 66 were returned for a return rate of 39%. In retrospect, it is easy to see that one possible reason for the disappointingly low rate is the length of the questionnaire. Also, since the questionnaire was sent out just before the implementation of the new integrated system, a number of staff were preoccupied with preparing for that event.

OIRP then analyzed the questionnaires that had been returned and prepared a summary of the results for the Libraries. It runs more than 180 pages. Because of the demographic information requested, OIRP analyzed the responses from the Cataloging Department staff separately from that of other staff members outside the Department. (Incidentally, this survey was the first SERVQUAL instrument that OIRP had created and analyzed.)

Results

On overall quality of service Cataloging rated itself from 4 to 9 on the scale, with the majority falling into categories 6 to 8; for other staff the range was wider with the majority rating service at level 7. Cataloging staff and the Libraries' staff as a whole believe that the Department is most successful in providing consistency within the catalog by maintaining authority control, solving problems, and correcting errors. Both groups agreed on the specific sub-areas where Cataloging is most successful in providing this service. They are under the area of Responsiveness and include:

- correcting errors in the cataloging within 3 weeks of being reported;
- spending an appropriate amount of time on the creation and maintenance of authority control;
- making sure that the headings in the online catalog are consistent;
- working toward bringing all the works of one author together under one heading.

Cataloging staff recognized room for improvement in the area of "providing bibliographic access to electronic resources." This result was expected. In August 1999 just after the surveys were returned, the KU Libraries moved from a locally developed bibliographic system to the Voyager system. The local system had not allowed for the display of URL information or the possibility of linking to electronic resources. Consequently, we knew that this area was one in which all library staff sought an improvement. We also knew that the Voyager system did have these capabilities and that, therefore, we would almost immediately be able to address this area successfully.

Cataloging staff report the level of service as unacceptable in only 8 out of 64 specific sub-areas. The largest discrepancy between perceived level of service and minimum acceptable level is the area of making sure the library still owns all books represented in the online catalog, which is a dimension of Assurance. Generally, other library staff give higher ratings to desired level of service than members of the Cataloging Department, indicating a higher level of expectation. Other library staff report unacceptable levels of service across most areas of service. Generally, the discrepancies between minimum acceptable levels and perceived levels of performance are broader among the other library staff.

Follow up on the survey results has been moving slowly. First, there was a delay in receiving the results. Shortly after the survey was completed, the Libraries implemented a new integrated library system. Also, over the next year the department filled several copy-cataloging vacancies. Following up on the survey thus became a somewhat lower priority than training and concentrating on core tasks.

The Cataloging Management Team decided to look first at the areas of difference between the minimum expectation and the perceived level of service for other library staff. We identified those categories for which there was the greatest negative difference and have established an action plan to address the situation.
Chart of all negative differences between minimum and perception

<table>
<thead>
<tr>
<th>Section</th>
<th>Difference between minimum and perception</th>
<th>Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section I</strong> &lt;br&gt; <em>(interpreting cataloging records for library staff)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3—answering questions without resorting to jargon</td>
<td>-0.2</td>
<td>Work with Cataloging staff on answering questions without jargon.</td>
</tr>
<tr>
<td>Q4—providing sufficient information about the types of information the Dept. changes in the online catalog</td>
<td>-0.4</td>
<td>Prepare document to share with staff.</td>
</tr>
<tr>
<td>Q8—making sure that every library staff member receives an answer to his or her question</td>
<td>-0.2</td>
<td>Work with Cataloging staff on service issues.</td>
</tr>
<tr>
<td><strong>Section II</strong> &lt;br&gt; <em>(providing bibliographic access to electronic resources)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q6—providing accurate URLs</td>
<td>-1.0</td>
<td>Voyager allows for display of URLs and linking to the electronic source; URLs for paid sources are being checked; Errors in URLs for other resources depend on staff notification.</td>
</tr>
<tr>
<td>Q7—soliciting adequate input from staff about what is needed by way of call numbers, URL displays, holdings displays, text of notes, etc.</td>
<td>-0.1</td>
<td>Electronic Information Council established first standards; ongoing standards being addressed by CERA.</td>
</tr>
<tr>
<td><strong>Section III</strong> &lt;br&gt; <em>(retrospective conversion cataloging projects to provide bibliographic records for the online catalog for older items not already represented)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4—working to overcome the problem of similar materials not having the same classification number or being split between two call numbers</td>
<td>-0.3</td>
<td>Correct situations that are reported; reiterate policy about when changes will be made.</td>
</tr>
<tr>
<td>Q11—making sure that the library still owns all books represented in the online catalog</td>
<td>-0.8</td>
<td>Need inventory of collections by Circulation staff to identify problems for Cataloging to correct.</td>
</tr>
<tr>
<td>Q12—making sure all the call numbers on the books match the call numbers on the bibliographic record</td>
<td>-0.2</td>
<td>Retrospectively, need inventory of collections by Circulation staff to identify problems; prospectively, new system allows copying of call number, thereby reducing the chance of transcription errors.</td>
</tr>
<tr>
<td><strong>Section IV</strong> &lt;br&gt; <em>(representing the bibliographic records of newly received items in all formats in the collections)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1—preventing new books and other materials from getting lost during cataloging</td>
<td>-0.9</td>
<td>Move security stripping to earlier stage of processing; provide locked cabinet for AV materials.</td>
</tr>
<tr>
<td>Q2—providing adequate bibliographic access to the individual titles within monographic series</td>
<td>-0.4</td>
<td>In process; solicit input from staff on what additional series to analyze; reiterate policy on when series will be analyzed.</td>
</tr>
<tr>
<td>Q4—promptly processing serial receipts</td>
<td>-1.0</td>
<td>No backlog of new serial titles and title changes in Serials Cataloging; responsibility for check in of current serials in Retrieval Services.</td>
</tr>
<tr>
<td>Q5—working to represent everything the library owns in the online catalog</td>
<td>-1.3</td>
<td>In process.</td>
</tr>
<tr>
<td>Q6—provide online access for newly received items within 2 weeks</td>
<td>-0.7</td>
<td>This currency reached for 1/ of incoming material; need to review some policies to meet this currency for remaining materials.</td>
</tr>
<tr>
<td>Q7—adding brieflisted records in a way that is adequate for users’ needs</td>
<td>-0.8</td>
<td>Information in some fields in brieflisted records has been augmented; Voyager keyword searching capability has increased access to brieflisted records.</td>
</tr>
<tr>
<td>Section IV continued</td>
<td>Difference between minimum and perception</td>
<td>Action Plan</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Q8—making it possible to retrieve in process materials quickly</td>
<td>-0.1</td>
<td>Reviewed process in the Voyager environment; construct an online form for user requests.</td>
</tr>
<tr>
<td>Q9—making sure that the hold and notify routines meet the users' needs</td>
<td>-0.4</td>
<td>Reviewed process in the Voyager environment; do not put notify material into Hold.</td>
</tr>
<tr>
<td>Q10—soliciting staff input for corrections of online catalog records</td>
<td>-0.2</td>
<td>Send out message to staff reminding them to send in corrections; upgrade catalog comment capability.</td>
</tr>
<tr>
<td>Q11—working to overcome the problem of similar materials not having the same classification number or being split between two call numbers</td>
<td>-0.7</td>
<td>Correct situations that are reported. Reiterate policy about when changes will be made.</td>
</tr>
<tr>
<td>Q12—minimizing the number of items placed in Hold</td>
<td>-0.7</td>
<td>Complete training of new cataloging staff and assign work with the goal of reducing the amount of material sent to Hold.</td>
</tr>
<tr>
<td>Q14—freely and willingly sharing information with colleagues outside the dept.</td>
<td>-0.7</td>
<td>Send out department updates regularly.</td>
</tr>
</tbody>
</table>

Section V
(providing consistency within the catalog by maintaining authority control, solving problems and correcting errors)

| Q1—providing sufficient references to help staff and patrons find materials | -0.4 | Remind staff to notify Authority Section if a reference is needed; remind staff of newly available keyword searching as an added help. |

Section VI
(sharing the responsibility with other library units to provide and maintain holdings for monographs and serials)

| Q1—correcting errors in holdings records within 3 weeks of being reported | -0.9 | Being done with monographs; serials holdings part of Retrieval Services responsibilities. |
| Q2—making sure that holdings notes are understandable | -0.4 | Reviewed what notes are added and how Voyager displays them. |
| Q4—providing adequate documentation on holdings policies and procedures | -1.0 | With move to new system, Retrieval Services now responsible for serial holdings documentation; monographs policy added to Cataloging website. |
| Q5—working toward making KU's holdings accessible on OCLC | -1.3 | Done for key ILL titles. |
| Q6—making sure that every volume or issue of a serial on the holdings record exists in the library | -0.7 | Need inventory of collections by Circulation staff to identify problems for Cataloging to correct. |
| Q7—freely and willingly sharing information with colleagues outside the dept. | -0.8 | Send out department updates regularly. |
The free-form responses at the end provided interesting reading and some insights into the attitudes of the staff. These statements flesh out the survey results. It was reassuring to see the general recognition by library staff of the quality of the work produced by Cataloging.

The survey results offer a wealth of data for analysis. We have only just begun to do so. In some cases the results of the survey support anecdotal evidence and individual perceptions about how the rest of the library perceives the department’s services. The implementation of the new integrated library system improved some departmental services and at the same time has caused the degradation of other services and introduced some new problems. It would be useful to redo the survey, since the departmental context has changed greatly.

**Note**

1. The author wishes to thank Marilu Goodyear for guiding the survey process and to Jenny Mehmmedovic and the members of the Cataloging Management Team (Miloche Kottman, Carmen Orth-Alfie, Mary Roach, and Margaret Wilson) for their assistance.
Surveying users of electronic library services by telephone

Sebastian Mundt
Universitäts- und Landesbibliothek Münster. Germany

Abstract

Although electronic media and services have been established in academic libraries' service profiles, they do not seem to be widely accepted by users yet. Field tests during the EU-funded EQUINOX project showed that web log files can provide some useful information but analyses of use are often prevented by technical problems. User surveys can help libraries to analyse user behaviour and attitude towards electronic library services. Telephone interviews with users of the University and Regional Library Münster, one of the EQUINOX partners, have proved that this is a better instrument to gain representative results than other survey methods.

Background

The starting point of this survey is strongly connected to the European Union funded project Equinox (2001) that produced a set of 14 performance indicators on electronic library services. One immediate finding of Equinox was that web statistics offer a wide range of “technical” data that leave many quality related questions unanswered, and user-based (in contrast to use-based) statistics are rarely available. Three indicators regarded as most useful by the 45 Equinox test sites were affected by this, raising the need for other methods of data collection:

- the percentage of the population having used electronic services (market penetration);
- the preferred origination of use where IP addresses do not provide valid information;
- user satisfaction with the library’s electronic services.

In past years, staff at Münster University and Regional Library had conducted a comprehensive array of user surveys on different topics, none of which had specifically addressed users' familiarity with and behaviour using electronic library services. In the conceptual phase of this survey it became clear that in addition to validating the Equinox indicators and testing the survey instrument, this survey should:

- give us in-depth information on user behaviour with electronic library services, and
- give us data to help us to improve our website and tailor it to the needs of our customers.

On the strategic level,

- we had the strong will to document our role as primary supplier of electronic library services in a two-tier university library system, and
- we wanted to raise awareness about those of our electronic services which were less heavily used because they were not well-known among our user community, using the participants in the survey as multipliers.

Selecting the survey method

A number of “generic” survey methods are in more or less common use among libraries. Other methods, e.g. e-mail questionnaires, can be regarded as mixed forms, and their methodological profile may be derived from the methods considered below. A combination of methods was excluded from the start as being too time-consuming. We confined the decision to a choice between the following instruments:

- Mail questionnaire: a print questionnaire mailed to a sample of the population;
- Visitor survey: a self-administered questionnaire handed out to visitors of the library premises;
- Online questionnaire: a questionnaire in pop-up form or on a static web page;
- Telephone survey: a standardised computer aided telephone interview (CATI).

These methods differ significantly in their approach to deliver questions to participants, and this affects their practicality and appropriateness for the given situation. A list of nine decision criteria reflecting our requirements was set up to determine the most appropriate method.

- Representativeness: Is the method suitable to produce a “representative” sample? All members of the population should have an equal probability to be part of the sample, and the sampling method should not cause self-selection among certain subgroups of the population.
- Completeness: Can missing values be avoided?
- (Interpersonal) reliability: Is the survey contact likely to be biased by the interviewer?
• **Return rate**: Will many contacts be likely to respond?

• **Call-back**: Can non-respondents be contacted again?

• **Return time**: Will responses be quickly available for analysis?

• **Preparation**: Has the survey method been conducted in a similar setting before? Is any experience available on the local level?

• **Data format**: Will the survey generate data in the format needed for analysis, or will print results have to be transformed into electronic data?

• **Materials cost**: Can the method be executed at low cost of materials, i.e. postage and communication costs? Staff costs are excluded here because they are inherent in some of the factors listed above. Costs for software tools did not arise.

For each method, the nine criteria were rated (+) for “advantage” or (-) for “disadvantage” in the decision table shown in Figure 1:

**Figure 1: Selection of the survey method**

<table>
<thead>
<tr>
<th>Mail questionnaire</th>
<th>Visitor survey</th>
<th>Online questionnaire</th>
<th>Telephone survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representativeness</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Completeness</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Reliability</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Return rate</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Call-back</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Return time</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Preparation</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Data format</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Materials cost</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Although the criteria were not weighted and no formal calculation was applied, it was evident that the method had to support the generation of a representative sample that enabled us to calculate market penetration and other items of user behaviour from the survey results. This ruled out two methods, including the online survey. This method, in spite of its growing popularity and excellent design options (“split” and “jump” procedures, rotation of questions and answers, implementation of multimedia elements etc.), is likely to produce a self-selective sample for the following reasons:

a) Frequent and experienced users of the Internet are more willing to respond to an online survey than others (Hauptmann/Landers, p.37);

b) Although the rapidly spreading use of the Internet certainly supports the acceptance of electronic library services, some members of the population might still use the Internet less frequently than others, thus not taking notice of the survey;

c) In principal, taking part in a survey should not impose any costs to participants. Accessing a survey from a home PC, however, will in many cases involve communication costs.

**Important issues**

SAMPLING

It is important to know how many persons have, in fact, not been included in the sample although they were contacted, including persons that could not be contacted although telephone numbers were verified. By generating the sample from our customer database and the university phone book, we achieved an acceptable inclusion rate of 88 per cent. A sample size of n=873 was then calculated, giving consideration to availability of survey staff during the field phase. This had been set up as four weeks in June and July 2000 (50 per cent during the semester). The length of the field phase was based on an estimate of 5 successful interviews per working hour.

A total of 303 interview contacts were positively established and conducted. Only 19 people refused to take part in the survey.

Although a minimum of four contact attempts per interviewee at different times and on different days was agreed upon until a contact was regarded as “unsuccessful”, 334 telephone numbers could not be verified during the field phase. To classify these “pending” contacts, all telephone numbers that had not been verified or shown to be incorrect in the field phase were approached again in a follow-up phase in autumn. During this follow-up, no more interviews were conducted. About two-thirds of these numbers turned out to be invalid or wrong, and 117 persons had been absent during the field phase.

**Figure 2: Sample generation**

Invalid telephone numbers do not systematically affect the quality of the survey results (Költringer, p.110) and can therefore be excluded from the calculation of a net exhaustion rate. The result of a 54% return rate is calculated from the 303 successful contacts and those that were regarded as quality relevant (refusals and cases of absence).
INTERVIEW SITUATION

A telephone interview is a complex social situation to manage. The following aspects require careful preparation:

- **Anonymity**: Lack of legitimisation requires careful build-up of the interview;
- **Initiative**: Flexibility that allows preparation of the opening section of the interview, and to generate answers on difficult questions, like those regarding anonymity and possible consequences of the survey. Flexibility also allows for call-back routines. Many call-back appointments that were scheduled, however, were refused when contact was reinitiated at the appointed time.
- **Mono-sensory contact**: Telephone communication lacks visual and other perceptual feedback, which may affect comprehension of the questionnaire. Short sentences and simple terminology are therefore required, especially if language problems exist;
- **Spoken word communication** is ambivalent. It can clarify, but also raise misunderstandings. Response errors and misunderstandings can be corrected immediately, but interviewer bias is likely to appear and thus requires a standardised questionnaire and procedures;
- **Closed circuit**: Confidence and intimacy of a telephone interview encourages open answers;
- **Remote situation**: Persons interviewed may be distracted by third parties at home or in the office, at worst resulting in a break-up of the interview.

The interviews were conducted by two people who had gained experience in telephone marketing research, although neither of them had conducted a telephone survey before. Thus, mutual supervision between interviewers was essential for standardising interview procedures and increasing their experience with the method.

STAFF TIME SPENT

It may be argued that the time consumed by this survey method is significantly higher than for other methods. Figure 3 compares staff days spent on the telephone survey to the most “simple” alternative, a survey questionnaire handed out to library visitors. Comparative data are taken from our last general user satisfaction survey in May 2000 and, where relevant, have been modified to meet n=303.

The results show that it took four days longer to survey the same number of persons by telephone than using self-administered questionnaires. This difference mainly resulted from the time spent on unsuccessful telephone contacts, which took longer than data input on written questionnaires.

**Experience and consequences**

- The EQUINOX performance indicators “market penetration” and “remote use” were positively tested, provided that the sample can represent the population to be served. Both indicators have been included in a technical report, which will extend ISO 11620 later in 2001.
- Due to a short sample period, too many contacts remained pending.
- Care must be taken to minimize interviewer’s influence on the survey results.
- Subject and credibility of the institution led to a high response rate (one rejection in 16 interviews).
Nearly 30% of sampled telephone entries in the customer database were outdated. The customer database will therefore undergo a major relaunch when a student smart card is introduced in 2003-4.

An in-depth analysis of the results will be published separately in the near future.

References


Abstract

Academic libraries need to be agile – to redefine services and restructure investments in response to changing academic programs, technology, resources and user needs. Librarians are skilled at monitoring their institutional and professional environments and conducting surveys to measure satisfaction with current services. But, in the case of informing decisions on new services, we need methods for obtaining systematic data from users to validate fundamental shifts in priorities and resource investments.

Carefully structured focus groups have been used successfully by Arizona State University West Library to reveal user behaviors and to design services that are congruent with their behaviors. Interview questions were derived from an examination of external forces and trends and are designed to elicit quantitative, qualitative, impressionistic and behavioral data. Focus group participants discussed how they obtain and use information and how technology has changed the way they communicate and collaborate with others. The interviews are about them and not about the library or how the library is performing.

The result is a collection of powerful stories that were energizing to staff in the consideration of possible new service models. Analysis of the stories entailed indexing responses to generate quantitative data regarding information-gathering strategies and use of library resources and facilities. The qualitative and quantitative data were clustered into categories of users for which tailored services could be designed. The strengths and weaknesses of this data-rich but resource-intensive methodology are outlined. In addition, the use of this data for program planning is explored.

Introduction

Library users are never static. Their numbers change. They become more diverse. Their needs, wants and aspirations evolve. Some want and need our services, but not in the way we make them available. There are also those we should stop serving because their need has been met, they are better served elsewhere, or because we’re not producing results.

Librarians are skilled at monitoring their institutional and professional environments and at conducting surveys to measure satisfaction with current services. But in the case of accommodating changing needs and informing decisions on new services, we need methods for obtaining systematic and valid data from users to substantiate fundamental shifts in priorities and resource investments.

Arizona State University West Library hosted focus groups to gather this data. Focus group methodology was chosen because focus groups allow the issues to be framed from the user’s perspectives. They are less structured and leave room for unanticipated information. Finally, one hears users’ stories in their own words, with their passion. This experience confirmed the power and necessity of stories in measurement and planning for libraries – especially stories from library users.

The story of this library is a relatively short one. Arizona State University West was created by the Legislature of the State of Arizona in 1984. The Library was the first of five buildings constructed on the campus and the Library staff made up a large part of the welcoming committee for the faculty, students and staff that followed. Besides being an integral part of the community’s first impression of a new public university campus, librarians were focused on anticipating and planning for the future. Over the approximately 15 years of its existence as a campus, the Library staff has worked to successfully anticipate accreditation standards, curricular development at the undergraduate and Master’s levels, and the needs of newly hired faculty.

Roughly two years ago, growing evidence began to suggest that student and faculty needs had caught up with us. Everyone was happy with the Library, which is very service-oriented and has been incorporating new collections and services in response to new technologies. The problem was that new services had been incrementally added without discontinuing any. Staff were experiencing overload and efforts were becoming scattered, more reactive and less future oriented. It was time to take a giant leap – to step out again in anticipation of institutional direction and users’ needs, and redefine – or “reframe” – services in a fundamental way.

The planning process began by examining external forces and trends in the information industry, scholarly communication, technology, public higher education, student demographics, enrollment trends, resource projections and library use data. This analysis was used to shape interview questions for focus groups of faculty.
and students that would elicit data about campus community behavior – how faculty and students obtain and use information.

The most compelling data in the planning process came from these focus group interviews. Actually listening to people talk about how the external forces and trends shape their work lives was an energizing part of our planning process. It was important that as many staff members as possible were involved in the actual interviews – the stories they heard provided the drive and motivation to get through the hard work of data analysis and decision making to come. These interviews were the “hook” staff needed to overcome the usual skepticism about a planning exercise. Based on what was revealed in the focus groups, there was no longer any question that we needed to take action to alleviate difficulties our faculty and students were experiencing.

Focus Group Methodology

The interview questions made it clear that this was not a how-is-the-library-doing exercise. Nor was it strictly a poll about new services the Library should offer. The goal was qualitative, impressionistic, behavioral data, not quantitative facts.

First, we spent a lot of time begging people to talk to us. As enticements, all sessions were fortified with food and drink, and students were given $10 coupons redeemable at the campus bookstore. It helped that there is a tradition of close collaboration between faculty and the librarians at ASU West. Faculty were more readily convinced to participate and, therefore, lent their weight to soliciting student involvement.

We went through two stages of interviews (interviewing approximately 100 faculty members [50%] in one semester and 75 students [4%] in the following semester). Among the things we learned about focus groups were:

1. Develop broad, open-ended questions.
2. Ask factual and behavioral questions. Ask “What do you do?” NOT “What do you think the Library should do?”
3. Refine questions through trial and critique. Eliminate redundancy, re-word confusing questions, remove jargon, refine question order, get rid of anything that gets in the way of people telling their stories. For example, questions in the faculty survey about computing equipment, connectivity and resources used were incorporated into a short paper survey administered at the beginning of the student focus group sessions. In this way we got some factual information on each student participant, helped prompt students’ thinking in response to the discussion questions, and allowed the bulk of the time (guaranteed maximum of 90 minutes) to be focused on responses we could not get any other way.
4. Avoid responding to comments/questions of interviewees – no matter how incorrect the information they are sharing with each other. [This was particularly hard to do!]
5. Talk to your entire potential market. Include users and non-users of your services, people from different disciplines and departments, students/faculty/staff.
6. Use role-play to train interviewers and note-takers. In-house training on running focus groups was developed from the sources found in the Bibliography for this paper. Training sessions were approximately 5 hours in length. Interviewers learned to serve as prompters, not participants. The most important job of the interviewer was to listen, listen, listen.
7. Notes should be as verbatim as possible.
8. Transcribe notes immediately. Participants agreed to our both taping the proceedings and having a note-taker present. They were assured that no identifying data would be shared.

Focus Group Data

It is worth emphasizing that these interviews were not about us, not about how the library was doing. They were about our users and how they were coping – or not coping – with the new information environment. Two examples of the behavioral questions are:

- How do you obtain the information you need?
- How has technology changed how you communicate and collaborate with others?

Initially, we tried to focus our questions only on our interviewees’ behavior. But, we found that it was impossible to ignore the emotions and feelings expressed in the course of the interviews. (“When I do this, I feel this.”) What people do is intertwined with how they feel while they do it, and the emotions they expressed were almost as important to us in the end as the behaviors they described.

Here are examples of the compelling stories from students,

“We know periodical literature is more dependable than the Web, but it’s so hard to access. I have a job and two children. I do most of my work on the computer at 2 a.m. after the kids are in bed and I can concentrate. I use what I can to finish that paper that’s due in class tomorrow, and if that means I can use only the Web, then so be it.”

“…[when] I came here…[I] just cried all the time because I felt so overwhelmed, and my grades fell.”
“[There is] so much information that it is difficult to choose what is best. And then when you come back you don’t know what to do and can’t remember which way out of all the ways to get in, and it’s like starting all over again.”

“Advertising is key - If I don’t see it or read about it, I don’t know that it’s here, and then how can I take advantage of it? The Library needs to get information out to the students more.”

Faculty said:

“…we used to drain all the juices from each article. Now we are flooded. We are not trained to make the best selection. There is a sea of knowledge, [and] we will not have time or motivation or skills to use adequately what is in the sea.”

“The Library could simplify the process of obtaining information, force-feed me the right stuff, help with information overload. I spend too much time now browsing the Web for information.”

“I not only have to be a researcher and a teacher, I have to know how to operate the fax machine, how to install software, how to scan for viruses, how to locate information in print, in databases, on the Web. I must be a jack-of-all-trades and it’s too much. I’m overwhelmed.”

It was pretty powerful stuff, and library staff weren’t the only ones affected. The interviews aroused the interest of the people we interviewed as well. By and large, they enjoyed the experience of talking to us and to their colleagues and wanted to know what was going to happen with the information they gave us.

Some of the comments lent themselves to quick solutions. For instance, many of our users mentioned the inadequacy of our video loan period. The Library lent videos for three days, while faculty and students said they needed them for a week. Because lengthening the video loan period to seven days was a simple change to make, had no significant resource implication, and brought with it dividends in goodwill for our quick responsiveness, this was a “quick fix” we elected to make outside the planning process.

However, a word of warning – don’t get so caught up in quick fixes that the organization’s energy is dissipated before you get to the more difficult and more systematic analyses. Things to consider when coming up with a quick fix:

1. How much effort will it take to decide and to implement?
2. Does it add value for your users? – Will it make things easier, quicker, less expensive or more relevant to their lives?
3. Is it consistent and compatible with the environmental forces and the library’s plans for the future?

Data Analysis

Indexing the interviews and producing reports based on that indexing proved to be crucial. The experience of conducting an interview, hearing what those people have to say and picturing the little gestures that accompanied the words – the way, for instance, the man threw up his hands when he said “I’m overwhelmed!” – could skew staff perceptions in favor of a particularly powerful story. The indexing step mediated between compelling stories that grabbed attention and systematic analysis of all of the stories. It revealed the primary areas of concern.

With about half of the faculty focus groups completed, indexing began. The questions were coded. Every response was assigned the code corresponding to the question that elicited it. All responses to a question on information-gathering strategies, for example, carried that code.

Table 1: Interview Questions

<table>
<thead>
<tr>
<th>Code</th>
<th>Question Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>current library services used</td>
</tr>
<tr>
<td>NS</td>
<td>new library services desired</td>
</tr>
<tr>
<td>CT</td>
<td>current technology uses</td>
</tr>
<tr>
<td>PT</td>
<td>projected technology uses</td>
</tr>
<tr>
<td>IG</td>
<td>information-gathering strategies</td>
</tr>
<tr>
<td>R</td>
<td>resources and tools used</td>
</tr>
<tr>
<td>IM</td>
<td>information management techniques</td>
</tr>
<tr>
<td>SPACE</td>
<td>library space utilization</td>
</tr>
</tbody>
</table>

We built a database consisting of the transcribed tapes augmented by the notes taken at each focus group session. Each response to a question was assigned a number and a designator for the college with which each student responding was affiliated. Then each response was divided by topic. The more topics covered in any individual response, the more segments it represented in our database. A segment might be a word, phrase or several sentences.

Next, terms or concepts mentioned in the segments were noted. With some standardization of terms imposed, 79 index terms were derived and their frequency of mention counted. Added to the list were the terms “comfort” and “discomfort,” which were assigned to comments that were clearly positive or negative in their tone. In addition to the 79 “micro” terms, 19 “macro” terms or broad concepts were conceived, and the frequency with which they were assigned was counted. Both the micro and macro terms were elements that emerged in the context of our library, our institution and our culture. An experienced indexer on the library staff performed this work, which was cross-checked for accuracy of interpretation by the interviewers. When indexing was complete, each discrete segment was assigned one macro term and 0-6 micro terms.
Table 2: Sample Database Entries

**Student Comment**
“We’re so desperate as students we will pay for services to get information over here quickly.”

**College Affiliation:** [h]
**Micro Index terms:** ILL/DocDel; Fees
**Macro Index term:** Productivity

**Record No.:** 5563
**Question Code:** NS

**Faculty Comment**
“I don’t have words enough or time enough to answer that. Everything I do is electronic, from searching UnCover to submitting papers to collaborating with scholars around the world.”

**Micro Index terms:** Collaboration; Electronic submission; UnCover
**Macro Index term:** Computing

**Record No.:** 3223
**Question Code:** CT

Unlike surveys, interviews don’t give you a pre-constructed set of possible answers. Based on the indexing, we had an impressionistic quantification of comments. Some perceptions of our users were confirmed, but there were some surprises. For example, we did not expect to find the high number of similarities in information-seeking behaviors, concerns and values expressed by students and faculty.

Faculty and students (irrespective of college affiliation) gave roughly the same rank order of importance – in the sense of frequency of mention with which they alluded to 12 of the 19 broad subjects or issues. Both frequently mentioned electronic and print resources as core to their information seeking strategies or concerns. Staffed services such as circulation or reference were given medium-level priority by both groups. Equipment and digitization were least mentioned as strategies or issues by both groups.

Table 3: Same/Near Rank Order of Macro Terms

<table>
<thead>
<tr>
<th>Macro Term</th>
<th>Students</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic Resources</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Print Resources</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Electronic Print Resources</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Teaching/Learning</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Staffed Services</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Computing</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Productivity</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Space Use</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Policies</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Space Management</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Equipment</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Digitization</td>
<td>18</td>
<td>19</td>
</tr>
</tbody>
</table>

There were seven concepts that students and faculty gave significantly different priority. For example, access is a much greater issue for students than faculty. Faculty are much more reliant on networking with colleagues/peers than students.

Table 4: Significant Difference in Rank Order of Macro Terms

<table>
<thead>
<tr>
<th>Macro Term</th>
<th>Students</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Information Literacy</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Climate</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Networking</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Collection Management</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Scholarly Communication</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Primary Resources</td>
<td>19</td>
<td>11</td>
</tr>
</tbody>
</table>

With a very few exceptions, the micro terms derived from the faculty database were also found in the student database. The macro terms worked for both data sets. There was significant agreement between the rank-ordered (in order of frequency of mention) lists of general/macro terms or concepts from the two groups.

Table 5: Rank Order of Top 10 Micro Terms

<table>
<thead>
<tr>
<th>Faculty Frequency Of Comment</th>
<th>Students Frequency of Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journals</td>
<td>491</td>
</tr>
<tr>
<td>Spec Resources/Pubn</td>
<td>355</td>
</tr>
<tr>
<td>Web</td>
<td>330</td>
</tr>
<tr>
<td>Databases</td>
<td>277</td>
</tr>
<tr>
<td>E-mail</td>
<td>231</td>
</tr>
<tr>
<td>Students</td>
<td>229</td>
</tr>
<tr>
<td>Media</td>
<td>207</td>
</tr>
<tr>
<td>Books</td>
<td>173</td>
</tr>
<tr>
<td>Files – Paper</td>
<td>170</td>
</tr>
<tr>
<td>Colleagues</td>
<td>153</td>
</tr>
<tr>
<td>Web</td>
<td>160</td>
</tr>
<tr>
<td>Databases</td>
<td>142</td>
</tr>
<tr>
<td>Library Info.</td>
<td>123</td>
</tr>
<tr>
<td>Computers</td>
<td>122</td>
</tr>
<tr>
<td>Journals</td>
<td>109</td>
</tr>
<tr>
<td>Distance Ed</td>
<td>106</td>
</tr>
<tr>
<td>Research Support</td>
<td>95</td>
</tr>
<tr>
<td>Discomfort</td>
<td>92</td>
</tr>
<tr>
<td>Comfort</td>
<td>92</td>
</tr>
<tr>
<td>Files – Paper</td>
<td>89</td>
</tr>
</tbody>
</table>
Findings

Among the students, we found more similarities than differences in how they obtain and interact with information. The major themes are outlined below:

WORK STYLE

• Difficulty juggling home and family, work and school
• Work in most convenient location – home, public and community college libraries, ASU West Library – frequently choosing a library based on proximity, familiarity or child care needs
• Use Library group study rooms for group work and large open tables for individual study; would like longer library hours

RESOURCES AND STRATEGIES USED

• Tend to limit themselves to familiar information resources and research strategies
• Use print resources when required by an assignment; prefer to use electronic information because it is quick, easy and convenient; want continuous access to databases from their homes
• Will select topics for research based on convenient availability of materials
• Recognize mixed quality of information on the Internet
• Convenient information is more important than optimum relevance or quality

SERVICES USED/NEEDED

• Some use document delivery service successfully; others avoid document delivery because they have procrastinated, the service is too slow for their needs, they must make an extra trip to pick up materials, or they don’t trust getting the material in time; they would like material delivered to them
• Need more assistance in finding and using print journals and micro formats
• Not aware of many library services; greater awareness and use of services among students who have had library instruction
• Hesitate to ask for reference assistance – feel dumb, don’t know what to ask; more readily seek advice from friends, classmates, faculty
• Those who use reference assistance have found it useful and user-friendly
• Overall satisfaction with the level and quality of library service

TECHNOLOGY

• Make paper copies of both electronic and print information for study and retention; emerging pattern of transporting, using and storing information electronically
• Increased percentage of computer ownership (92%) and Internet access from home (60%) or work (27%)
• Heavy use of e-mail to communicate with faculty and submit papers; lack of consensus whether technology enhances or detracts from communication
• Frustration among the computer “have nots” over the increasing emphasis on student computer use, for example, coming to campus only to e-mail an assignment; desire among the computer “haves” to do more of their work electronically
• Have experienced distance education and technology enhanced education; are certain about what works and doesn’t work

The interviews reflected much more variation among faculty than among students in ways of obtaining and working with information. The strongest patterns are:

WORK STYLE

• Work almost exclusively from their offices or homes
• Want continuous access to information from any location

RESOURCES AND STRATEGIES USED

• Extensively use (and want more) electronic resources, but physical formats are still necessary
• Extensively use Amazon.com and UnCover for awareness of newly published book and journal literature
• Need better access to primary and archival information
• Heavily use media for instruction
• Want more information sources

SERVICES USED/NEEDED

• Successfully use document delivery; want materials delivered to their offices and a return point in the faculty office building
• Frequently overwhelmed by the amount of information and the ever-changing array of formats
• Increasingly independent in conducting routine database searches
• Consult with librarians on non-routine searches and evaluation of Internet information
• Not aware of many services that are provided; want more tailored communication and training
• Satisfied with services; don’t want to lose services

Technology
• Experience techno-stress from constantly changing technologies and skills gap
• Expect the Library to stay in the forefront technologically
• Extensively use e-mail and attachments in communicating with colleagues and publishers; like speed, enhanced collaboration, continuous access, global contacts
• Communicate with students by e-mail; some accept papers by e-mail; no consensus whether technology enhances or detracts from student-teacher communication
• Have reservations about technology-delivered distance education
• Information management approaches vary by discipline; information is stored in all formats; want scanners available
• Some concern about management of datasets, interview records and other primary information

Scholarly Communication
• Confused and concerned about intellectual property rights, copyright and fair use in a digital environment; concerned about detecting student plagiarism from the Internet
• Concerned about quality and acceptance of electronically published work; some interest in publishing electronically, especially the ability to integrate formats

Nine user behavior clusters emerged and we gave them names for easier reference.

1. Overloaded and Confused – straddling both print and electronic information worlds; overwhelmed by rate of change, information overload and the difficulty of identifying relevant and quality information; lacking control over information they collect; lack knowledge about existing library services
2. Teach Us – trying to stay current and wanting more training for themselves and/or their students (in the case of faculty); wanting training in information resources and research methods, computer skills, application of technology
3. Remote Users – routinely gather information electronically; work from their offices and homes; rarely use physical library; want more electronic resources and access for themselves and their students (in the case of faculty); want continuous access
4. Connoisseurs of Convenience and Quick Access – cannot invest a lot of time dealing with sources; want “selective dissemination of information” (SDI) for “just in time” access to all services and information; want easy and user-friendly interfaces
5. E-Scholars/Teachers – faculty that rely heavily on electronic communication with colleagues and, increasingly, with students; interest in electronic publishing, but leery of quality; confused by copyright provisions and limitations; concern for e-plagiarism
6. Media Savvy – infuse media in instruction; beginning to integrate text, image and sound in interactive modules to enrich scholarship, teaching and learning; engaged in re-formatting
7. Traditional Users – heavily paper dependent and into browsing as a mode of discovery; use reserve collections; seek long-term personal contact with a librarian
8. Users of Specialized Information – heavily use archival and primary resources; seek interdisciplinary and international information; looking for better access
9. Socializers – priority on sense of community and space to come together socially around intellectual work

The Library was now positioned to enter the decision-making phase of our planning. Briefly, what the Library could do to add value for these groups was identified. Having identified the what, we analyzed if we should take these actions. For those programs deemed viable, given our personnel and financial resources, implementation plans were developed.

Conclusion

One would be correct in concluding that there are some drawbacks to the use of focus groups as a data-gathering methodology. Focus groups are time-consuming to conduct, time-consuming to transcribe, and a logistical nightmare to organize on a campus-wide scale. The data they generate are a challenge to analyze. Even though members of the staff had previous focus group experience, intensive training was necessary for both facilitators and note-takers. Focus group facilitators used a welcoming script to ensure consistency of
experience across the groups. Each 90-minute focus group session was followed by an hour of debriefing. Additional time was necessary to convert the notes and taped comments into text that could be entered into a database followed by the indexing.

On the other hand there are clearly strengths in this methodology. The question, “What do faculty and students value?” - what satisfies their needs, wants and aspirations – is so complicated that it can only be answered by faculty and students themselves. Based on the major themes from the interviews, campus feedback and the analyses of feasibility, the Library could best add value for both faculty and student clientele through services that:

- provide fast and convenient delivery of information to the user,
- simplify the identification of relevant and quality information, and
- increase information and technology competencies of students and faculty.

Reallocation of resources allowed new value-adding services to emerge fostered by changes in organizational structure, reallocation of personnel and re-ordering of priorities. For example, delivery of documents to the desktop has been piloted and integrated into the package of services for faculty. The Library’s Website has been redesigned and work is underway to convert part of it to a database architecture in preparation for integration with the University’s customizable Web portal service. Finally, the faculty and librarians are collaborating to integrate information competencies and information literacy assessment into the curriculum, the current focus being first-year learning communities.

These and other changes being implemented emerged from interviews with clientele. Users constructed the framework within which new services were designed – thus the “user-framed” label for our methodology.1

ASU West Library
Student Focus Group Project

Source List


Focus Group Kit (6 vols):


Note

1. UFVA [User-Framed Value Added] Methodology developed by Northern Lights Consulting, 1474 North Point Village Center, Suite 284, Reston, VA 20194-1190; Kgagen@aol.com; Voice: 703.352.1998 FAX: 703.362.9670
Abstract

Service quality is becoming an important performance measurement in libraries. Managing service quality improvement is dependent upon routine assessment and requires the preparation of staff to understand the concepts and the techniques that foster the generation and application of customer-based data to decision-making. What are expectations for staff development to prepare librarians to embrace such a management approach to delivering services? What is the perceived readiness of library organizations to support a culture of assessment? How effective are web-based teaching and learning technologies in developing the requisite skills among library staff to manage service quality?

The study reported here begins to explore these questions based on the authors' experiences in designing and facilitating a 6-week online course on Measuring Service Quality in Libraries, offered three times since November 2000 through the Association of Research Libraries' Online Lyceum program. A total of 85 library staff have registered for these sessions. Through analysis of their course activities, including responses to three questionnaires, their opinions sought during the course chats and bulletin discussions, and a post-course e-mail survey, the authors have gained insights into the need and expectations for staff development to foster a culture of assessment in libraries and the implications of utilizing web-based teaching technologies toward meeting such needs.

The Online Course

The Association of Research Libraries [ARL] membership identified performance measurement as a high priority for its staff development agenda. In fall 1999, ARL asked Danuta A. Nitecki to develop a course on the topic for its Online Lyceum offerings. Agreeing to undertake this project, she negotiated that the course content be focused on measuring service quality. Toni Olshen joined her in the development and facilitation of the course. Measuring Library Service Quality became the sixth offering of the Lyceum and the first created solely for the distance education format. After a year's gestation period, working with staff and consultants from ARL and a technical team from the Library Affairs Instructional Support Services, Southern Illinois University in Carbondale, the course was launched in November 2000. We believe this was the first course on the topic offered through the Internet, and perhaps about service quality assessment directed to librarians in any format.

The authors and ARL projected that several trends in the profession would build a demand for such a course. Demands for assessment and accountability from stakeholders external to libraries – university administrators, government bodies, and accreditation agencies in particular – are powerful driving forces for the increasing interest in measuring library service quality and the impact of libraries on institutional missions. As we move into the realm of quality vs. quantity-based measurement, a considerable amount of learning and culture change must take place both about the organizational environment to survive and specific survival skills. As librarians are expected to “do more with less” to address increased demands for information and related services, and for utilizing information technologies, the principles of a culture of assessment are becoming more appealing. Lakos, Wilson, and Phipps offer a definition of a “culture of assessment” that illustrates the setting sought for many libraries to become productive and responsive service organizations:

A Culture of Assessment is an organizational environment in which decisions are based on facts, research and analysis, and where services are planned and delivered in ways that maximize positive outcomes and impacts for customers and stakeholders. A Culture of Assessment exists in organizations where staff care to know what results they produce and how those results relate to customers' expectations. Organizational mission, values, structures, and systems support behavior that is performance and learning focused.

Furthermore, demands for staff development opportunities continue to reflect difficulties for information professionals to develop and maintain the rapidly changing set of critical skills demanded by information technology and by the changing needs of information users. As librarians have more difficulty taking time away from work to attend conferences and workshops, and as travel budgets decrease, the idea of taking a course via the Web, without the barriers created by set
schedules, geography and added travel expenses found in most workshop settings, has become more appealing. Information about the Online Lyceum on the ARL web site points out that distance learning provides new opportunities for library staff to develop critical skills while working in a flexible, affordable, and convenient learning environment. Addressing both needs – content about quality assessment and at-home learning – were key reasons behind the ARL wish to have this course among its Lyceum offerings.

From the beginning, the course developers were determined to create a course that took advantage of the online environment and teaching technologies. We acknowledged concerns to overcome student obstacles to effective learning via this medium. Research indicates that in distance education courses, students' frustration originated from three main sources:

1. technological problems;
2. minimal and not timely feedback from the instructor; and,
3. ambiguous instructions on the Web site as well as via e-mail. (Hara & Kling 1999)

We included features that would minimize if not eliminate these barriers to students' success in completing and benefiting from an online professional development course. We dealt with some of the same issues that other developers of professional development online courses needed to manage: student expectations, content, content presentation, teaching components, interaction between students and instructors, course delivery and evaluation (Garrison, Schardt & Kochi 2000).

We attempted to manage student expectations in three ways. Publicity for the course distributed both in print and through a website repeatedly listed the objectives of the course. They are:

- Develop an understanding of the concept of service quality in terms of customer perspectives and expectations for excellence and perceptions of delivered services.
- Explore ways to gather data for meeting/exceeding customer expectations and ensuring satisfaction.
- Gain the ability to conceive how different measurements can be used for different purposes in assessing service quality in libraries.
- Gain insights into how service quality can be utilized to improve library value to users.

ARL staff also posed on the website a series of questions to help prospective registrants determine if an online lyceum course is suitable for their learning style and if identified limitations of distance learning and the minimal specified technological requirements will hinder their development. In addition, we posted clarifying comments about what the course would cover in response to statements solicited from registrants about their course expectations that were received prior to the start of the course.

The course content was crafted over several months with the intention to be a balanced, challenging, up-to-date, informative learning experience for participants that would be enhanced by the multimedia features developed in conjunction with SIUC technical experts. In advance of the course each registrant received a package of written materials, and was offered the opportunity to review hot linked online resources interspersed throughout the course.

A great deal of attention was given to content presentation, wedding the course content with its online structure, resulting in a three-module format focusing on the three major topics developed in the course:

- definition of service quality,
- the tools to assess it, and
- the impact that measurement of service quality has on the library.

A metaphor was used throughout the course to graphically illustrate [Figure 1] and organize its content and represented the facets of measuring service quality as a multi-piece puzzle, each piece with jagged edges, but coming into focus when viewed as a whole. We very consciously strived to develop a learning environment through use of online chats and bulletin boards for exchanges between and among students and course facilitators. The course content was available any time, every day through the duration of the course and for an additional two weeks after its conclusion, to allow participants time to read materials at their own pace.

Figure 1. The puzzle metaphor used to organize the course modules.

The critical difference between in-person and distance learning settings is the ability for students and instructors to meet each other and engage in dialog in person. To foster interaction between and among stu-
dents and instructors, SIUC staff used Web Board software to incorporate both asynchronous bulletin board discussions and real-time chat opportunities into the course design, repeating the real-time availability of at least one instructor both mid-day and in the evening once a week. The chats were the least successful mechanism used in this course. Typical comments were:

I found it very difficult to participate in the chats because they occurred during my busiest times of the day. I also didn’t find them very productive. The nature of the communication device is limited for any conversation of substance… I don’t know if this can be improved; it may just be a significant limitation of the online environment.

I found the format of the chats frustrating. The chat comments scrolled by very fast… there seemed to be disconnects between discussion threads.

In recognition of the limitations of the chat software and the confusion that the format caused some students, we instituted more focused sessions with a specific topic, for example, data gathering tools or fostering the culture of assessment. Also we increased the use of the bulletin board feature as a more appropriate place for lengthy and content-rich discussions.

In addition, instructors responded within 48 hours to comments posted online for shared discussion, and to assignments submitted individually by each participant. It is common for students in many online courses to work alone, often at home in evenings or weekends or during lunch hours on the job, finding time wedged in between busy work days and full family lives. Distance education requires that students be self-regulated. It is hard for some to work under these conditions. One student commented,

The problems I encountered were really based on changes in my schedule, unexpected snow days, and staff shortages which prevented me from spending as much time as I would have liked to on the course. I was unable to participate in the chat sessions, but did enjoy reading the discussion boards and the chat transcriptions as a way to “catch up.”

The Online Lyceum course environment as developed by SIUC consists of a wide range of presentation features, including tools used to engage in learning with facilitators, colleagues, and resources. These include:

- Audio Clips [Figure 3], recorded by guest speakers and presented in a question/answer format, highlight the views of experts in the field.

Data Gathering Tools

Figure 2. The graphic used to guide students through 9 steps for selecting data gathering tools developed for the course.
Various interactive learning opportunities were designed to allow students to reflect on past learning experiences and incorporate new skills and techniques into future work. Three assignments provide opportunities for skills practice and to receive feedback from course facilitators on course work. As course activities and assignments are completed, they are automatically entered into the participant’s electronic personal learning journal.

It is likely that not all participants in distance education courses are familiar with course-support technology and may have different levels of comfort with the multi-media environment of a Lyceum course. One student commented, “Had some computer problems. Do not know if they were caused by my system or by flukes in the class design.” Basic information about the minimum required technical set-up is provided with the names and email addresses of support people available for ongoing questions. Each animated version of a slide show and audio interview requiring Real Player also has an html version. Therefore the course is equally content-rich for those with more sophisticated technical set-ups as for those with simpler ones.

Inadvertently, we also handled a disability issue: one participant was hard of hearing and appreciated the written format for the audio interviews. Feedback about the presentation features included such statements as:

“I liked the video and flipcharts. The Q & As, the slide shows, and the increased interactivity were all good.”

“Despite the lack of face-to-face or voice-to-voice interaction I found alternating between readings, audio, flip charts, activities and chat sessions a richer experience than any library school courses I have taken (not online).”

For a 6-week course, such as Measuring Library Service Quality, it is expected that a registrant needs to dedicate between 30 and 42 hours to complete it. This time allows participants to read through course content, review the course readings in the print course pack, participate in online asynchronous discussions, attend weekly chat sessions, and complete course activities and assignments. Among student comments noted after the conclusion of the course,

“With this much to read, the course could have been a couple of weeks longer. When you are a full-time employee, it is difficult to put so much into a short period of time and do justice to your work, too.”

“I think an online course can be a very effective learning experience depending on its structure. The ARL course was very effective in that it had a good mix of activities and it included components to fit most learning styles.”

The Participants

Registration for each session was limited to 30 participants. Demand for the first session exceeded this limit and encouraged scheduling additional sessions soon afterwards. Characteristics of the participants in the course, and thus the “population” for the exploratory study reported here are summarized in Table 1.

Table 1: Characteristics of Course Participants

<table>
<thead>
<tr>
<th>Session</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total registered:</td>
<td>30</td>
<td>25</td>
<td>30</td>
<td>85 [100%]</td>
</tr>
<tr>
<td>Females</td>
<td>60 [71%]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>25 [29%]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrators</td>
<td>30 [35%]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managers</td>
<td>17 [20%]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frontline staff</td>
<td>38 [45%]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affiliated with: ARL library</td>
<td>13</td>
<td>13</td>
<td>18</td>
<td>44 [52%]</td>
</tr>
<tr>
<td>Non-ARL</td>
<td>19</td>
<td>10</td>
<td>12</td>
<td>41 [48%]</td>
</tr>
<tr>
<td>LibQual+ participants</td>
<td>31 [36%]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LibQual+ non-participants</td>
<td>54 [64%]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Participants in the course were all library staff from the US and Canada. They held a wide variety of positions from library director to staff newly appointed to quality...
assessment committees or assignments, from ARL research institutions to small colleges, and with backgrounds in the humanities, social sciences, science, law and health studies, including two public and two special business libraries. Most participants were novices in measurement, recently given some responsibility for assessment at their institutions. Four had titles that signified responsibility for assessment, one person from the first session and three from the last, perhaps indicating an increase over time in a measurement agenda at some institutions. Only 19 [22%] participants had indicated that they ever had taken an online course before. From the 85 people registered for the course, 56 completed all three assignments to receive a certificate from ARL, while more completed the content and participated in activities throughout the 6-week sessions.

The commitment to engage in the course varied among registrants. At the start of the course, two questions were posed for the students to project how much effort they expected to devote to this course. At the conclusion of the course, a similar set of questions was posed. Table 2 summarizes the shift between how much effort at the start of the course was expected to be given to complete it, and how much was perceived afterwards to have been devoted to it.

Table 2: Student Expectations and Perceptions of Course Engagement

<table>
<thead>
<tr>
<th>Expected # hours [pre-course question]</th>
<th>1-5</th>
<th>6-10</th>
<th>11-15</th>
<th>16-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 00</td>
<td>2</td>
<td>8</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>Spr 01</td>
<td>0</td>
<td>9</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Sum 01</td>
<td>0</td>
<td>6</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>23</td>
<td>47</td>
<td>1</td>
</tr>
<tr>
<td>n=75</td>
<td>3%</td>
<td>32%</td>
<td>64%</td>
<td>1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceived # hours [course end question]</th>
<th>&lt;1</th>
<th>1-5</th>
<th>6-10</th>
<th>11-15</th>
<th>16-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 00</td>
<td>1</td>
<td>8</td>
<td>12</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Spr 01</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sum 01</td>
<td>0</td>
<td>7</td>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>21</td>
<td>32</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>n=57</td>
<td>3%</td>
<td>37%</td>
<td>56%</td>
<td>2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

b. Times logged on during course

<table>
<thead>
<tr>
<th>Expected times [pre-course question]</th>
<th>1-5</th>
<th>6-10</th>
<th>11-15</th>
<th>16-20</th>
<th>&gt;20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 00</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Spr 01</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Sum 01</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>12</td>
<td>17</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>n=73</td>
<td>10%</td>
<td>16%</td>
<td>25%</td>
<td>16%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Both in terms of the number of hours devoted per week to the course and the number of times logged in over the duration of the course, students perceived a greater effort was given to complete the course than expected at its beginning.

Expectations for Staff Development

Understanding the registrants’ expectations for the course was important to us in two ways. Primarily it was essential for evaluation and improving the course. Expectations were the basis by which we could gauge the perceived service quality this group of Lyceum “customers” held for this one ARL service. Since the course focused on measuring service quality we illustrated the gap analysis between the participant’s expectations for an excellent course at the start of the session and their perceptions of the course delivered at the end. Our second interest in registrants’ expectations is to further an understanding of what kinds of training librarians seek to develop their skills to measure service quality. Although we are pleased with the overall high ratings the course received, here we will present only the data relating to the expectations for this area of staff development.

One of the first activities the participants were asked to complete was a questionnaire, presented online, to rank the importance of each of 10 factors has to the success of the course. The factors were selected as a combination of four factors cited as objectives for the course and six that surfaced repeatedly among the statements of expectations that the participants submitted prior to the course. Course participants were asked to rank importance on a 7-point Likert scale, grounded by 1 = extremely unimportant and 7 = extremely important. Table 3 summarizes the average rankings for each factor by session. The combined scores reflect the average across sessions.
### Table 3: Comparison of Expectations for the Course

<table>
<thead>
<tr>
<th>Factors important to course success</th>
<th>Expectation scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course Session:</td>
</tr>
<tr>
<td></td>
<td>11/2000 [n=29]</td>
</tr>
<tr>
<td></td>
<td>2/2001 [n=19]</td>
</tr>
<tr>
<td></td>
<td>6/2001 [n=25]</td>
</tr>
<tr>
<td></td>
<td>All [n=73]</td>
</tr>
<tr>
<td></td>
<td>Rank [n=73]</td>
</tr>
<tr>
<td>% of enrollment</td>
<td>97%</td>
</tr>
<tr>
<td></td>
<td>76%</td>
</tr>
<tr>
<td></td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td>86%</td>
</tr>
<tr>
<td></td>
<td>86%</td>
</tr>
<tr>
<td>1. Understand when to use focus group interviews</td>
<td>4.27</td>
</tr>
<tr>
<td>2. Develop an understanding of the concept of quality</td>
<td>5.86</td>
</tr>
<tr>
<td>3. Learn how others have implemented service quality measures</td>
<td>5.55</td>
</tr>
<tr>
<td>4. Know how to summarize service quality measures to administration</td>
<td>5.27</td>
</tr>
<tr>
<td>5. Learn how to create an environment where high quality service is assessed &amp; maintained</td>
<td>5.89</td>
</tr>
<tr>
<td>6. Explore ways to gather data for meeting/exceeding customer expectations &amp; ensuring satisfaction</td>
<td>5.68</td>
</tr>
<tr>
<td>7. Begin to develop a service quality assessment plan for my library</td>
<td>5.34</td>
</tr>
<tr>
<td>8. Gain the ability to conceive how different measurements can be used for different purposes in assessing service quality in libraries</td>
<td>5.48</td>
</tr>
<tr>
<td>9. Discuss gained insights into how service quality can be utilized to improve library value to users</td>
<td>5.17</td>
</tr>
<tr>
<td>10. Benefit from participating in an online course experience</td>
<td>4.68</td>
</tr>
</tbody>
</table>

Each time the course was offered, students on average ranked as most important to the success of the course the expectation to "learn how to create an environment where high quality service is assessed and maintained." With the exception of the first group of students, most ranked as least important the expectation to "benefit from participating in an online course experience." With the small size response from each session, we have not attempted to find significant differences between the sessions. However, the data do not contradict impressions the authors were formulating from other feedback in the course sessions that the later group of students were more aware of service quality principles and more practical in seeking technical skills and applications of insights gained in the course. By comparison, the early students were less familiar with basic concepts.

Among the expectations noted in the pre-course comments, interest was expressed to learn about specific data gathering methods such as focus group interviews, as well as the LibQual+ project. As more libraries have participated in this pilot to develop an instrument to measure service quality in libraries, more participants in the course sought information on how to interpret data obtained from the test instrument’s application.

Participants were perhaps surprised by the complexity of the subject. One repeated theme expressed at the end of the course in response to our question on what was found to be most helpful in the course was that the materials were informative but required more time to digest. Typical comments included the following:

"The readings were most stimulating. They were intellectually challenging, each complemented the others well, and the sequence was helpful. While I am sure as a librarian I could have located all these readings myself, it would have taken me an enormous amount of time and I would have probably spent time reading others that were less valuable. I also would not have had such valuable sequencing."
"The application of the readings and course content in the activities and assignments was very useful – and a little challenging at times."

Perceived Readiness of Libraries for Culture of Assessment

The second major question we posed in this study concerns the readiness of libraries as organizations to function within a culture of assessment. Earlier in this paper we described the concept of a “culture of assessment” as part of the managerial orientation of an operation. We adapted a questionnaire, developed by Wilson, into the online course content. A set of 15 statements asked participants to indicate if each statement was true or false for a library of their choosing. Table 4 summarizes the cumulative responses from the three sessions of the course. We offer this for possible insights about the readiness of libraries as reflected by this set of respondents.

Table 4: Perceptions of Libraries’ Culture of Assessment

<table>
<thead>
<tr>
<th>Indicative statement</th>
<th>True</th>
<th>False</th>
<th>no reply</th>
<th>% true</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Assessment is evident in our library planning documents such as strategic plans</td>
<td>35</td>
<td>25</td>
<td>3</td>
<td>56%</td>
</tr>
<tr>
<td>2. Assessment is a campus priority</td>
<td>37</td>
<td>23</td>
<td>4</td>
<td>58%</td>
</tr>
<tr>
<td>3. Library administrators are committed to supporting assessment</td>
<td>49</td>
<td>12</td>
<td>3</td>
<td>77%</td>
</tr>
<tr>
<td>4. Staff accepts responsibility for assessment activities</td>
<td>20</td>
<td>38</td>
<td>6</td>
<td>31%</td>
</tr>
<tr>
<td>5. There is support and rewards for staff who engage in assessment</td>
<td>17</td>
<td>43</td>
<td>4</td>
<td>27%</td>
</tr>
<tr>
<td>6. Library policies &amp; procedures are designed to meet user information needs</td>
<td>48</td>
<td>12</td>
<td>4</td>
<td>75%</td>
</tr>
<tr>
<td>7. Collaboration &amp; cooperation exists among individuals &amp; departments</td>
<td>49</td>
<td>12</td>
<td>3</td>
<td>77%</td>
</tr>
<tr>
<td>8. My library considers user needs in allocating resources</td>
<td>49</td>
<td>12</td>
<td>3</td>
<td>77%</td>
</tr>
<tr>
<td>9. My library actively cultivates a positive relationship with its users</td>
<td>45</td>
<td>16</td>
<td>3</td>
<td>70%</td>
</tr>
<tr>
<td>10. Assessment leads to results in my library</td>
<td>23</td>
<td>36</td>
<td>5</td>
<td>36%</td>
</tr>
<tr>
<td>11. My library routinely collects, uses &amp; disseminates meaningful user data and feedback</td>
<td>17</td>
<td>44</td>
<td>3</td>
<td>27%</td>
</tr>
<tr>
<td>12. My library employs a Management Information System/Decision Support System</td>
<td>2</td>
<td>58</td>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td>13. My library evaluates operations &amp; programs for service quality</td>
<td>21</td>
<td>38</td>
<td>5</td>
<td>33%</td>
</tr>
<tr>
<td>14. Staff have expertise &amp; skills in assessment</td>
<td>11</td>
<td>48</td>
<td>5</td>
<td>17%</td>
</tr>
<tr>
<td>15. On-going staff development in assessment is provided</td>
<td>18</td>
<td>42</td>
<td>4</td>
<td>28%</td>
</tr>
</tbody>
</table>

Conclusions drawn from these responses cannot be generalized to the population of librarians, but it does reflect responses from 75% of the registrants in the course. Interest in the course certainly might be correlated with “readiness” to implement a pilot assessment project. A review of the factors shows some pattern of perceived readiness of libraries for the culture of assessment. The perception [greater than 70% responding “true”] is that libraries have supportive administrators, policies and procedures designed to meet user information needs, collaboration and cooperation among staff, resource allocations that consider user...
needs, and active cultivation of positive relationships with users. The perceived weaknesses [less than 30% responding “true”] among this group, of libraries’ preparedness are in lack of support and rewards for staff who engage in assessment; of routine collection, use and dissemination of meaningful user data and feedback; of on-going staff development in assessment; and of staff expertise and skills in assessment. The lack of libraries employing a ‘management information system and decision support system’ is the single most clearly noted omission among this group of respondents with only 3% responding that their library does have such a system.

We noticed a marked difference in the background of participants between those in the first and third sessions, a span of only 8 months. Now we see more participants with experience conducting assessments, having job responsibilities to undertake assessments, and asking questions about more technical aspects of evaluations, measurement tools, and analytical techniques. This shift may be a reflection of who is registering for the course. However, we assume that since there was no major difference in the publicity for the course, that we had a similar representation of the population of librarians in the three sessions. Our speculation that there is a growing awareness of assessment techniques and concepts of service quality may be an interesting topic for further research and observation of the library profession.

Impact of Web-based Learning

Throughout the sessions, we formulated opinions about the value of web-based learning. As we noted earlier, we questioned the benefit of chats as open-ended times for contact with instructors or interactions among students. To our surprise, each session had a core of about 12 students that would always actively engage in chat discussions, eagerly following stimulants the facilitator would introduce to direct the online conversation along the topic covered that week in the course assignments and recommended readings. In each session there were students who asked for a continuation of the learning experience after the course concluded. We obliged by extending online access to the materials posted online for two weeks, but did not commit to a formal channel of communication afterwards.

Wondering how pervasive the interest in continued learning was among participants, we conducted an e-mail survey in July, 2001 of all registrants in the first two sessions to seek their opinions on the impact of the course and web-based learning to meet their development needs. A set of 6 open-ended questions was emailed to 53 people who had registered for the course 5 or 8 months earlier, and within four weeks and with one reminder to non-respondents, replies from 23 [43%] were received and were analyzed for this report. The responses to the questions reflected a high and generally productive impact on those taking the course. Only one participant expressed disappointment that the course did not meet expectations and that nothing was learned, due to difficulties in scheduling time to join discussions and technical difficulties of connecting while traveling abroad. Specific findings by select questions follows.

1. “How have you applied what you learned in the course to your local setting?”

Roughly two-thirds [15] of the respondents indicated ways in which they used what they learned, three expressed the hope or expectation to use the information, and two noted that they did not have an opportunity to apply the course. Among specific applications cited were execution of surveys of customer expectations, establishment of staff development workshops, changing existing presentations about data collection, holding staff discussions, changing employee performance evaluations, conducting a “doable pilot” assessment, and initiating collaborations with non-library assessment staff to participate in broader campus surveys. Though most indicated a focus on customers external to the library, one response outlined applications of the course learnings to work within the cataloging department, illustrating the application to internal customers.

2. To what extent have you shared what you learned with colleagues? Would you recommend that anyone else in your institution should take this course?

All but three of the respondents [20] noted that they shared information gained with colleagues through venues ranging from casual coffee chats to formal presentations to advisory committees. Several commented on the existence of an assessment group in their library with whom information was shared. A few mentioned ordering the text or placing readings identified in the course in staff reading areas. Reasons for not sharing what was learned from the course included leaving the library for a job change and “political” reasons. No one was against recommending the course to others, though one doubted if the cost would allow for multiple participants from one institution. Discussions were initiated to arrange for a session devoted to one library as a result of these early sessions.

3. What could help you continue your learning about measuring library service quality?

Specifically, a suggestion was floated to establish a listserv for alumni of the course. All but one welcomed the idea of a listserv as a means to “keep up” with the literature and learn about experiences at other institutions; one was unenthusiastic to have more email and thus doubted he’d join a listserv. In addition, suggestions were made to send reminders of new articles, stimulate electronic discussion of readings, hold “reunions” or other in-person events at conferences,
and develop new modules on the topic perhaps at advanced levels to offer through the ARL Lyceum. A few of the respondents alluded to their library’s participation in the LibQual+ pilot through which staff gained access to a community of colleagues with whom they could share ideas about assessment of service quality.

4. “What is your opinion on the effectiveness of an online learning experience over time?”

Several different observations were made in responses to this question. Three people were grateful for the online format because of their limitations to travel to professional development opportunities; one was homebound due to childcare, one due to an injury, and another to time restrictions. Most comments indicated little perceived difference from other learning formats, concluding that the benefit of a course, regardless of format, is dependent on the effort exerted to learn and that the readings are the most valuable component of the course offering.

5. “What pieces are missing from your knowledge of measuring library service quality?”

Overwhelmingly the common response to this question involved recognition of the difficulty of implementing change and the desire for more guidance on how to “make this successful.” Alluding to the puzzle metaphor used to organize the course material, several respondents acknowledged that “all the pieces are there,” but “it just isn’t easy” to apply them to practice. A couple of respondents requested more advanced but non-technical explanation of ways to interpret and analyze data. One respondent specifically suggested a course on measuring cataloging or “indirect service quality,” or applying the principles to small size service quality measurement, while another urged introduction of the concept of service quality measurement through library school curriculum.

An opportunity to add any other reflections or comments about the course methodology, the learning experience or the content was met with insightful responses. The authors are gratified by the numerous high compliments extended such as:

this course stands out as one of the best (if not the best) professional development experience that I have had in my career....in the past 20 years....well beyond my expectations.

Feedback on the use of technology was mixed, several persons disliking the chat and bulletin experience, while others found it supportive and helpful, one even noting, “the bits of information that really stick with me are some of the comments made during the chats.” Reactions to the multiple approaches to covering materials—through articles, textual “lectures,” audio clips, interactive chats and bulletins, and assignments—confirm the assumption that different people learn in different ways.

The impressions from this set of responses cannot be generalized to the full population of participants in this course. However, they address our intention to explore the experiences gained from this online course. We share these findings as initial insights into the need for training and professional development on the topic of measuring service quality in libraries, as well as the impact of using web based technologies to deliver the course.

Conclusions

Measurement as an act of gathering data is not the difficulty. Rather the introduction of a new set of concepts and language about managing library services challenge most librarians who have taken the course. It is not easy to grasp quickly concepts of service quality, assessment, and fact-based customer-focused management orientation. Insights gained from our culture of assessment readiness exercise confirm at least among many of the librarians enrolled in this course that our library organizations are not ready for transforming libraries to well managed service quality operations. Thus, the need for staff development to prepare librarians to not only participate in, but lead, this transformation should become a high expectation within the profession.

This study has been exploratory. Observations and insights cannot be generalized beyond the group of librarians participating in this course. The study was not intended to be a scientific study of the profession’s needs for staff development or of librarians’ views of expectations for service quality. What it has attempted to provide are early insights on the status of preparing library staff for the challenges of making the necessary organizational and personal changes required to foster a culture of assessment among libraries of the future. It also has confirmed that web-based instruction offers benefits to professionals for self-learning, but also has limitations. Chat software, for example, introduces quick, brief, real-time interchanges that some find helpful in “being in touch” with the professional dialog on a topic. But others find that these same features of the technology set barriers to discussing, and evolving understanding of, complex ideas. As one of the students most recently noted, establishing true “learning communities” continues to pose a challenge to course designers. We found the chat technologies to be inadequate, and the bulletin boards to suffice for exchanging information. However, neither fosters development of relationships, a key contributor to learning in the classroom. To further explore use of information technologies, perhaps utilization of video clips and conferencing, teleconferencing and conference calls would contribute to shortening this gap.

From our experiences, we recommend that additional professional development opportunities on library service quality be offered. There is interest in developing “communities of practice” in the area of
service quality assessment. Though not often active, membership in the ARL sponsored listserv includes participants in this Lyceum course on measuring service quality, representatives from libraries participating in the LibQual+ project, and others interested in the topic. We urge ARL and other library associations to form and stimulate discussion among those trying to implement changes toward a culture of assessment through listservs and conference gatherings.

The diffusion of service quality assessment as an innovative topic is increasingly interesting to observe. With each session of the course, we witnessed a more sophisticated set of questions and comments shared by participants, suggesting that some of the basic principles of continuous improvement and service quality assessment may be diffused through the profession. Soon the course content of this initial design will be remedial and of appeal only to “late adaptors” of the innovation, and may be coupled with demands for more detailed training opportunities in design of specific data gathering instruments and techniques [e.g. surveys, focus group interviews], and processes to foster organizational change. As new generations of librarians are being prepared, schools of library and information sciences are urged to also incorporate continuous improvement and the culture of assessment into the preparation of management perspectives, and to introduce students to the basic tools used to measure service quality and solicit, analyze and utilize customer feedback.

If we consider service quality assessment in libraries as an innovation of the past decade, then we are yet early in its diffusion. This course has addressed the needs of early adaptors. There will likely be a period yet of several years to coach those who are less progressive in leading change and adapting new ideas in this area, and simultaneously to address the challenging inquisitiveness and creative energies of the innovators in the profession. Web-based instruction should continue to be utilized to meet these needs and can do so effectively in modules to address the shifting populations of students requesting the instruction.

Nurturing the efforts of librarians who desire to undertake self-directed professional development is a challenge. Programs like the Online Lyceum are turning the concept of online professional development into reality. People taking responsibility for their own learning and collaborations that embrace the innovations of networking and multimedia teaching techniques, enable us to exchange information and experiences that help build an informed professional community.

**References**


**Notes**

1. The course was activated over the following periods: session 1: November 13-December 15, 2000; Session 2: February 12-March 23, 2001; Session 3: June 25-August 3, 2001.

2. Thanks are extended to those assisting in the creation and delivery of the course, including from SIUC: Heidi Greer, Distance Learning Coordinator; JP Dunn, Web Developer and Systems Administrator; Kevin Rundblad, Assistant Instructional Development Librarian. From ARL: Dawn Kight, Program Officer for Distance Learning, Trish Rosseel, former Program Officer for Distance Learning, Martha Kyri lidou, Director, Statistics and Measurements Program, Julia Bli xrud, Director of Information Services, Office of Leadership and Management Services, and Kathryn Deiss, former Director, Office of Leadership and Management Services.


4. Appreciation is extended to the interviewed experts Philip Calvert, Colleen Cook, Rowena Cullen, Peter Hernon, Steve Hiller, Amos Lakos, Charles Lowry, Charles McClure, Shelly Phipps, Roswitha Pol t, Patience Simmonds and Joan Stein.

5. LibQual+ information can be found online at: http://www.arl.org/libqual/

6. Betsy Wilson, University of Washington Library, developed the instrument used with credit to Cerise Oberman, Plattsburgh State University of New York and Amos Lakos, University of Waterloo. Response to one statement, from the original 16 presented, is not included here because the course software inadvertently did not capture participants’ response to it. The statement was, “My campus has local assessment resources & experts.”

7. Three returned the message but without answers to the questions, one respondent admitted to not having participated in the course after it began due to unexpected circumstances, another to not finishing the readings, and one with promise to send responses later.
Dimensions of Leadership and Service Quality: The Human Aspect in Performance Measurement

Niels Ole Pors
Department of Library and Information Management
The Royal School of Library and Information Science, Denmark, August 2001
nop@db.dk

Introduction

There is an increasing focus on leadership and management in both the private and public sector. The development of a so-called leadership barometer in Denmark demonstrates this interest. It was the Aarhus School of Business Studies and the Danish Association of Managers and Leaders that jointly created a monitoring instrument like the leadership barometer. There has been great interest in the results of the first comprehensive investigation conducted by means of this instrument (Dansk, 2000). The first edition of the instrument was applied to leaders and managers in both the private and the public sector. Later, the instrument was tailored to analyse managers in the public sector.

At the Royal School of Library and Information Science, in cooperation with the Union of Librarians, we developed a similar measurement instrument. We have used part of this instrument as a starting point for our investigation into leadership problems in the library sector. We have modified the questionnaire quite a lot and directed it towards the information sector; however, it will still be possible to compare at least some of the main results with the private and other sections of the public sector.

The increasing awareness of leadership is a concern not only in the library sector but also in society as a whole. This concern is due to the ever increasing speed and turbulence of change processes, and especially to some pertinent factors like lack of applicants for job positions in some areas, the need for a constant development of competencies, growing pressures from financing bodies, changes in the attitudes in the workforce, and so on.

Leadership is associated with management although the emphasis in leadership is more on development, strategy, vision and adapting the organisation to a changing environment. Management is about planning, organising and controlling the resources of the library, both human and non-human, to achieve the goals and objectives (Riggs, 1997).

Much of the literature on leadership in libraries has focused on leadership roles, leadership styles and personality issues (Edwards et al, 2000). On the other hand, there is remarkably little evidence on how leaders perceive their role and future challenges (Hernon et al, 2001).

In many respects, the library sector does not seem to differ from other public institutions. However, libraries do have some particular features:

- There is a relatively high degree of female leaders.
- There are many rather small units.
- There is a strong sense of tradition and professional criteria of quality.
- There is a strong sense of service towards a community.
- There are many myths and prejudices.
- There are very radical change processes due to information technology.
- There is growing competition and increasing awareness from political bodies with demands of value for money.

We found it would be interesting to analyse the views and perceptions of library leaders.

The data was collected by means of a questionnaire sent to 562 managers in the library sector. We achieved a response rate of 73%. 411 managers completed the very comprehensive questionnaire. These 411 respondents represent 265 different public and academic libraries. For the purposes of this paper, we have selected 265 top managers from 265 libraries to avoid getting multiple answers from employees at the same library.

The questionnaire consisted in total of approximately 230 variables or questions. It was a 10 page long form. The questionnaire was mailed in April of 2001. The follow up was conducted during May of 2001. The processing of data into a statistical package (SPSS) was finished in the beginning of July 2001. The survey questions concerned the following dimensions of leadership:

- Perception of future challenges
- Perception of leadership roles
- Knowledge about existing management tools
- Structure and processes of leadership
- Stakeholders
- Definition of the job
- Satisfaction
- Leadership tools and competences
- Organisation
• Demographic variables like the number of employees, type of library, the degree of digitalisation and use of service quality tools.

It is useful to start with a short characterization of the sample group in regards to the type and size of the libraries and the gender of the directors. The sample consists of 265 libraries. 215 are public libraries and 50 are academic libraries. The size of the libraries is based on the number of employees. The distribution of size is independent of the type of library. There is no gender difference in relation to type of library. There is a slight tendency that male directors lead bigger libraries. By looking at the kind of responsibilities, we classified the leaders into 3 groups.

• Top-leader: leads a library with more than 51 employees or a library with more than 16 employees in addition with broader responsibilities
• Leader: is the director of a library with less than 50 employees
• Middle manager: will often be a deputy. From some of the libraries, the director did not answer the form but the deputy did.

This classification was based on the number of employees and the range of responsibilities. For example, some public library directors have responsibilities for all the cultural activities in a municipality.

We did not see any gender differences in relation to the level of management.

The problem

We were primarily interested in relationships and associations between different dimensions of leadership qualities and dimensions of service quality. The service quality level of the library can be difficult to define. However, in this context, we have defined it as the degree of digitalisation. This term means the extent of coverage of digital services and of digital tools like automatic devices for issuing documents. We focused on the user-oriented digital services. We also scrutinized the range of systematic assessments the libraries conduct on a regularly basis, such as analysing the collection in relation to user needs, user surveys, ethical guidelines, measurement of waiting times and so on.

What we wanted to investigate in this paper was the possible relationship between two types of variables. We employed background variables like the size and type of the library, gender, position in the library, the degree of digitalisation or user orientation and the different attitudes and perceptions of the leaders.

At this state in the research process, the paper focuses more on the presentation of findings than theory development or discussion.

The knowledge of library directors

One of the questions we asked dealt with the directors’ knowledge of different leadership tools, including management theories and methodologies. We asked the respondents to classify their familiarity with 24 different leadership and management tools. Table 1 lists some of the results.

We have cross-tabulated by the size of the library simply to answer the research question about the association between the knowledge level and the number of employees.

Table 1 indicates that there is a positive relationship between library size and management’s level of knowledge. The table below only includes the respondents that stated they possessed a comprehensive knowledge of the subject or issue. There are statistically significant differences among all the topics.

<table>
<thead>
<tr>
<th>In %</th>
<th>Proportion</th>
<th>Size of library: number of employee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>&lt;7</td>
</tr>
<tr>
<td>Management by objectives</td>
<td>38.2</td>
<td>20.8</td>
</tr>
<tr>
<td>User surveys</td>
<td>34.4</td>
<td>19.8</td>
</tr>
<tr>
<td>Development of competencies</td>
<td>26.7</td>
<td>12.8</td>
</tr>
<tr>
<td>Strategic planning</td>
<td>23.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Management based on contracts</td>
<td>21.2</td>
<td>12.0</td>
</tr>
<tr>
<td>Value-based management</td>
<td>17.4</td>
<td>10.8</td>
</tr>
<tr>
<td>Performance related fee-structure</td>
<td>16.5</td>
<td>10.3</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>14.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Knowledge management</td>
<td>10.0</td>
<td>5.5</td>
</tr>
<tr>
<td>Management information systems</td>
<td>6.4</td>
<td>1.1</td>
</tr>
<tr>
<td>Balanced scorecard</td>
<td>4.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Image and Branding</td>
<td>3.7</td>
<td>3.3</td>
</tr>
</tbody>
</table>

The numbers in italics signify statistically significant differences.
These results are not that easy to interpret. A look at the total distribution indicates an increasing knowledge correlated with how long the issue has been on the market. On the other hand, most libraries do have obligations to manage by objectives, to employ development of competencies in strategic documents and they all have some system of performance-related pay.

The striking feature in Table 1 is the difference in the professed knowledge base according to library size. In general, the high perception of one’s knowledge base correlates with the size of the library one manages. One can ask if you become a leader or manager at a large library because of the level of knowledge you have or one could hypothesise that you become a top figure because of your perception of your level of knowledge, which reflects certain personality traits. Especially the leaders and managers of the small libraries differ in respect to professed knowledge level. We have no reason to believe they possess unusual personalities.

When we test in relation to gender, we only find the issue of performance-related pay to be significant. Female managers claim a more comprehensive knowledge than their male colleagues. There is a slight tendency for male directors to know more about strategic planning.

Table 2: The respondents’ perceptions of their need for own development of competencies. Averages based on a scale from 1 to 7. (Seven indicates a great need for upgrading. 1 indicates no need for upgrading of competencies.)

<table>
<thead>
<tr>
<th></th>
<th>Total Mean</th>
<th>Size of library: number of employee</th>
<th>Size of library: number of employee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>&lt;7</td>
<td>7-15</td>
</tr>
<tr>
<td>Value-based management</td>
<td>4.7</td>
<td>4.5</td>
<td>5.1</td>
</tr>
<tr>
<td>Change management</td>
<td>4.6</td>
<td>4.6</td>
<td>5.0</td>
</tr>
<tr>
<td>Quality management</td>
<td>4.6</td>
<td>4.6</td>
<td>5.1</td>
</tr>
<tr>
<td>Knowledge management</td>
<td>4.5</td>
<td>4.3</td>
<td>4.9</td>
</tr>
<tr>
<td>Development of personal competences</td>
<td>4.2</td>
<td>4.5</td>
<td>4.0</td>
</tr>
<tr>
<td>Network based organisation</td>
<td>4.2</td>
<td>3.9</td>
<td>4.4</td>
</tr>
<tr>
<td>Management by teams</td>
<td>3.9</td>
<td>3.7</td>
<td>4.5</td>
</tr>
<tr>
<td>Management by objectives</td>
<td>3.9</td>
<td>4.0</td>
<td>4.4</td>
</tr>
<tr>
<td>Economic issues and problems</td>
<td>3.2</td>
<td>3.4</td>
<td>3.9</td>
</tr>
</tbody>
</table>

The picture we get from Table 2 is that directors at large libraries perceive a lesser need for personal upgrading. There are exceptions in relation to networking and quality management, but as a whole, the picture is consistent with the data in Table 1. The higher your knowledge level, the lesser the perceived need for updating it. But it is also evident that one’s perception of a comprehensive knowledge base influences the perceived need of competency development.

In Table 1 we saw that the leaders of the small institutions perceived a rather low level of knowledge. It is interesting that they do not feel a huge need for updating. A preliminary explanation could be that many of the theories and tools embedded in the issues are of minor importance running a small library.

We asked the respondents in which areas they perceived that they needed to upgrade their skills and competencies. The issues we asked about were partially overlapping with the issues in Table 1.

We have run an ANOVA test. There are statistically significant differences in all issues with the exception of the issue of networked-based organisation.

We also ran an ANOVA test related to gender and this test shows that female directors perceive their need for upgrading of competencies as greater than male directors for the following issues: change management, personal competencies, quality management, team management and knowledge management. Placed in relation to Table 1 and the tests run there, we do have an indication that the female directors perceive their need for competency development as greater than their male colleagues.

The ranking indicates an aspiration to be at the frontline of management. It is the hot topics that come first in the list. There are some interesting differences according to library size. Team management is less important in the small libraries. This is also the case for networking. The leaders and managers of libraries of different sizes also tend to rank their need for updating of competencies differently.

Service quality levels

We will now present some indicators of the libraries’ orientation towards service quality. We emphasise that our interpretation of service quality differs a lot from the standard definitions and it could be called inductive in character. In the context of the leadership project, we define service quality as the extent to which the library applies tools and tasks in relation to the users and in relation to ICT – technologies.

We find it pertinent to investigate which procedures the libraries have employed to increase customer focus or user-orientation. This means that we have been interested in issues like the adoption of user surveys, analysis of visitors, queuing, waiting times, use of quality indicators, benchmarking, complaint-management.
systems, service standards and ethical guidelines. All these things are elements in a user-oriented library that emphasises service quality and user orientation.

We also see the application of different ICT - technologies as a measure for classifying libraries according to their level of digitalisation. In this context it is relevant to ask if the library conducts teaching in the use of the Internet and if the library answers users’ questions via e-mail. Other topics concern delivery of electronic documents to the e-mail address of the user and lending of e-books and electronic reading devices, among others.

Table 3: The proportion of libraries, which have conducted the following during the last 3 years or do give a special service.

<table>
<thead>
<tr>
<th>In %</th>
<th>Type of library</th>
<th>Size of library: number of employee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>public</td>
</tr>
<tr>
<td>Systematic traffic count</td>
<td>63</td>
<td>65</td>
</tr>
<tr>
<td>Service standards</td>
<td>48</td>
<td>51</td>
</tr>
<tr>
<td>Analysis of remote use</td>
<td>41</td>
<td>39</td>
</tr>
<tr>
<td>Systematic user surveys</td>
<td>34</td>
<td>33</td>
</tr>
<tr>
<td>Analysis of process time</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>Ethical guidelines for users</td>
<td>23</td>
<td>27</td>
</tr>
<tr>
<td>Ethical guidelines for staff</td>
<td>20</td>
<td>23</td>
</tr>
<tr>
<td>User/collection evaluation</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Use of quality indicators</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>Users’ waiting times</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>ILL - investigations</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Systematic complaint system</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Queuing studies</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Teaching internet use</td>
<td>80</td>
<td>79</td>
</tr>
<tr>
<td>Answer users via e-mail</td>
<td>71</td>
<td>69</td>
</tr>
<tr>
<td>Delivery electronic doc to e-mail</td>
<td>32</td>
<td>29</td>
</tr>
<tr>
<td>Individualised services</td>
<td>28</td>
<td>18</td>
</tr>
</tbody>
</table>

The numbers in italics indicate a statistically significant difference.

The table indicates again that the size of the library is a pertinent factor. It is more important in general than the type of library.

Table 3 indicates the rank of initiatives the libraries have taken. Some of the issues are user oriented and others are more directed towards data collection for statistical purposes. The traffic count, for example, is a category that public libraries are asked to report to the national library authorities.

One third of the libraries have conducted some kind of user survey but only one out of five have investigated the collection in relation to user needs. One could argue that collection measures in relation to user needs are the true test of how customer-focused a library is.

The inconvenience in terms of waiting times, queuing and possibilities of complaints are not issues that many libraries deal with on a systematic basis. The ethical guidelines are to a certain degree a direct response to the public’s access to the Internet and serve as a way to try to control behaviour (Pors, 2001). The systematic use of quality indicators is not widespread, but together with the other indicators of user-orientation, we see that many of the libraries have invested a considerable amount of money and manpower in different quality- assurance systems.

The overall picture is that the large libraries have implemented much more of these systems than the smaller ones. It is of course not surprising simply because the amount of work involved in many of these exercises. There are also remarkable differences between the public libraries and academic libraries. Some of these differences are possibly due to serving different user groups, but some of them can be explained by the different legal requirements.

Benchmarking is much more important in the academic libraries than in public libraries. This is partly due to the way they are financed. The mode of financing can also explain the focus on collections in academic libraries. Part of their financing structure depends on the number of issues. In such instances, the collection becomes rather important.

Nearly all of the libraries engaged in teaching activities concerning Internet use and most of the libraries used technology to deliver fast and prompt services to the users by means of e-mail, etc. It is difficult to categorize libraries in terms of degree of digitalisation. We have used some rather simple indicators. Electronic document delivery becomes more and more widespread. Over 70% of the academic libraries do give some kind of individualised service. It can be different search profiles, circulation of a selected set of journal, copies for content pages and the like.

A look at the level of digitalisation reveals interesting features. Only 10% of the libraries are involved
actively in distance learning activities. It is the large and the smallest libraries that are ahead of the rest and the academic libraries are much more active in this area than the public libraries.

Tools like digital equipment for self-service are not widespread, but it is an option in nearly 20% of the libraries. The size plays a significant role. The public libraries are much more active in this area. Their average circulation is, of course, bigger which could explain that savings then tend to be more substantial.

Two thirds of all the libraries cooperated in consortia for buying licenses. The difference between public and academic libraries was not substantial.

One of the questions that was of interesting was the degree to which the library performed digital tasks for the community or mother institution of which they were a part. This was really a question about the library’s impact. 18% of the libraries perform such tasks and there is no difference according to size. However, 50% of the academic libraries undertake digital tasks for their institutions. Only 12% of the public libraries do the same.

It has proved rather useful to classify libraries according to their degree of digitalisation.

The perception of future leadership challenges

In the previous paragraphs we have investigated some very remarkable differences in the perceived knowledge – base of the library managers. We have also seen that the number of service tools or management tools employed differs very much, especially according to the size of the library.

A very important aspect of leadership is thinking about the future. Do library managers differ in their perception of future challenges according to some of the background variables used in this analysis? In the questionnaire, we asked about 24 challenges. We only use 10 here. Overall, there is a high degree of correspondence in the perception of the future challenges. But there are some interesting differences.

Table 4: The perception of future leadership challenges. Averages based on a scale from 1 to 7. 7 indicates that the issue will have a major importance in the future. 1 indicates that the issue will have a very minor or no importance in the future.

<table>
<thead>
<tr>
<th>Total</th>
<th>Type of library</th>
<th>Size of library:</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>public academic</td>
<td>&lt;51</td>
</tr>
<tr>
<td>Development of competence</td>
<td>6.2</td>
<td>6.2</td>
<td>6.0</td>
</tr>
<tr>
<td>Development of leadership qualities</td>
<td>5.8</td>
<td>6.0</td>
<td>5.3</td>
</tr>
<tr>
<td>Co-operation with other partners</td>
<td>5.8</td>
<td>5.9</td>
<td>5.3</td>
</tr>
<tr>
<td>Recruitment of staff</td>
<td>5.5</td>
<td>5.6</td>
<td>5.1</td>
</tr>
<tr>
<td>Development of quality</td>
<td>5.4</td>
<td>5.5</td>
<td>5.1</td>
</tr>
<tr>
<td>Management by objectives</td>
<td>5.4</td>
<td>5.6</td>
<td>5.3</td>
</tr>
<tr>
<td>Value-based management</td>
<td>5.3</td>
<td>5.4</td>
<td>5.6</td>
</tr>
<tr>
<td>User orientation</td>
<td>5.2</td>
<td>5.0</td>
<td>5.9</td>
</tr>
<tr>
<td>The Internet</td>
<td>5.0</td>
<td>4.9</td>
<td>5.7</td>
</tr>
<tr>
<td>Generation of income</td>
<td>3.8</td>
<td>3.8</td>
<td>3.4</td>
</tr>
</tbody>
</table>

The numbers in italics indicate a statistically significant difference.

If we look at the perception of future challenges in relation to the type of library we find statistical differences in all cases except the issue concerning income generation and quality development. There is no clear pattern. On some of the issues, managers in the public library sector tend to evaluate with higher averages. On some others, managers in the academic library sector tend to evaluate more highly. The academic sector looks at the Internet as a major challenge in the future. There are some interesting factors here. It is not surprising that development of competencies is seen as a major challenge. This is simply due to societal change processes and, of course, the ICT revolution. It is a bit more surprising that the customers of the library, in the issue “user-orientation”, do not score higher. At the same time, one wonders a bit because income-generation is not really seen as a challenge.

The new Library act that passed the Danish parliament in 2000 opened up a huge increase in self-generated income in the public library system. The scope of different services increased but naturally, the budgets did not follow. The intention behind the act was to enable libraries to generate income to cover their extra expenses. Many of the challenges are internal and staff-oriented. Few of the challenges are externally directed.

It is remarkable that the managers of different sized libraries do have nearly the same perception of future challenges. Directors in small and large libraries differ only in their perception of the need for external cooperation. In this analysis, we have recoded the 3 smaller groups of libraries into one group. The previous analyses showed that there was a certain similarity among at least some factors.

A hypothesis concerning the degree of digitalisation and the perception of future challenges is appropriate,
but a T-test did not reveal any statistically significant difference between the perception of the future and the degree of digitalisation.

On the other hand we see that the gender of the director is an important factor in relation to the perception of the importance of future challenges. The perception differs in all instances except the 3 concerning co-operation, recruitment of staff, and quality development.

Table 5: The proportion of leaders that claim that the following competencies will be of major significance in their job in the next 3 years.

<table>
<thead>
<tr>
<th>Competency</th>
<th>Total Mean (%)</th>
<th>Type of library</th>
<th>Size of library:</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>public academic</td>
<td>&lt;51</td>
<td>&gt;51</td>
</tr>
<tr>
<td>Openness and willingness to change</td>
<td>93</td>
<td>94</td>
<td>92</td>
<td>93</td>
</tr>
<tr>
<td>The ability to motivate and inspire</td>
<td>91</td>
<td>91</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Ability to communicate</td>
<td>89</td>
<td>90</td>
<td>82</td>
<td>88</td>
</tr>
<tr>
<td>Seeing the broad picture</td>
<td>80</td>
<td>84</td>
<td>65</td>
<td>79</td>
</tr>
<tr>
<td>To possess self confidence</td>
<td>69</td>
<td>73</td>
<td>55</td>
<td>69</td>
</tr>
<tr>
<td>Decisiveness and getting things done</td>
<td>68</td>
<td>69</td>
<td>63</td>
<td>69</td>
</tr>
<tr>
<td>Focused on goals and objectives</td>
<td>58</td>
<td>58</td>
<td>54</td>
<td>57</td>
</tr>
<tr>
<td>Empathy</td>
<td>57</td>
<td>61</td>
<td>43</td>
<td>58</td>
</tr>
<tr>
<td>User-orientation</td>
<td>56</td>
<td>55</td>
<td>67</td>
<td>56</td>
</tr>
<tr>
<td>Theoretical competencies</td>
<td>43</td>
<td>42</td>
<td>45</td>
<td>46</td>
</tr>
<tr>
<td>Understanding economic issues</td>
<td>43</td>
<td>46</td>
<td>31</td>
<td>44</td>
</tr>
<tr>
<td>Willingness to take risks</td>
<td>43</td>
<td>46</td>
<td>29</td>
<td>43</td>
</tr>
<tr>
<td>Ability to manage conflicts</td>
<td>38</td>
<td>38</td>
<td>35</td>
<td>38</td>
</tr>
<tr>
<td>IT knowledge</td>
<td>37</td>
<td>34</td>
<td>49</td>
<td>38</td>
</tr>
<tr>
<td>Language skills</td>
<td>16</td>
<td>13</td>
<td>33</td>
<td>17</td>
</tr>
<tr>
<td>Intercultural understanding</td>
<td>15</td>
<td>15</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>International experience</td>
<td>11</td>
<td>7</td>
<td>26</td>
<td>10</td>
</tr>
</tbody>
</table>

The numbers in italics indicate a statistically significant difference.

The future challenges are not the same as the competencies the leaders judge will be important in their job over the next 3 years.

It is interesting that the gender factor seems to be of major significance when we look at the directors’ perception of challenges. By and large, it appears that the leaders’ perceptions do not correlate with at least some of the indicators of digitalisation.

The most interesting feature of Table 5 is the significant differences we see according to gender. Female and male leaders tend to judge the requirements of the job differently. It is not just the human-related issues that are ranked differently. Also, harder topics like focus on goals and getting things done are ranked differently according to gender. It is also striking that female leader perceive that the job require theoretical competencies much more than their male colleagues.

**Conclusion**

This presentation is the first analysis of a large and comprehensive body of material about library leadership. This paper has just ploughed the surface, but some interesting results have come up. Here, it must be emphasised that the analysis is preliminary and it has only involved a minority of the many variables.

It is evident that female and male leaders perceive future challenges and job requirements differently. It is interesting that leaders at libraries of very different sizes have very similar rankings of future challenges.
Differences in ranking can be explained by gender and the type of library.

The self-perceived knowledge levels of library leaders differ significantly according to the size of institution they manage. It is impossible on the basis of the included variables to draw conclusions about causal relationships in this regard. The results are consistent with the respondents’ perception of the need for skills updating.

Other studies (Alimo-Metcalfe, 1995) have also emphasised gender as an important factor in leadership attributes (Shirley, 1999).

There do appear to be associations between the leaders’ characteristics in regard to their knowledge level and the way in which the library conduct its services. The employment of management tools are much more widespread in the larger libraries. It would be premature to infer causal relationships. The simple size of libraries and the flexibility, manpower and resources could easily explain that phenomenon.

It is evident that further analysis will have to look much more carefully into some of these relationships, especially focusing on gender differences.

Acknowledgement: Dr Carl Gustav Johannsen and the author conduct the leadership project. Carl Gustav Johannsen has commented on a draft of this paper and has contributed with many helpful suggestions.

References
**A Decade of User Surveys: Utilizing and assessing a standard assessment tool to measure library performance at the University of Virginia and University of Washington**

Steve Hiller  
Head, Science Libraries and Library Assessment Coordinator, University of Washington Libraries, USA

Jim Self  
Director, Management Information Services, University of Virginia Library, USA

**Introduction**

The libraries of the University of Virginia (U.Va.) and the University of Washington (U.W) have been pioneers in the development and utilization of ongoing library user surveys. UW conducted its first large-scale survey in 1992 and has since surveyed faculty and students at three-year intervals. U.Va. began in 1993 with a faculty survey and conducted a number of faculty and student surveys in succeeding years. The two libraries have not coordinated efforts to develop a single survey or use similar methodology and design, but their separate survey instruments have many common characteristics. Survey results have been used to improve services at both institutions and also constitute a rich tapestry of library use patterns and changing user expectations during a period of rapid transformation of the library and information environments.

More information about user surveys at the two institutions can be found at:  
http://www.lib.washington.edu/surveys/  
http://staff.lib.virginia.edu/management-information/survey.html

**User Surveys**

Library user surveys have become widespread in academic libraries during the past twenty years and have often been used as a tool to assess service quality, library performance, and user satisfaction. The Association of Research Libraries issued four “Systems and Procedures Exchange Center” (SPEC) kits on user surveys and studies between 1981 and 1994 (Association of Research Libraries, 1981, 1984, 1988, 1994). A substantial body of literature has developed on surveys and service quality, led by recent studies and reviews from such library educators and practitioners as Hernon and McClure (1990), Van House, Weil and McClure (1990), Hernon and Altman (1996, 1998), Nitecki and Franklin (1999), Hernon and Whitman (2001), and the extensive work done on ServQUAL/LibQUAL by Cook, Heath and Thompson (2000) at Texas A&M. Rapid changes in library services and operations, demands for internal institutional accountability, and assessment expectations by external accrediting agencies have contributed to further development and application of user surveys within academic libraries during the past decade.

User surveys can be designed and administered in a number of ways. Self-administered surveys are often employed to reach a large number of potential respondents with a minimum of direct contact and cost. Individuals are given or sent surveys to complete and return and the responses turned into data that can be analyzed. Surveys can be mailed, distributed at designated locations, conducted by telephone, sent by electronic mail, or completed on the Web. Surveys can range from broad and comprehensive to those narrowly focused on specific services or activities. When properly designed and administered, user surveys can provide both quantitative and qualitative data directly from the target population. When sample or survey response is large enough and deemed representative of the population being surveyed, data and results can be used to generalize for the population as a whole. This ability to provide statistically valid results from a smaller group makes the user survey a very powerful tool. Surveying the user community on a regular cycle can also provide valuable longitudinal data and the ability to measure change over time.

In general, users surveys can be used to:

- Obtain direct responses to a series of questions from the community surveyed
- Identify user issues, concerns and needs
- Measure library performance from the user perspective, including satisfaction
- Acquire quantifiable data that can be statistically analyzed and generalizeable for the larger population
• Improve or change services
• Increase library visibility and marketing
• Contribute to broader institutional assessment/accreditation

Surveys can be designed to provide multi-dimensional user perspective on library performance through a series of questions that examines a specific topic in multiple ways such as:
• Use type and frequency
• Satisfaction
• Importance
• Priorities
• Written comments

Survey results can and should be used with other measures/user input such as counts, observation, and focus groups to provide this fuller perspective of user behavior.

Library Surveys at the University of Virginia

The University of Virginia is probably best known for its undergraduate liberal arts education. It is a state supported institution but strives to maintain a national reputation; a third of all students are from out of state. A total of 12,500 undergraduates and 6,000 graduate and professional students are enrolled.

U.Va. is a comprehensive research university offering doctoral degrees in 55 areas, but its best known graduate programs tend to be in the humanities as well as in certain professional programs, such as law and business.

Survey Methodology

The U.Va. Library has conducted six surveys since 1993. Separate, but similar, surveys have been done for faculty and students. The student surveys have usually asked graduate students and undergraduates the same questions, but the two groups have always been tallied separately.

There has been a certain consistency of questions to allow for longitudinal comparisons. In each survey respondents have rated (on a 1 to 5 scale) a sizable number of resources and services, and they provided an overall (1 to 5) rating of the library. In addition, respondents have always been asked to select their top priorities for library spending.

The first three U.Va. surveys were traditional paper and pencil instruments that were mailed to a random sample of students or faculty. The last three surveys (since 1998) have been on the World Wide Web. Persons selected for the sample receive an email or printed letter from the library asking them to go to a specific URL, enter a login and password, and fill out the surveys. Putting the surveys on the Web has reduced costs considerably; there are no printing or postage expenses, and no labor costs for data entry. The U.Va. Library has worked to maximize the response rate, using follow-up messages and personal contact when appropriate. The undergraduate response rate has ranged from 43% to 50%, graduates from 53% to 65%, and faculty from 63% to 70%.

Overall Ratings

The rating that receives the most attention at U.Va. appears at the end of the survey: “Please rate your overall satisfaction with the University Library.” The results show significant improvement in faculty ratings. Graduate ratings are lower, and remarkably consistent. Undergraduates are less consistent, but currently give the Library a good mark.

| Table 1: Overall Satisfaction (1 to 5 scale) University of Virginia Library |
|--------------------------------|----------------|----------------|----------------|
| Faculty                        | 1993/94       | 1996/98       | 2000/01       |
| Graduate Students              | 3.96          | 3.97          | 3.97          |
| Undergraduate Students         | 4.01          | 3.90          | 4.07          |

Flexibility is one of the strengths of a user survey; one can examine and measure the responses of subsets of the population surveyed. At Virginia faculty subgroups vary in their perceptions of the Library, as is evident from their overall ratings:

| Table 2: Overall Satisfaction with the Library. University of Virginia Faculty |
|--------------------------------|----------------|----------------|
| Social Science Faculty         | 4.26           | 4.36           | 4.60           |
| Humanities Faculty             | 4.27           | 4.35           | 4.48           |
| Science Faculty                | 3.87           | 3.99           | 4.14           |
| Composite                      | 4.09           | 4.26           | 4.41           |

Two observations are apparent from these data. The ratings are improving for all faculty groups, and although the science faculty scores are improving, they are not closing the gap with humanities and social sciences.

Analyzing the Results

Surveys can confirm anecdotal evidence. For example, faculty do not come to the physical library as often as they once did. In the 1993 survey 79% percent of faculty reported they visited a library at least once a week; in 1996 50% so reported, and in 2000 the tally was 51%. Between 1993 and 1996 the Library added a number of online services, such as bibliographic databases; at the same time, more faculty became computer savvy. More importantly, the Library instituted a delivery service for faculty. Books and periodical articles are now delivered to faculty offices at no charge and, as a result, faculty have less reason to walk to a library.
In contrast to faculty, U.Va. students continue to make heavy use of the library. In the 2001 survey 69% of undergraduates and 55% of graduate students reported spending at least two hours a week in the library. The U.Va. surveys have always tallied two scores for various resources, services, and facilities. The list of items has varied from survey to survey, but it has always contained more than 50 and fewer than 100 items.

One score measures satisfaction – a mean score of responses on a 1 to 5 scale. The other score, the “visibility,” is the percentage of respondents who answer the specific question. By calculating two scores one can compare the items from high to low in each category and group them for attention. “Low Satisfaction/High Visibility” items are obvious candidates for attention. “High satisfaction/Low Visibility” items may be candidates for instruction or publicity. It is also possible to compare items over time and between groups: Is satisfaction increasing or decreasing? What about visibility? One example: the visibility of the reference function has declined markedly among undergraduates. On the 1994 survey 76% of undergraduates gave a rating to “Answering questions in person.” In 2001 only 39% of undergrads rated this query: “Answering questions by phone, email or in person.”

The decline in visibility on the student surveys correlates with the decline in reference questions asked at the U.Va. Library. (See Figure 1) It is almost an exact match: r = .98. The student survey has clearly corroborated a trend that has been widely observed but frequently disputed. Among undergraduates the decline in reference use is real and seemingly undeniable.

The U.Va. Library surveys have offered support for a number of initiatives and improvements:

**Table 3: Priorities. University of Virginia faculty and students**

<table>
<thead>
<tr>
<th>Faculty in 2000</th>
<th>Graduate Students in 2001</th>
<th>Undergraduates in 2001</th>
<th>Law Students in 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st priority</td>
<td>Books</td>
<td>Books</td>
<td>Books</td>
</tr>
<tr>
<td>2nd priority</td>
<td>Journals</td>
<td>Electronic Journals</td>
<td>Computer</td>
</tr>
<tr>
<td>3rd priority</td>
<td>Electronic Databases</td>
<td>Print Journals</td>
<td>Workstations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Physical Comfort</td>
</tr>
</tbody>
</table>

Law students were included in the 2001 student survey for the first time. Their interests seem quite different from graduate students; law students value physical comfort much more than graduate students. In 2001 for the first time electronic journals and print journals were listed separately. Graduate students and undergraduates both gave a higher tally to e-journals.

**Qualitative Data**

Each of the surveys at U.Va. have included a few open-ended questions (“What is the greatest strength of the library?“ “What should be improved?”) and an opportunity to make general comments. The comments provide color and context but are difficult to aggregate or summarize.

Comments are interesting to read; they always attract attention. But the difficulty in quantifying or summarizing them limits their utility. They are most useful when used as “sound bites” to illustrate points supported by other data. A reader will often remember the succinct comment long after the data have faded from memory.

**Using Survey Results**

The U.Va. Library surveys have offered support for a number of initiatives and improvements:
• Additional Resources for the science libraries (1994+)
• Major renovation of the Science and Engineering Library (2001)
• Revision of library instruction for first year students (1995)
• Redefinition and reorganization of collection development (1996)
• Initiative to improve shelving (1999)
• Undergraduate library open 24 hours (2000)
• Additional resources for the Fine Arts Library (2000)
• Development of electronic resources and electronic centers (1994+)

The University of Washington Libraries

The University of Washington is a comprehensive research university offering the doctorate in nearly 100 fields. There were approximately 25,000 undergraduate students and 10,000 graduate and professional students enrolled in 2001 with about 4,000 faculty and thousands of other researchers and clinicians working at the University. Programs are especially distinguished in health sciences, biosciences and natural resources, computer sciences, and international studies. Located in the city of Seattle in the northwest corner of the United States, the University ranks first among public universities (and 2nd overall) in the amount of U.S. federal research dollars received, with nearly $500 million dollars in fiscal year 2000.

**Survey Methodology and Design**

The catalyst for the development of a broad-based survey of faculty and students came from the UW Libraries first strategic plan in 1991 that called for a user-centered approach to services. Specifically, the strategic plan recommended that the Libraries “Develop and implement a study to identify user populations, their information needs and how well they are being met”. (University of Washington Libraries, 1991, p.15) The decision was made early in the design process to survey all user groups at the same time, distribute the survey through the mail in order to reach potential non-users, and provide similar survey content for each group to enable comparisons.

Additional information on UW survey methodology, administration, and design can be found in Hiller (2001).

**Survey Return Rate and Cost**

In addition to the cover letter, second mailing (with survey form), and reminder card sent to survey recipients, the Libraries also used its extensive network of librarian liaisons to academic departments to encourage faculty response. The number of completed surveys returned by faculty is sufficiently large to perform statistical analysis of results at the school/college level and in some cases by academic department.

**Table 4:** Surveys distributed and returned. University of Washington

<table>
<thead>
<tr>
<th>Year</th>
<th>Faculty Sent</th>
<th>Faculty Returned</th>
<th>Faculty Rate</th>
<th>Graduate Students Sent</th>
<th>Graduate Students Returned</th>
<th>Graduate Students Rate</th>
<th>Undergraduates Sent</th>
<th>Undergraduates Returned</th>
<th>Undergraduates Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>3720</td>
<td>1340</td>
<td>36.0%</td>
<td>1500</td>
<td>594</td>
<td>39.6%</td>
<td>2000</td>
<td>470</td>
<td>23.5%</td>
</tr>
<tr>
<td>1998</td>
<td>3750</td>
<td>1503</td>
<td>40.1%</td>
<td>1000</td>
<td>457</td>
<td>45.7%</td>
<td>2000</td>
<td>787</td>
<td>39.4%</td>
</tr>
<tr>
<td>1995</td>
<td>4400</td>
<td>1359</td>
<td>30.9%</td>
<td>1000</td>
<td>409</td>
<td>40.9%</td>
<td>2000</td>
<td>489</td>
<td>24.5%</td>
</tr>
<tr>
<td>1992</td>
<td>3900</td>
<td>1108</td>
<td>28.4%</td>
<td>1000</td>
<td>561</td>
<td>56.1%</td>
<td>1000</td>
<td>422</td>
<td>42.2%</td>
</tr>
</tbody>
</table>
Distributing this type of survey to more than 7,000 faculty and students and then compiling results through data entry can be expensive. Direct survey costs (not including library staff time) are shown in Table 5. Costs were distributed in the following manner: printing 30%; mailing 30%; data entry 30%; other 10% (consultation, incentives). Staff time for the 1998 and the 2001 surveys are estimated at approximately 500 hours each, including analysis and reporting. While much of the cost increase is due to significant hikes in hourly wages, printing and mailing costs, it also reflects the necessity for more intensive efforts to encourage a high response rate, especially a second mailing and larger sample sizes for students.

Table 5: Survey costs. University of Washington

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs</td>
<td>$10,000</td>
<td>$14,000</td>
<td>$19,000</td>
<td>$22,000</td>
</tr>
<tr>
<td>Cost per survey received</td>
<td>$4.78</td>
<td>$6.20</td>
<td>$6.91</td>
<td>$9.15</td>
</tr>
</tbody>
</table>

Faculty and graduate student respondents by broad academic areas closely resembled the population as a whole. Indeed, the 2001 faculty respondent pool was a near match of the population. Health Sciences does have a larger proportion of faculty and graduate/professional students located away from the main UW campus and this may be a factor in the continuing under-representation of respondents from those areas.

Table 6: Faculty and graduate student population (P) and respondents (R) by academic area, 1998 and 2001. University of Washington

<table>
<thead>
<tr>
<th>Area</th>
<th>Faculty 1998 R</th>
<th>Faculty 2001 P</th>
<th>Faculty 1998 R</th>
<th>Grad 1998 R</th>
<th>Grad 2001 P</th>
<th>Grad 2001 R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Sciences</td>
<td>44.6%</td>
<td>48.6%</td>
<td>47.6%</td>
<td>28.0%</td>
<td>30.8%</td>
<td>28.2%</td>
</tr>
<tr>
<td>Science-Engineering</td>
<td>27.1%</td>
<td>26.2%</td>
<td>26.4%</td>
<td>28.2%</td>
<td>30.4%</td>
<td>30.5%</td>
</tr>
<tr>
<td>Arts/Business/Social Sciences/Humanities</td>
<td>24.4%</td>
<td>21.0%</td>
<td>22.6%</td>
<td>43.8%</td>
<td>38.8%</td>
<td>40.1%</td>
</tr>
<tr>
<td>Other</td>
<td>3.9%</td>
<td>3.7%</td>
<td>3.3%</td>
<td></td>
<td></td>
<td>0.2%</td>
</tr>
</tbody>
</table>

*Law students were not included in the 1998 survey, and are omitted from the grad totals above for 2001.*

Survey Results

Results from the UW Libraries surveys provide an effective record of changes in the way that students and faculty used library and information resources during the past decade. Survey results also documented significant variations within groups (i.e. between academic areas) and between groups (i.e. faculty and undergraduates) in some areas. Information from these surveys has been used extensively by the University of Washington Libraries to revise existing programs and services and promote new ones. Survey results showed:

- High satisfaction levels
- Shift towards remote use and increased importance of electronic resources
- Continuing importance of Libraries as place for students
- Increased complexity of finding and using information for teaching, learning and research

UW faculty satisfaction was unchanged from 1998 to 2001 but increased for both graduate and undergraduate students (see Table 4). A number of changes made during that period were targeted towards students. These included the opening of a 350 seat computer lab in the Undergraduate Library and keeping that library open 24 hours per day, extending hours at some branch libraries, initiating online holds and renewals as well as providing more bibliographic databases that were web-accessible and significantly increasing the amount of full text available to the desk-top.

Faculty satisfaction mean scores for three broad academic areas (Humanities-Social Sciences, Science-Engineering and Health Science) do not show significant variation between groups varying between 4.26 for those in the Humanities-Social Sciences to 4.37 for faculty in the Health Sciences. Graduate student satisfaction in 2001 was nearly identical to the faculty ranging from 4.24 in Humanities and Social Sciences 4.24 to 4.29 for Health Sciences students. Table 7 shows overall satisfaction by group since 1995 (the 1992 survey used a 3 point satisfaction scale) by mean scores on a scale of 1 (not satisfied) to 5 (very satisfied) and frequencies for those very satisfied (marking 4 or 5), satisfied (marking 3), and not satisfied (marking 1 or 2).
Table 7: Overall satisfaction. University of Washington

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</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very satisfied</td>
<td>89.9%</td>
<td>91.3%</td>
<td>91.3%</td>
<td>89.9%</td>
<td>84.9%</td>
<td>91.4%</td>
<td>78.9%</td>
<td>78.5%</td>
<td>89.7%</td>
</tr>
<tr>
<td>Satisfied</td>
<td>9.5%</td>
<td>7.8%</td>
<td>8.1%</td>
<td>9.5%</td>
<td>13.5%</td>
<td>8.0%</td>
<td>19.6%</td>
<td>19.9%</td>
<td>9.6%</td>
</tr>
<tr>
<td>Not satisfied</td>
<td>0.9%</td>
<td>0.9%</td>
<td>0.6%</td>
<td>0.8%</td>
<td>1.6%</td>
<td>0.6%</td>
<td>1.5%</td>
<td>1.6%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Mean Score</td>
<td>4.25</td>
<td>4.33</td>
<td>4.33</td>
<td>4.18</td>
<td>4.11</td>
<td>4.26</td>
<td>3.97</td>
<td>3.99</td>
<td>4.28</td>
</tr>
<tr>
<td>Graduate Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**USE PATTERNS**

There has been a clear and measurable shift towards remote use of library resources and services since 1992 and the examples below show how that use can be measured and assessed through the user survey. 1995 data showed that among faculty who used the library at least weekly, more were doing so remotely than visiting the library. That trend has continued to widen in subsequent surveys. Figure 2 shows the percentage of each group who responded that they had an account on the campus computer network in 1992 and 1995 and the percentage that had access to a computer that could search the Web in 1998. In 1992, nearly 48% of faculty and 46% of graduate students responded that they had searched the library catalog remotely with 20% of faculty and 10% of graduate students noting they did this at least weekly.

**Figure 2: UW Computer Connectivity 1992-98**

In 1992, nearly 48% of faculty and 46% of graduate students responded that they had searched the library catalog remotely with 20% of faculty and 10% of graduate students noting they did this at least weekly. By 1995 more than half the faculty were using library resources and services from a remote location at least weekly, and in 2001 54% of faculty and 56% of grad students were searching for full-text resources remotely at least weekly. This trend has continued among all groups with the largest increase now seen in use from home (Figure 3).

**Figure 3: UW Remote Use of Library Resources and Services (use at least weekly)**

There has been a consequent decrease in those who visit the library at least weekly at the faculty and graduate level (Figure 4). This decrease in physical visits is most pronounced in faculty from those academic areas that appear to have the most electronic content available. The percentage of science faculty who visited at least weekly decreased from 55% in 1998 to 44% in 2001 with weekly visits by those in the Health Sciences falling from 38% to 28% during that same period. However, undergraduate use remained relatively constant with about 67% visiting the Libraries at least weekly.

**Figure 4: UW In-Person Library Use 1998, 2001 (% visiting at least weekly)**

In 1998, about 60% of the faculty visited the library only to use resources while 50% of the undergraduates came just to use workspace or services. Figure 5 shows the dramatic change in in-library use categories between 1998 and 2001 among faculty and graduate students. These responses are validated by other data such as circulation statistics, in-library material use, number of photocopies made, and decline in reference activity.
Delivering full-text to the desktop was the overwhelming priority of faculty and grad students in 2001. Indeed, the priorities were identical for both groups. While maintaining the quality of the print collection remained high, it dropped from nearly 70% in 1998 to 57% in 2001. Undergraduate priorities tend to differ and be more focused on place and facility related areas, although the 2001 survey showed the best agreement among the 3 groups since 1992.

### Table 8: Top priorities by group, 1998 and 2001. University of Washington

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Maintain quality of print collections</td>
<td>69.6%</td>
<td>57.3%</td>
<td>52.1%</td>
<td>53.2%</td>
<td>32.3%</td>
<td>34.3%</td>
</tr>
<tr>
<td>Deliver full-text to your computer</td>
<td>60.4%</td>
<td>73.4%</td>
<td>56.0%</td>
<td>72.7%</td>
<td>37.8%</td>
<td>53.4%</td>
</tr>
<tr>
<td>Provide electronic access to older journals</td>
<td>59.6%</td>
<td>61.8%</td>
<td>52.1%</td>
<td>55.2%</td>
<td>27.4%</td>
<td>34.3%</td>
</tr>
<tr>
<td>Increase library hours</td>
<td>17.0%</td>
<td>18.5%</td>
<td>37.6%</td>
<td>27.3%</td>
<td>38.5%</td>
<td>29.0%</td>
</tr>
<tr>
<td>Add more computers in libraries</td>
<td>8.6%</td>
<td>3.3%</td>
<td>19.9%</td>
<td>12.5%</td>
<td>45.2%</td>
<td>33.4%</td>
</tr>
<tr>
<td>Provide course reserves electronically</td>
<td>18.8%</td>
<td>23.7%</td>
<td>36.5%</td>
<td>37.5%</td>
<td>48.6%</td>
<td>51.3%</td>
</tr>
<tr>
<td>Preserve library materials from deterioration</td>
<td>40.0%</td>
<td>39.4%</td>
<td>35.0%</td>
<td>34.6%</td>
<td>30.5%</td>
<td>28.9%</td>
</tr>
<tr>
<td>Provide training in using library/Web resources</td>
<td>28.3%</td>
<td>22.6%</td>
<td>27.4%</td>
<td>18.6%</td>
<td>46.8%</td>
<td>24.7%</td>
</tr>
</tbody>
</table>

However, when we examine priorities by broad subject area among faculty we do see significant variation. Maintaining quality of the print collection is the overwhelming priority of faculty in humanities and social science disciplines, while the importance of full-text increased in the other areas while print importance decreased. Indeed, the gap among medical faculty between print and electronic widened significantly. Interestingly, as Table 9 shows, when we look at graduate students we find a similar response to faculty for those in sciences and health sciences but a different one from students in the humanities/social sciences where 60% said both full-text and maintaining the quality of print collections were priorities.

### Table 9: Top priorities by academic area 1998 and 2001. University of Washington

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Health Sciences</td>
<td>71.5%</td>
<td>86.2%</td>
<td>63.3%</td>
<td>45.7%</td>
<td>33.7%</td>
<td>32.1%</td>
<td>64.8%</td>
<td>64.8%</td>
</tr>
<tr>
<td>Faculty Science-Engineering</td>
<td>59.1%</td>
<td>72.5%</td>
<td>72.1%</td>
<td>60.3%</td>
<td>44.1%</td>
<td>42.5%</td>
<td>69.4%</td>
<td>69.4%</td>
</tr>
<tr>
<td>Faculty Humanities-Social Sci.</td>
<td>43.5%</td>
<td>48.2%</td>
<td>76.1%</td>
<td>78.9%</td>
<td>49.5%</td>
<td>50.2%</td>
<td>38.6%</td>
<td>38.6%</td>
</tr>
<tr>
<td>Grad Health Sciences</td>
<td>68.0%</td>
<td>85.3%</td>
<td>43.0%</td>
<td>42.9%</td>
<td>25.0%</td>
<td>23.1%</td>
<td>58.3%</td>
<td>58.3%</td>
</tr>
<tr>
<td>Grad Science-Engineering</td>
<td>57.4%</td>
<td>78.6%</td>
<td>58.9%</td>
<td>54.3%</td>
<td>41.9%</td>
<td>36.4%</td>
<td>73.4%</td>
<td>73.4%</td>
</tr>
<tr>
<td>Grad Humanities- Social Sci.</td>
<td>47.5%</td>
<td>59.6%</td>
<td>53.5%</td>
<td>59.6%</td>
<td>37.0%</td>
<td>41.3%</td>
<td>55.2%</td>
<td>55.2%</td>
</tr>
</tbody>
</table>

Similarly, when we look at the importance of resource types by academic area (Table 10) we see a similar shift towards the importance of electronic journals - especially among faculty and grad students in the Health Sciences and Sciences.
Table 10: Importance of selected resource types by academic area 1998 and 2001. University of Washington (% marking 5 on a scale of 1 (not important) to 5 (very important))

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<tbody>
<tr>
<td>Faculty Health Sciences</td>
<td>31.8%</td>
<td>25.0%</td>
<td>84.4%</td>
<td>75.6%</td>
<td>41.3%</td>
<td>64.6%</td>
</tr>
<tr>
<td>Faculty Science-Engineering</td>
<td>58.3%</td>
<td>49.3%</td>
<td>86.8%</td>
<td>75.9%</td>
<td>35.0%</td>
<td>58.6%</td>
</tr>
<tr>
<td>Faculty Humanities-Social Sciences</td>
<td>84.0%</td>
<td>78.9%</td>
<td>82.7%</td>
<td>74.6%</td>
<td>26.7%</td>
<td>35.6%</td>
</tr>
<tr>
<td>Grad Health Sciences</td>
<td>31.3%</td>
<td>30.8%</td>
<td>88.3%</td>
<td>73.1%</td>
<td>52.3%</td>
<td>70.5%</td>
</tr>
<tr>
<td>Grad Science-Engineering</td>
<td>48.1%</td>
<td>36.4%</td>
<td>88.4%</td>
<td>68.8%</td>
<td>47.3%</td>
<td>65.9%</td>
</tr>
<tr>
<td>Grad Humanities-Social Sciences</td>
<td>68.0%</td>
<td>60.4%</td>
<td>73.5%</td>
<td>67.0%</td>
<td>27.5%</td>
<td>45.2%</td>
</tr>
</tbody>
</table>

Using Survey Results

The results have been used to make a number of improvements and changes to library resources and services. These have included:

- Facility design and improvements focused on student needs (1992–)
- Performance measures instituted for re-shelving (1995)
- Hours expanded during interims, weekends, evenings (1995-2000)
- Undergraduate library open 24 hours (1998)
- Significant increase in number of library computers (1995-2000)
- Remote access to bibliographic databases (1992–)
- Emphasis on acquiring access to full-text resources (1998–)
- Survey results used by other campus units to develop instructional technology workshops

Conclusion

The user survey is a very valuable tool for libraries. It provides solid quantitative and qualitative data. It gives users a chance to speak directly about their library experiences. It is a flexible instrument, adaptable for many purposes. It can be very useful politically; the library can exploit the results of a user survey to strengthen a case for more support from the university and from external sources.

While recognizing the utility of a user survey, one should also acknowledge the limitations of the tool. It records user perceptions, not actual performance. It is often time consuming and may be expensive. Changes in survey design and group composition may reduce the reliability of longitudinal comparisons. It is difficult to frame questions regarding complex issues; nuances are often lost in a mass survey.

The most important concern is the danger of survey fatigue. Because the user survey can be such an effective tool, there is a tendency to overuse it. If a library asks its customers to fill out too many surveys, it will lose their support. Each user who fills out a survey pays a cost, in time and convenience. The library needs to remember that cost, to show gratitude to the survey respondents, and to refrain from asking users to fill out a survey unless the information gained will truly be worth the many costs.

The user survey is most useful when its results are combined with other data. It can corroborate apparent trends, support proposed initiatives, or reveal hidden problems. It should be viewed as a very valuable tool, but only one tool in a whole array of data collection possibilities.

Survey results along with other user input and performance measures have been used at the University of Washington and the University of Virginia to change and improve library programs and services. They have served not only as a measurement of perceptions of library performance by faculty and students but have also revealed changing use patterns and priorities. The surveys have enabled the libraries at each institution to lead the campus community in providing more effective information access and service.

References


A New Look At Service Level Agreements

Steve Thornton
Technical Manager, Dstl Knowledge Services, UK

Chrissie Stewart
Head of Dstl Knowledge Services, UK

Abstract
In many areas, the traditional Service Level Agreement consists solely of the performance measurement of operations. These usually take the form of an artificial metric, often based on those traditional library statistics, that can be easily gathered. While such targets may have a value in improving performance, few of them actually assess the services value in relation to the overall success of the organisation. In the Defence Science & Technology Laboratory, an agency of the UK’s Ministry of Defence, a way was sought to define metrics that measured not only operational performance, but also business support performance. To what extent were our services meeting the needs of the organisation’s own business objectives?

Introduction
The Defence Science & Technology Laboratory (Dstl) is a new agency of the UK’s Ministry of Defence (MoD), following a decision by the Government to partially privatise the Defence Evaluation and Research Agency (DERA). Three quarters of DERA became a private company currently wholly owned by the MoD – QinetiQ. The remainder was formed into Dstl, and consists of those parts of DERA whose functions were not deemed suitable for privatisation, or which have been retained to provide impartial authoritative advice to the Government.

This is the culmination of ten years of reorganisation of the UK’s defence research capability, starting from the creation of the Defence Research Agency in 1991, and its expansion to include all Test and Evaluation establishments in 1994 to form DERA. During that period, library services, business information, information analysis, report repository, records management and intranet and Internet web management were all brought together into a single department, Information Resources (IR). Prior to the recent privatisation, IR was separated into two, with the bulk of the department, consisting of twelve dispersed libraries and most of the web team remaining with QinetiQ, while one library, the reports repository, the information analysis team and records management formed the core of a new department, Knowledge Services, in Dstl.

Knowledge Services has only one site-based library, serving some 750 Dstl staff. The remaining 2,250 Dstl staff are dispersed over fourteen other major sites without significant Knowledge Services support, although some of these are fortunate enough to still have a local QinetiQ IR library that can supply many of their needs and requirements. Dstl is now a customer for services from QinetiQ IR, and it is in this light that we in Knowledge Services require a means of measuring the service that we pay for. But where we are now is merely a part of the journey we have undertaken over the last four years.

From Customer Service Targets to SLAs
Our trek started in 1997 at the Second Northumbria International Conference on Performance Measurement in Libraries and Information Services where we discussed, with many like-minded attendees, Service Level Agreements and associated topics. We had been aware of our lack of adequate performance measurement data, and although we had received ISO 9001 accreditation the previous year and introduced several quality improvement measures, we were not satisfied with what we had achieved. Over the previous four years we had merged some seventeen separate libraries, introduced centralised contracts, a shared and networked catalogue, and a range of other co-ordination projects.

We already had a series of crude Customer Staff Targets, which our investigations showed many other libraries using as Service Level Agreements between themselves and their customers, corporate or otherwise. The terms seemed to be synonymous in many people’s minds. We had a deep look at what other UK Government libraries were doing, and read what we could find on SLAs, but much of what we did find was unsatisfactory.
As an example, here is an extract from our CSTs at the time:

- **Enquiries**
  - Urgent: 95% within 4 hours, 100% within 1 WD
  - Where deadline given by customer: 90% within deadline
  - Others: 90% within 2 WD
  - 100% within 3 WD

- **Journal Circulation**
  - 95% of journals received by 1 pm will be circulated on day of receipt
  - 100% will be circulated within 1.5 WD

Take, for example, the second target under “Enquiries”: 90% of enquiries to be satisfied within the customer’s agreed deadline. There is no quality control about the accuracy of the answer. You can answer the enquiry totally incorrectly or unsatisfactorily, but as long as an answer has been given, the target has been met. And what about the 10% of responses that haven’t even been met within the deadline? That can represent 10% of our customers who have been given a very poor service and who might not use us again.

The original intention was to tighten these targets as each of our formerly independent libraries got up to speed. 90% would be increased to 93%, to 95%, and so on, as our departmental ethos of providing better services than some had been supplying in the past became ingrained. Frankly, we were naïve. Some of the library staff involved saw such targets as merely to be met, not to be bettered. If 90% had to be answered within two working days, then they wouldn’t be answered until the target required them to be, almost regardless of whether they could have been answered earlier. This attitude was not general, but it did exist. Most of our staff had the right ethos, and we had considerable criticism from some of them that we were setting far too easy targets!

We had other quality and continuous improvement targets and processes operating at the same time, and between 1998 and 1999 several major exercises were carried out, including our IMPACT survey, reported on at the Third Northumbria International Conference on Performance Measurement in Libraries and Information Services. Basic management statistics collection was improved; performance measurement metrics were assessed for relevance, and data collection methods instituted to supply the datasets we needed. Our greatest shortfall lay in that our enquiries recording was largely in paper form, and the lack of a proper enquiries database was sorely felt. We had investigated the creation or acquisition of such a system several times over the previous years, but the cost and complexity were beyond our resources.

**Consultants**

As a corporate resource, IR answered to the Chief Information Officer (CIO), a member of the DERA Executive, who also held the role of Corporate Customer. He was formally presented in the summer of 1998 with our unsatisfactory draft SLA for approval, together with detailed plans for the IMPACT survey and a SERVQUAL survey. His approval was not immediately forthcoming, and at his request the SERVQUAL survey was put on hold. In the spring of 1999 he informed us of his intention of bringing in a team of outside consultants, TBI (Europe), to report on the situation.

TBI carried out an appraisal of the services we offered, and held a series of interviews with a small number of our staff and customers at two of our sites between September and October of 1999. They presented the CIO with their final report in that month. There was much in their report that we could agree with wholeheartedly, but some with which we disagreed. What we did find novel and interesting was their clarification and codification of our departmental goals, their description of how these linked to both our departmental and DERA’s business objectives, and then their identification of those critical success factors which affect these goals. We were able to discuss the report with the CIO and TBI in January 2000, by which time certain of their recommendations had already been initiated.

Probably the most important advantage in using the services of consultants lies in the fact that their approach is not cluttered by the baggage of the past. An outsider’s view is often clearer than your own. Simplified, their major conclusions were:

- The lack of an electronic requests/enquiries database prevented the collection and analysis of performance data, which in turn hampered performance improvement;
- We were not measuring customer satisfaction, except in a haphazard manner;
- We should set internal and external best practice benchmarks;
- We needed to measure market penetration, to find out who was not using us and why;
- We needed to institute regular review meetings with the Corporate Customer.
These were agreed with the CIO, and a proposed way ahead put into motion.

The Critical Success Factors TBI identified stand in good stead for almost all organisations, but helped us concentrate our minds on the important things both for us and for our organisation.

1. **Information provided by IR will be consistently and readily available throughout the DERA organisation.**

2. **There will be effective high level understanding and promotion of IR services through a regular communications programme to all potential customers.**

3. **Charging mechanisms will be implemented which not only support DERA objectives but also encourage appropriate customer behaviour.**

4. **IR will deploy appropriate human and technology resources, both in terms of quantity and quality, in order to meet DERA performance requirements.**

5. **IR services will provide demonstrable value for money and be competitive when compared with external benchmarks.**

6. **IR will manage customer expectations of services which are dependent on third party suppliers and manage improvements in third party performance.**

### Getting Better Management Data

The impetus of the consultants’ introduction by the CIO had led us to review those faults which we were aware of, even prior to the review meeting. Priority was given to the requests/enquiries database, the responsibility for which was handed to our Web Team.

The database as developed is linked to an automatic customer survey module. When records of requests or enquiries are annotated as completed, the survey module automatically generates a delayed e-mail request containing an embedded hotlink to a networked questionnaire. The module specifies links to the original request and to the type of service which has been provided, and varies the questions asked to suit that service.

The important generic questions regarding customer satisfaction are very limited in number. There are others which you may think relevant in your circumstances – one colleague has suggested that “Presentation” would be relevant in his case – but these seem to cover most eventualities for us. They are:

- **Accuracy** – was what you got what you specified?
- **Awareness** – did the staff know what you wanted?
- **Charges** – did you get value for money?
- **False Drops/Relevance** – how relevant was what you wanted for your purposes?
- **Timeliness** – did you get it when you specified?

Not all questions are relevant to each service; those used for the generic service “Literature searches” are rephrased by the survey module as follows:

**Accuracy:** “To what extent did the search results provide the material you specified?”

**Awareness:** “Did the IR staff involved understand your requirements?”

**Charges:** “How do you rate the cost of the search?”

**False Drops:** “Any search will produce irrelevant references of little or no interest, known as ‘false drops’. How do you rate the level of false drops in this search?”

**Timeliness:** “Was the search provided within the time scale agreed by you?”

The results can then be used to trigger “quality control” issues, identify weaknesses and training needs, and provide the information needed by management for continuous improvement. The system automatically flags the incidence of customer dissatisfaction, which must then be resolved. It is no good satisfying 90% of our customers. We must identify and validate reasons for dissatisfaction and correct their causes.

With the database providing us with a level of performance and management information that we could never have dreamed of before, and linked to a customer satisfaction module that requires very little effort on our part, our situation should have been simple. In fact the database, survey module, and our whole organisation were to be dramatically affected by events over which we had no control.

### The World Turned Upside Down

Two months after the review meeting with the CIO, plans were announced by the Government to divide DERA into two organisations. What had taken us such a long time, and a great deal of effort, to bring together would now have to be untangled. Not surprisingly, priorities for implementing a comprehensive SLA for a department that would soon be split were not high, compared with everything else that was going on. In addition, contract staff developing the database left suddenly, and much of what they had done – we had even been in a position to demonstrate a prototype system to some staff – was found to require re-working from scratch. Over twelve months later, both organisations are now only just trying out a revised prototype system.

Dstl Knowledge Services and QinetiQ IR’s requirements for the system and approach we developed are unchanged. We need, possibly more than ever, this new
resource to provide a level of management, customer satisfaction and performance quality data to create a measurable SLA with our respective Corporate Customers, but IR must also now deal with Knowledge Services as a major customer of services. A significant advantage for both of us using the same system lies in benchmarking our services.

At this stage we have not yet settled on more than a skeleton SLA between IR and Knowledge Services. Fine detail will only be introduced when we have built up a large enough databank to define what the current performance actually is. It is of no value to set metrics which are too easy; equally it is of no value to set unrealistic metrics which cannot be met, even by Super Librarian! But even these metrics will be pointless unless there is built into the system a mechanism for identifying what remedial action is necessary, and ensuring that that action is taken. It is also important not to set metrics in concrete under any agreement between yourselves and your supplier. Metrics should be a moveable feast, and change as circumstances change, fully agreed by the parties concerned. We have probably all seen instances of unsatisfactory agreements where an unchangeable metric has led to the provision of a service which is fundamentally unsatisfactory for the entire period of a contract.

**Conclusion**

Starting from a position of some crude Customer Service Targets, we have now settled on a framework for the creation of a useful and meaningful Service Level Agreement. In itself, this exercise has not created a new SLA. The identification of what we should be measuring to meet the organisation’s service requirements alone cannot do this. What it did was to create an environment in which effective measurements can be identified and made, thus ultimately leading to the creation of a realistic and meaningful SLA and related metrics.

The introduction of consultants proved, much to our surprise, a key catalyst in defining what we should be doing, and how we should do it. While we did not agree with everything that the consultants came up with, and actively disagreed with some of their conclusions, without their input we would not have got as far as we have.
SEMINAR PAPERS

Assessing the Emerging Environment
Meaningful measures for individuals’ realities: evidence from the JUBILEE project

Linda Banwell and Pat Gannon-Leary
Information Management Research Institute, School of Information Studies, University of Northumbria at Newcastle, UK

Abstract

Reality differs according to the individual’s perception: this is a statement of the obvious. How to deliver appropriate library and information services to fulfill those individuals’ requirements is not obvious. Measures of success are needed to form the basis of service planning. These measures must be meaningful for individuals, both users and managers, if the goal of designing and delivering library and information services to meet individuals’ realities is to be realised. Contexts are changing for individuals: the fast developing world of electronic information services (EIS) provides individuals with new opportunities and new threats. It is against this background that the JUBILEE project was launched. This paper will use evidence from JUBILEE to present the issues underlying the development of an evaluation toolkit for managers of EIS, which will take into account differences between individuals, between disciplines, and between institutions.

Introduction

The paper will begin by setting the context of JUBILEE. It will review the issues involved in establishing meaningful measures and individuals’ realities, and will include a brief consideration of changes underway in UK higher and further education. It will then locate JUBILEE within other work on performance measurement, especially in the evaluation and benchmarking of EIS, and will provide a detailed description of the derivation of the EIS Maturity Evaluation Toolkit being developed in JUBILEE.

Meaningful measures

In order to make measures meaningful to users and managers as individuals, the following issues must be taken into consideration, which will help to ensure the uptake of the research findings and resulting toolkit:

Awareness of audience

The researcher/service planner must be aware of the audience and purpose, for which the measures are being developed. This could be practitioners, academics, education managers, students, funding bodies, or a combination of individuals. All will have differing requirements, and an appreciation of them is needed at the design stage of the planned toolkit.

Ownership of process

If the planned toolkit is to be used and useful, then all stakeholders in the process must share in its ownership. This means identifying who they are at the outset, and involving them interactively at all stages of the process. Consequently, the information collected in support of the process must be first class – accurate, sufficient, representative, user-centred.

Quantitative and qualitative

A key theme of the Performance Measures 3 conference in 1999 was the need to collect and build in qualitative evidence, as well as the more familiar quantitative data used in performance measurement. JUBILEE is firmly rooted in the qualitative camp, whilst acknowledging that both quantitative and qualitative data are needed to give the complete, holistic picture needed for successful performance measurement tools.

Uptake of research

It must be of central concern to projects and funders to try to ensure uptake of their research. Projects end, staff move on, and impetus can die, unless particular effort has been directed towards uptake of the research outcomes during the lifetime of the project. Ownership of the research by its stakeholders is key to its uptake, as is effective dissemination of research outcomes through developing toolkits, running workshops, and the more usual conferences and publications.

Individuals’ realities

Individual contexts

An individual’s reality will be derived from the many variables which make up that individual’s context. Individuals have a unique mix of variables, which influence their information behaviour, such as their own educational background, learning style and skills with information use. Impacting on them from outside of themselves are factors such as available resources, their own discipline of study, and the particular task, or query, they are trying to answer at any one time.
The central theme here is of major and rapid change. The education landscape in the UK and worldwide has changed dramatically in the nineties for a range of reasons, some global and some more localised. In the UK two major reports have appeared which were farsighted and were to have long lasting impact on the future of library and information services. The Follett Report was published in 1993 and analysed trends in HE library spending (Joint Funding Councils' Libraries Review Group, 1993). It emphasised the importance of IT to effective library service management in the future, which galvanised management even before the Dearing report was published in 1997 (NCIHE, 1997).

This report provided an overview of key issues impacting on HE in the UK, bringing to the forefront matters such as widening access to HE and coping with the increased numbers that would result. Managing information electronically is seen as a solution, if partial, to such pressures. Day et al (1997) summarise the chief forces for change in UK HE as:

- Expansion of the student population with many more "non-traditional" learners
- Stringent financial resources
- Increased financial accountability and quality assessments
- Introduction of new student-centred learning techniques
- Convergence of networking and telecommunications technologies and information
- Growth of a consumer-led society

Such debate provides the backdrop to the promotion and adoption of EIS in HE, and now in FE too.

The FE sector, traditionally for the post 16 students not entering HE and wishing to take more vocational courses, is becoming increasingly involved with the HE sector. FE colleges are increasingly forming partnerships with HE institutions and provide teaching to bridge the gap for students between the sectors.

The JISC and EIS

The Joint Information Systems Committee (JISC) of the Higher and Further Education Funding Councils in the United Kingdom funds a number of national information services for the use of the higher and further education and research communities. These include online bibliographic databases; bulletin boards; software archives; data archives; and socio-economic, scientific and digital map databases; electronic mail discussion lists. An aim is to promote best practice and the use of agreed standards. The new JISC strategy 2001-2005 outlines:

- the vision of a single, world wide, information environment that will support learners, teachers, researchers and administrators ... it is designed to help the sector manage change ... (JISC, 2000)

JISC is developing the network infrastructure and content under the banner of the Distributed National Electronic Resource. Its main objective is to stimulate the further development of the UK’s research base in the creation, management and exploitation of digital resources for the support of learning, teaching and research (JISC, 1999a, b).

About JUBILEE

JUBILEE (JISC User Behaviour in Information seeking: Longitudinal Evaluation of EIS) is a three year project being funded by the JISC as part of its programme on monitoring and evaluating user behaviour in UK HE, focusing on EIS. The project started in September 1999. By undertaking a qualitative longitudinal monitoring of EIS use and non-use, JUBILEE is seeking to predict, monitor and characterise information-seeking behaviour in relation to EIS, and is providing illuminative and contextualised pictures built up over time, in different disciplines. It is focusing on users and non-users in actual sites (fieldwork institutions and Departments within them) and virtual sites (discipline/subject communities).

The project is designed in three annual cycles of investigation, with each cycle focusing on three disciplines, in six case study HE institutions. Data is being collected and analysed in each cycle to inform subsequent cycles, and refine the developing benchmarking tool. JUBILEE began in HE, and was extended in cycle 2 to incorporate work in the FE sector too.

JUBILEE THUMBNAIL

JUBILEE is about:

- Characterising information behaviour in respect of EIS in UK HE and FE
- Looking for variations between disciplines, sites, individuals and groups of individuals, such as students, academics
- Using the information behaviour pictures built up as the basis for an evaluation and benchmarking toolkit, the JUBILEE EIS Maturity Evaluation Toolkit

JUBILEE’s approach is:

- Building a picture bottom-up, over time, seeking individuals’ views
- Holistic, essentially qualitative, but including quantitative data to provide a complete picture
- User and discipline based, focused on EIS use/non-use
Building illuminative and contextualised pictures through fieldwork using questionnaires, interviews, focus groups, documentary analysis

Interactive developing the toolkit for HE and FE managers to use in EIS service development.

**JUBILEE DATA**

By the time of Performance Measures 4 in August 2001 detailed evidence has been collected as follows:

- **Cycle 1, 1999-2000.** 6 HE sites, 3 disciplines (Health Sciences, English, Business Studies). 500 students and 200 library staff and academic questionnaires, and 60 interviews

- **Cycle 2, 2000-2001.** 6 HE and 4 FE sites, 3 disciplines (Computing, History, Sociology).
  - HE: 300 student and 100 library staff and academic questionnaires, and 90 interviews
  - FE: 430 student and 25 library staff and academic questionnaires, and 50 interviews.

**Developing the EIS Maturity Evaluation Toolkit**

An outcome of the JUBILEE project was stated in the project proposal to the JISC as:

*a benchmarking tool, in the form of an Action Plan for the use of HE managers, based on the characterisation of user-based success criteria in relation to EIS, as seen from the users’ points of view. HE managers will be enabled to see how well positioned they are to exploit JISC resources and to support their decision making with respect to EIS* (Banwell et al, 1999; Rowley, 2000)

**RELATED WORK**

The evaluation and benchmarking work currently being undertaken in the JUBILEE project builds on a range of earlier and related studies, some of which are reviewed briefly below.

The evaluation of information systems and services generally occurs at the end of the design process, in a cyclical framework where the outcomes of the evaluation feed into the improved design of the system (Banwell, 2000). User-centred design shifts the emphasis to earlier in the design process where user needs inform design and user feedback is on-going. JUBILEE is deriving user-based criteria for evaluating the on-going success of EIS in order to inform further developments within institutions, with the intention of increasing effectiveness from the user point of view.

Performance measurement of libraries and library services is developing to increasingly include qualitative indicators, and to accommodate EIS. In 1995 the Joint Funding Council’s (1993) Ad-hoc Group on Performance Indicators for Libraries published *The Effective Academic Library: A Framework for Evaluating the Performance of UK Academic Libraries*. This consultative report originated from the recommendation, made in the Follett Report in December 1993, that a framework of coherent and generic performance indicators, suitable for assessing academic libraries be established. The Follett Implementation Group for Information Technology recognised the growing significance of EIS and suggested that “…indicators should be amended to take appropriate cognisance of the growing significance of IT-based services in libraries…” and further advised that “As electronic services become more pervasive there may also be a need…to include some indicators based solely on the extent of provision and take up of electronic services...” Kantor (1996) lays stress on the fact that assessing the impact of EIS is complicated by the fact that the technologies and the resources are growing more than exponentially. In consequence, measures of EIS use and impact will grow. Kantor advocates identification and measurement of factors that accelerate adoption of EIS and those which hinder that adoption. JUBILEE’s approach to EIS, as part of a holistic view of user information seeking behaviour, will facilitate this identification and measurement by illuminating their use and non-use.

At preceding Performance Measures conferences, papers have been presented by leading workers in the field who have made strong pleas for the central role of qualitative evidence and its involvement in the performance measurement process (Lancaster, 1997; McClure, 1999)

The recently completed EQUINOX project has developed performance measures for the electronic library which will be used in addition to more traditional measures. It also makes a plea for qualitative evidence to be explicitly built in to the use of performance indicators. The list of indicators is displayed on the project website (Clarke, 1999). They have formed a checklist of areas to be covered in the JUBILEE investigation.

As well as taking into account the work cited above, the analysis and resulting toolkit in JUBILEE is building on a recent study undertaken in the School of Information Studies for UKOLN (UK Office of Library Networking). In the 1999 project Managing Organisational Change in the Hybrid Library, a development matrix for hybrid libraries in Higher Education was produced (Banwell et al, 1999). Five development stages were identified (Baseline, Change, Congruence, Embedding, Full Integration) and were applied to themes to produce development paths. The themes had been identified through consultation with experts and through fieldwork and were:

1. The wider environment
2. Institutional context
3. Strategic management within the institution
4. Library service issues
5. User needs
6. Communication
7. Quality
8. Resources

Benchmarks were produced to indicate the point at which the Library/Information Service could move to the next level of development. These findings provide context for the JUBILEE project, and a similar analysis is being undertaken with specific reference to EIS. Cycle 1 was JUBILEE’s baseline cycle when a set of themes were identified. These were developed in cycle 2 for use as the framework for the toolkit which will result at the end of the project. Benchmarks to indicate the point at which EIS information behaviour in the organisation moves from one level to the next are being characterised in cycles 2 and 3 of JUBILEE.

PREREQUISITES, SUCCESS FACTORS

The rationale for the development of the JUBILEE EIS Maturity Evaluation Toolkit was described in the cycle 1 report as follows (Banwell et al, 1999):

At its most general level, the information provider’s goal is to create a situation where users, academics and students, will use information seamlessly, irrespective of type or source, with confidence and trusting in its quality, in support of their learning and leisure. An individual’s success criteria for information searching will be linked to achieving that goal personally. Evidence from cycle 1 fieldwork in JUBILEE suggests that the prerequisites for achieving this goal are for users to perceive they are in a situation where:

- Access to information, including EIS, is easy for all users
- The resource base (technical and human resources) itself is good to excellent
- Users have the technical and evaluative skills to use information, including from EIS
- EIS are embedded in course design and delivery, and in the research process
- EIS are embedded in student learning
- Quality assurance processes are in place for internet-based information
- Seamlessness is achieved

These user-based success criteria become the basis for toolkit themes, and provide the framework for driving change, around which a development path will be constructed as the project progresses. Barriers will be encountered by users, creating dilemmas for individuals and institutional managers. Enablers will provide solutions and will permit movement along the development path. Institutional and discipline contexts and constraints will determine the exact nature of the development path appropriate in each individual and institutional context.

DEVELOPMENT STAGES

JUBILEE is deriving user-based criteria for evaluating the on-going success of EIS in order to inform further developments within institutions, with the intention of increasing effectiveness of EIS from the user point of view. The JUBILEE approach is holistic, with both qualitative and quantitative evidence being collected.

By building up exemplars of good practice in different disciplines at different sites, evidence will be presented of baseline, intermediate and advanced development in the use of EIS, to be included as part of the toolkit by the end of cycle 3. Each theme will be developed in detail to provide a development path showing the interaction between barriers to development, dilemmas for resolution and enablers which could be employed at the local level to overcome the barrier.

The toolkit has been developed further in cycle 2. Additional ways of synthesising and presenting data by site and by discipline for eventual inclusion in a toolkit manual at the end of cycle 3 are presented in this report.

The work undertaken for UKOLN had resulted in the identification of development stages of maturity in relation to managing organisational change in the hybrid library. These were characterised as baseline, change, congruence, embedding and full integration. Generic characteristics have been derived for each development stage, based on fieldwork evidence. These are presented below.
EIS Maturity Evaluation Toolkit methodology: generic development stages

<table>
<thead>
<tr>
<th>Stage</th>
<th>characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Baseline</td>
<td>No systematic practice; sporadic surveys, historical picture, not a priority; Systems uncoordinated/fragmented; Understanding of broader issues; Introduction of new systems to adapt to/accommodate change; and, Some early decisions made.</td>
</tr>
<tr>
<td>2 Change</td>
<td>User needs, objectives, service targets established; On-going methods of satisfying needs etc. devised e.g. working parties, informal strategy document, service evaluation (surveys, staff involvement); Resource use monitored; and, Relationships being strengthened.</td>
</tr>
<tr>
<td>3 Congruence</td>
<td>Provide and monitor effectiveness of skills training; Institution wide policies and standards established; and, Collect and optimise statistical and qualitative data.</td>
</tr>
<tr>
<td>4 Embedding</td>
<td>User education and monitoring, restructured framework for needs assessment; Partnership between students, researchers and staff; Widespread implementation of strategies and policies at all levels; and, Ensure meeting of targets.</td>
</tr>
<tr>
<td>5 Full integration</td>
<td>Individual behaviour recognised and satisfied; Generic frameworks adopted and adaptable; Student/user-centred strategies, involvement in the curriculum; Appropriate multidimensional systems in place; and, Continuous performance measurement.</td>
</tr>
</tbody>
</table>

The JUBILEE project is testing this methodology in the context of EIS. Based on cycle 2 evidence collected in both HE and FE, the project team is satisfied that the methodology from the UKOLN project is transferable to JUBILEE, both to HE and FE. This aspect was discussed at the June meeting of the Project Advisory Group, where strong endorsement was received for the use and usefulness of the developing toolkit.

The final form of the toolkit manual, to be published at the end of cycle 3, will be multi-layered. The generic form of the toolkit will overlay the characterisation of situations in different disciplines and sites. This form of presentation will permit institutions to tailor the illuminative material contained in it to their own situations, at institution, discipline or individual levels. Such a multi-layered, web-enabled presentation, was used with success by the HyLiFe eLib3 project, which focused on interface development for the hybrid library (HyLiFe, 2000).

Concluding comments

VARIATIONS AND GAPS

JUBILEE fieldwork is collecting discipline-based evidence of information seeking behaviour, contextualised by site, and focusing on EIS. Already by the end of Cycle 1, there was abundant qualitative evidence of gaps e.g. between academic and/or LIS staff expectations and reality seen from the students’ points of view. Some instances are:

- There are examples in varying degrees of the Head of Department thinking that the students are doing well in their use of EIS, and the students and/or LIS staff thinking that it is almost non-existent;
- There seems to be generally a better correspondence between IT skills problems and students recognising their lack of skills, or demonstrating that they lack them;
- Disciplines are clearly at different evolutionary stages within and between sites;
- EIS create a demand for material/s which are not yet available. Users become frustrated when they find references to material that the library does not have, and collections appear the poorer and interlibrary loans are expensive;
- EIS create expectations now that everything will be accessible remotely and will intercommunicate (e.g. to e-mail from CD database) – the reality falls short;
- Library systems disappoint: OPAC system indicates books are available on the shelves “when 98% of the time they are not” (student);
- There is still a lack of understanding by users as to why they need to know about retrieving information from electronic resources; and,
- LIS staff expect more knowledge than the user has, leading to poor instructions and assistance.

There is also evidence that LIS staff are becoming increasingly aware of the low levels of IT literacy of many students despite changes in the UK National Curriculum, and that variations in these levels are not dependent on student age or their discipline of study.

In addition to the qualitative evidence of gaps, as presented above, analysis of the data entered into SPSS has laid the foundation for an analysis of gaps existing between expectations and reality on a number of variables. Numbers in some sample population sub-groups are too small to be generalisable to a wider population, but are nevertheless indicative of patterns and trends which will be more widely investigated as amounts of data increase with subsequent cycles of the project.

The gap analysis is being used to help characterise areas of improvement (i.e. enablers) to move EIS between stages of development in the toolkit.

DEMONSTRATING THE TOOLKIT IN JUBILEE CYCLE 2

The cycle 2 report contains detailed examples of the use of the toolkit to date, and will be available on the IMRI website (http://is.northumbria.ac.uk/imri/) in the autumn of 2001. Below are some thumbnails showing development stages for the JUBILEE cycle 2 target disciplines, in both HE and FE case study institutions.

### Cycle 2 HE institutions and disciplines – development stages

<table>
<thead>
<tr>
<th>Site</th>
<th>Discipline</th>
<th>Stage reached</th>
<th>Thumbnail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Computing</td>
<td>1/2</td>
<td>Assimilation</td>
</tr>
<tr>
<td>1</td>
<td>History</td>
<td>2/3</td>
<td>Progress/transformation</td>
</tr>
<tr>
<td>1</td>
<td>Sociology</td>
<td>1</td>
<td>Rudimentary</td>
</tr>
<tr>
<td>2</td>
<td>Computing</td>
<td>2</td>
<td>shift</td>
</tr>
<tr>
<td>2</td>
<td>History</td>
<td>1</td>
<td>Incipient</td>
</tr>
<tr>
<td>2</td>
<td>Sociology</td>
<td>1/2</td>
<td>Apperception</td>
</tr>
<tr>
<td>3</td>
<td>Computing</td>
<td>3</td>
<td>Innovative</td>
</tr>
<tr>
<td>3</td>
<td>History</td>
<td>2</td>
<td>On the cusp</td>
</tr>
<tr>
<td>3</td>
<td>Sociology</td>
<td>1</td>
<td>Basic</td>
</tr>
<tr>
<td>4</td>
<td>Computing</td>
<td>4</td>
<td>Established</td>
</tr>
<tr>
<td>4</td>
<td>Sociology</td>
<td>3</td>
<td>Readied</td>
</tr>
<tr>
<td>5</td>
<td>Computing</td>
<td>3/4</td>
<td>Equipped</td>
</tr>
<tr>
<td>5</td>
<td>History</td>
<td>2</td>
<td>Movement/sense of direction</td>
</tr>
<tr>
<td>5</td>
<td>Sociology</td>
<td>1/2</td>
<td>Acclimatisation</td>
</tr>
<tr>
<td>6</td>
<td>Computing</td>
<td>2/3</td>
<td>Transitional</td>
</tr>
<tr>
<td>6</td>
<td>History</td>
<td>1</td>
<td>Elementary</td>
</tr>
<tr>
<td>6</td>
<td>Sociology</td>
<td>1/2</td>
<td>Adjusting</td>
</tr>
</tbody>
</table>
### Cycle 2 FE institutions and disciplines – development stages

<table>
<thead>
<tr>
<th>Stage</th>
<th>Site</th>
<th>History</th>
<th>Sociology</th>
<th>Computing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Baseline</strong></td>
<td>Site 3</td>
<td>Site 2, 3</td>
<td>Site 3</td>
</tr>
<tr>
<td></td>
<td>Starting point, status quo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Change</strong></td>
<td>Site 1, 2, 4</td>
<td>Site 1, 4</td>
<td>Site 1, 4</td>
</tr>
<tr>
<td></td>
<td>Point at which there is recognition of the need to change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><strong>Congruence</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stage where the vision is starting to be implemented</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>Embedding</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Appropriate partnerships are developing from congruence and are accepted as part of the culture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td><strong>Full integration</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All of the diverse elements are assimilated signifying maturity and the ability to fully exploit potential available</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Some emerging issues

Use of EIS is, as yet, minimal in most areas of HE, and all of FE, and certainly is not yet changing lives. We as information professionals need to ask ourselves why this is, and examine whether or not it is an acceptable situation, given the high levels of investment in EIS. Are we surprised, complacent, proactive, both as individuals and as members of an institution?

User viewpoints are key if the acceptability of EIS is to be embedded in custom and practice. User information collection must therefore be designed into the whole EIS process in order to promote uptake of services and research results alike.

And finally, focusing on EIS will become increasingly difficult as seamlessness in service provision increases, and consequently, transparency decreases. The future for EIS will certainly be intertwined with the development in HE and FE of Managed Learning Environments (MLEs)/Virtual Learning Environments (VLEs), which are developing apace.
References


HyLiFe (2000) – http://www.unn.ac.uk/~xcu2/hylife/


Introduction

Libraries in all sectors, but not least public libraries [and their managers] face challenging times for a variety of reasons. In the prevailing climate of change – technological, social and political – the imperatives to grasp new opportunities, to respond to new [and increasing] demands and to innovate generally are more evident than ever. Managers are confronted by the digital revolution offering spectacularly novel means of communicating ideas and knowledge. They are also challenged by a new awareness of its role as consumer by the user population that knows its own mind and demands quality from services. Society, through government, also seeks the enlargement of access to information and culture and these are embodied in programmes to enhance social inclusion and in initiatives to extend opportunity. Examples include lifelong learning (Department for Education and Employment: 1998) and the development of IT networks (Library and Information Commission: 1997) (People's Network: 2001) (Department for Education and Employment 1997). All of these impinge greatly on library services. However, the challenges that face managers offer, at the same time, exciting opportunities for public libraries to contribute significantly to the cultural life of communities. These opportunities are enumerated in a recent consultative draft from government (Resource: 2001).

Resources are, however, scarce and projects and programmes have to be prioritised. It should never to be forgotten that central to the entire activity in the public sector is the fact that, for most of the time, the library manager is spending other people’s [local and national taxpayers’] money! This is translated into a requirement for more accountability and a demonstration of value for money by public sector agencies. The idea of providing value for money is not new or particularly revolutionary. As long ago as 1988 Sizer addressed a conference of librarians and enumerated his three ‘E’s as criteria for assessment (Sizer 1988).

Sizer’s three ‘E’s:

- Economy in acquisition of resources,
- Efficiency in the use of resources, and
- Effectiveness in the achievement of objectives.

The UK Government ‘Best Value’ agenda is but one recent example of the trend. Librarians have to respond in this climate of accountability by ensuring not only that they deliver quality and value, but are also seen to do so! Philip Gill offered a global view and an interpretation of the political perspectives of the trends towards applying more metrics to managing libraries at an IFLA Satellite Meeting in 1997 (Gill: 1998).

Library managers devote a lot of time to determining the service mission, planning strategies, developing new initiatives and services, directing and monitoring operations, promoting services and interacting within the cultural, social and political environment around them. To function successfully they need a great deal of information – information about what has happened; what is happening; what will [or indeed may] happen and where they [and the service] are going and how to get there. In addition they need to know what their users [clients] think about services – existing and planned. They also need the facts to underpin and demonstrate efficient and effective operation. In short they require a great deal of performance data. This is where LISU, as an independent national organization acting as a resource for statistics and performance related information, plays its part.

LISU – The Library and Information Statistics Unit

LISU – The Library and Information Statistics Unit – is a national research and information centre based at the Department of Information Science at Loughborough University, partially supported by Resource; The Council for Archives, Museums and Libraries – a UK Government agency. LISU comprises a team of experienced Managers, Statisticians, Researchers and Administrators focusing on the analysis, development, interpretation and dissemination of statistics, performance assessment measures and related management data as well as advising on their application and exploitation. It has an established reputation as an independent authority in its field fulfilling a key role in supporting managers of information and library services amongst others.

LISU seeks to contribute, in appropriate ways, to good management practice in the various public and private sector agencies that make up the strands of the information economy and cultural services. Its main
stream’ work covers public, academic and special libraries and the information publishing and distribution field. It has also collaborated with IT services directors and media managers in universities as well as others in culture and the arts on strategic and performance management issues and quantitative assessment approaches. It is currently assessing and refining retrospective statistical data for museum services and archives.

UK public libraries

Public libraries in the UK are operated at the local government level by 203 London boroughs, metropolitan districts, unitary authorities and counties in Great Britain and five Education and Library Boards in Northern Ireland. There is a statutory obligation on these authorities to provide a comprehensive and efficient public library service to all who live or work within their boundaries, under the Public Libraries and Museums Act (1964). These authorities vary in size from a few thousand residents to over one million, operating between three and 113 service points each. They are governed by elected representatives of all political persuasions. Statistics on the operation of public libraries have been collected and published since 1964, and are most usually presented by authority type.

In recent years the reporting framework has become formalised, with much new legislation. Under the 1964 Act, libraries were required to provide a “comprehensive and efficient” service, but this was not defined, and the concept was rarely tested. All public library authorities are now required to demonstrate the efficiency of their service by means of a published Annual Library Plan, which must be submitted for approval to the relevant government department. The plans are formally assessed and used to monitor the performance of individual authorities. Libraries are also required – along with other branches of local government – to demonstrate that they are achieving ‘best value’ for taxpayers’ money. Driven by the Audit Commission, many of the indicators for this process are the same as those required for public library plans, although the process goes rather deeper than just collection of statistics. The almost inevitable consequence of these initiatives was the development of a set of formal performance standards (DCMS 2001), linked to the various indicators already in common use. For the first time, there are external benchmarks, which all authorities are expected to achieve within three years. At the end of the three-year period, the levels of the standards are expected to be revised upwards, aimed at driving up performance.

None of this would be possible without good quality statistics to provide the hard evidence. There is a long history of data collection in UK public libraries, most prominently the CIPFA Public Library Actuals (CIPFA 2001a). This is a long-running and comprehensive set of figures on all quantifiable aspects of library operations, and under continual development and review. It is matched by a smaller series of Estimates (CIPFA 2001b), published at the start of each year, and concerned with forecasting levels of provision.

There is increasing interest in the more qualitative aspects of the service, and a standard Public Library User Survey has recently been developed. There have always been surveys of users, but the aim here is to have something, which can be compared between authorities. CIPFA PLUS has been taken up by DCMS and some of the proposed public library standards relate to satisfaction measures from this survey. It is used by the majority of authorities, and enables comparisons to be drawn in this important area.

To supplement this already extensive data collection, LISU carries out some of its own surveys, most notably to get early indications of expenditure on materials (Maynard 2000), and a comprehensive survey of library services to schools and children (Creaser 2000).

LISU also maintains a comprehensive database of public library statistics based on the CIPFA data (CIPFA 2001a). This includes data for every authority from 1985-86 onwards, and is held in an Oracle database at Loughborough University. Gaps in the data, where there has been non-response to either an individual question or a whole authority missing for a given year, have been filled by means of supplementary questionnaires, interpolation and extrapolation. Figures which do not conform to the standard definitions are adjusted to enable comparisons to be made with confidence, and the process is kept continually under review. This database is used for presenting trends in the overall performance of the public library sector (Creaser et al 2000), and for a strategic statistical benchmarking service.

Statistical Benchmarking

Statistical benchmarking is the process of comparing institutions on paper, looking at a range of performance measures and indicators over time to help in identifying patterns of performance and indications of where best practice is to be found. It will only give an overview of performance, and so is complementary to more detailed process benchmarking. Often it is a way to identify suitable comparators for more in-depth studies. It can be particularly helpful to look at trends over time, identifying the historical patterns underlying present performance. In the UK, the public library sector has a very comprehensive set of published data - so the analysis can proceed without involving anyone else in the early stages at least. That being said, it is limited to the available data, unless collaboration, either informally or through benchmarking clubs, is introduced to collect other figures.
Statistical benchmarking can also be a first stage in a wide-ranging review of practice within the library. It is most widely used to compare whole authorities, but has wider application for internal analysis, discussed below. The following example is taken from work done at LISU based on the public library statistics database described above.

This analysis was carried out for an English county library authority, and the comparisons were made with a group of six other counties of a similar size, and with the average of all English counties. Fig 1 shows that whereas the average number of annual issues for each book in stock was generally stable for all counties, it was less consistent in the comparison group, and declining sharply for the commissioning county.

Looking at some of the associated measures available gave an indication of the areas which should be addressed to try to improve the attractiveness of the stock. Fig 2 shows that it was not the general level of issues that was the cause – issues were falling in all areas at about the same rate for reasons which are likely to be beyond the control of any individual library service. Fig 3 shows that, in contrast to the comparison averages, stock was increasing in the commissioning county – perhaps their stock weeding policy was not sufficiently rigorous. Fig 4 shows a drastic cut in book expenditure – combined with the increasing stock the suspicion is that the cuts in expenditure have led to a reluctance to discard old and out-of-date items. This is clearly less attractive to borrowers, and the rate of issues per item falls as a consequence. This library was advised to consider its deletion policies to make more efficient use of the space and remove unused stock items. The following year, stock levels were dramatically reduced, the cuts to the book fund were halted, and stock turnover began to recover its previous levels.

**Fig 1 Issues per book**

**Fig 2 Issues per capita**

**Fig 3 Lending stock per capita**

**Fig 4 Book expenditure per capita**
Management statistics

The previous example dealt with statistical benchmarking on a macro level – between authorities. In order to manage effectively, librarians also need statistics at the micro level, for the individual service points and activities within their remit. Many of these are readily available; in some instances the only way to get the broader figures is to collate data from individual service points. It is also the case that many library managers do not use these figures to their full potential – they can also be used for statistical benchmarking, to identify potential pockets of good practice within the authority, and focus on those areas, which should be closely monitored.

Service points in the UK vary in size within each authority, from the very small serving local communities and perhaps only open for one or two days per week, to large urban branches and central libraries serving a wide area. Often the level of service provided, for example the availability of audio-visual material for loan, will vary in service points of different sizes. It is important to compare like with like; for this reason comparisons are best carried out within groups of service points which have the same aims and objectives, and which provide similar levels of service. If possible the effects of differing catchment populations should also be eliminated from consideration. This can be difficult in authorities with high population density, where residents have a choice of service points within easy reach. Use of input measures, such as stock levels, or output measures such as visits, is not appropriate in this context. LISU has developed a methodology, described in detail elsewhere (Creaser 2001), which enables authorities to identify service points which are performing relatively well, or poorly, within the authority, and indicating the areas which deserve attention.

This methodology is based on the calculation of a ‘benchmarking score’ derived from the difference between levels of input and levels of output at each library. High performing libraries are those where the average level of input is significantly higher than the average level of output. A key advantage is that the resulting scores are independent of service point size, without requiring estimation of catchment populations. Any combination of measures can be used, and the method can be applied either within pre-defined tiers or levels or over the authority as a whole. The example which follows is based on a selection of libraries from a large English county authority.

The range of inputs and outputs to be assessed were chosen by the authority concerned, having in mind the available data, and in consultation with LISU. Measures were excluded from analysis only where they caused the benchmarking scores to be correlated with the original data and hence with library size. A variety of analyses were carried out, both within the pre-assigned tiers operated by the authority, and across the authority as a whole. There was a great deal of consistency between the various sets of results. The variables included in the analysis described below were:

**Inputs**
- FTE staff, professional and support staff separately
- Stock held, books and audio-visual items separately
- Additions to stock, books and audio-visual items separately
- Floor area. This was included as a proxy for premises costs, which were not available directly, but thought to be relevant to overall performance.

**Outputs**
- Issues, books and audio-visual items separately
- Requests
- Enquiries
- Visits

Fig 5 shows the results for the 18 largest libraries in the authority. For each service point, the values of all measures were listed, standardised, then the average input and average output calculated. The difference between the two was calculated, then re-standardised. These scores were ranked, and plotted. It is clear that the majority of service points have very similar scores, between +1 and –1.5. Their levels of performance can be described as average, and their rank order is likely to change from year to year. Two service points stand out, however. The first, ranked 1, has a standardised score of 2.3 – more than twice its nearest neighbour. On the input side, it has relatively low book acquisitions compared to its other inputs, but achieves its high position by virtue of recording a large number of enquiries. The reasons for this are a matter for investigation by the authority concerned – high levels of enquiries may be a genuine reflection of an excellent enquiry service, but may indicate a library which is difficult for users to negotiate without help from staff, or be artificially inflated by over-zealous recording.

The poorest performing library again stands out with a score of -2.0. In this case, however, the cause was relatively easy to identify from the figures – the county reserve stocks are held at this particular branch, and although these were excluded from the analyses, its unusually large size was not, and this undoubtedly played a part in its apparently poor result. While the exact rank order of service points produced by this analysis can vary according to which measures are included, or which year’s data are used, the most extreme libraries appear as such consistently. The reasons for individual scores will be varied, although it is clear that instances of good practice can be identified, which could be spread to other service...
points. When interpreting the results, and seeking out more details, local factors should always be taken into account, however.

Fig 5 Service point benchmarking

![Benchmarking Chart]

**Practical applications**

LISU’s role in identifying appropriate performance measures and indicators, developing suitable methodologies to collect them and then disseminating the outcomes are an important contribution to UK library management. However, it represents but a portion of the endeavour to ensure that managers have the best possible management information and are able to act on it. There is often follow up to a data gathering or benchmarking exercise in the form of additional management consultation to explore local issues and strategies. In this way a partnership between LISU and local management can be forged to mutual advantage in exploring ways to achieve optimal performance.

This type of supplementary activity has also included development of targeted workshops to introduce a wider range of professionals to the scope and potential of evidence-supported management, and to hone their skills in utilizing the data. An example of such an exercise featured a workshop for middle and senior managers held in a large city library authority. Fig 6 shows an edited outline of the day’s programme. The aims were to de-mystify statistics and performance indicators and introduce techniques for interpreting the extensive local data that were available but not fully utilised. Confirmation that the event was successful came in the way in which some participants, formerly wary of numbers, were able to identify key features in data and offer explanations and strategies for developing strength in services.

Fig 6 Workshop Outline


21st November 2000

**WORKSHOP Aims/Objectives**

To:

- develop an appreciation of the importance of P.I.s and Statistics in managing effectively;
- raise awareness of the data that are available both locally and nationally;
- demonstrate how data can be applied in practice.

**Programme**

**Coffee**

Welcome and Introduction

Measuring matters: the role and value of statistics and P.I.s for management

Workshop Exercise 1 – Service mission and assessing its achievement. Where we are now? The local context and data.

**Lunch**

Comparing and contrasting: Benchmarking at the city library - introduction – analysis –

Workshop Exercise 2 – What’s happening? Diagnostic use of benchmarking data

**Tea**

Workshop Exercise 3 – What if? Scenario analysis

Closing remarks

Disperse

Other components of LISU’s work include facilitating the pooling of management experience in regular seminars for senior managers as well as the provision of an enquiry and referral service to provide information on request and to offer advice on interpreting data in the local context. Where appropriate, LISU also collaborates with other researchers and members of the profession on special projects. The work is decidedly not complete until every effort has been made to support managers in achieving optimal performance.

**Some conclusions**

The application of more refined strategic management approaches together with techniques such as benchmarking and the intelligent use of performance indicators contribute to improving the quality of services and to demonstrating that improvement. Sandra Parker, in a recent Editorial, summed it up well:

*As the development of strategic approaches to managing libraries and information services gathers pace, increasingly sophisticated performance measures, indicators and benchmarks underpin the work.* (Parker 2000)
This approach is not confined to the library sector as this recent observation on measuring performance in non-profit-making organizations [including charities and voluntary agencies] illustrates:

*Every organization, no matter what its mission or scope, needs three kinds of performance metrics - to measure its success in mobilizing its resources, its staff’s effectiveness on the job and its progress in fulfilling its mission.* (Sawhill and Williamson 2001)

Much can be achieved within an organization through self-assessment techniques and work on this has been documented (Kinnell Evans 2001). In addition, there is a growing trend towards formal and semi-formal peer cooperation in comparing data and benchmarking through benchmarking ‘clubs’ or ‘consortia’. An example with a formal structure is SELPIG - The South East Libraries Performance Improvement Group (Olsen 1998). LISU has undertaken research commissioned by SELPIG on assessing the relationship between social conditions in a community and library use (Creaser and Sumsion 1995) and on modeling use at service points (Creaser 1998). There are also examples of cooperative activity where benchmarking has been taken further to examine, not only performance data, but the processes underpinning services with a view to identifying ‘best practice’. An ongoing example of the consortium approach from the academic library sector has been documented (Hart 2001). LISU has contributed advice and comment and sent an observer to a meeting of the consortium. All these initiatives illustrate an encouraging capacity for library managers to learn from one another and to adopt and adapt where appropriate.

This paper has explored issues surrounding the development of performance indicators in public libraries and LISU’s role in the process. The quest for quality and value will go on – and the pressures on managers will not abate. It should be some reassurance to them that the performance data sources, the tools and the attendant skills to achieve and demonstrate good management are being continuously refined, not least through LISU’s sustained endeavour.

**References**


<http://www.lifelonglearning.co.uk/greenpaper/index.htm>


<http://www.ukoln.ac.uk/services/lic/newlibrary/contents.html>


Public Libraries & Museums Act (1964) London: HMSO.


**Note**

1. See http://www.ipf.co.uk/plus/ for further information.
Performance indicators for the ISTAR Project

Robert Davies and David Fuegi
Founders,
MDR Partners, UK

Abstract

The ISTAR Networks pilot project, supported by the European Commission DG EMPL formerly DG V), was completed successfully on 27 April 2000. ISTAR was funded under the Regional Information Society Initiatives (RISI2) programme over a two-and-a-half year period, to a value of some 2 million Euros. The three pilot regions in which it implemented services were Imathia (Central Macedonia, Greece), Western Education and Libraries Board (Northern Ireland) and Thuringen (Germany).

Since it began in November 1997, ISTAR tested on a practical basis key new roles for public libraries, working in active partnerships with other regional agencies in the public and private sector, in supporting economies of Europe’s ‘peripheral’ regions by delivering cost-effective information and training services to users. Performance indicators were central to the project’s success because:

• The funding body [the Directorate of the European Commission] responsible for Employment, NOT libraries, wanted proof that its own objectives had been met and

• It was experimental at that time to provide these services through public libraries and important for the future that they be seen to have succeeded.

The tools which were used to monitor activity in each region, include:

• Statistics – to assess take-up e.g. number of users, of training courses, sites hosted etc.
• Case studies – e.g. to demonstrate skills improvement
• Surveys (questionnaires) – e.g. to test ease of use, skills improvement, impact on users
• Baseline surveys were carried out in each region
• Focus Groups – to test user reaction in more depth.

ISTAR continues to function as a not for profit service. More information can be found at www.istar.org.

Introduction

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ISTAR set out to provide a model for promoting awareness and extending access to networks and basic ‘Information Society’ services through public libraries to SME, the self-employed, teleworkers and distance learners in three Objective 1 regions – Imathia (Greece), Thüringen (Germany) and the Western Education and Libraries Board – WELB (Northern Ireland). A region with advanced capability (Essex County in the United Kingdom) was a resource base for expertise and project management skills during the project, working in partnership with a private sector subcontractor, Robert Davies.

The project introduced and tested services in all three implementation regions. It achieved its objectives in almost all respects. Its findings are perhaps especially relevant in view of the recent launch of the European Commission strategy for jobs in the new knowledge economy, at the initiative of Commissioner Anna Diamantopoulou (Employment and Social Affairs). Among the specific recommendations of this report are the establishment by the end of 2001 public Internet access points, plus on-site information society literacy training in all communities e.g. libraries, post offices etc.
The Regional Context

ISTAR partners which originally formed the network within each region varied according to the institutional and economic make-up of the region:

**IMATHIA**
- Prefecture
- Veria Public Library
- Imathia Chamber of Commerce
- Office of Industrial Development, Naousa
- Trade Union Labour Institute, Veria
- Municipality of Plati (library)

**WEB**
- Western Education and Library Board
- North West College of Further and Higher Education
- Ulster American Folk Park
- HMP Magilligan Prison

**THÜRINGEN**
- Seven local municipalities and their libraries (Erfurt, Gera, Gotha, Greiz, Ilmenau, Meiningen, Nordhausen)
- Landesfachstelle für Öffentliche Bibliotheken (Consulting Agency)
- Thüringen Chamber of Commerce
- Adult Education Centre

Within each participating region, a Regional Management Team was assembled, including participating and contributing partners within each region, together with a parallel Regional Technical Working Group.

Much of the work of ISTAR was undertaken through Inter-Regional Task Groups consisting of technical specialists from each of the project partners with specific tasks allocated within the overall workplan. Such Groups were established to deal with issues service specification, training, promotion and publicity and performance measurement and to maximise the sharing of experience and inter-regional learning.

Although all partner regions signed up to the initial objectives, there were in the early stages, considerable differences about priorities for action, and about how to tackle local project management. In Imathia, for example, so slender was the availability of services delivered successfully through ICT in the region, that the main task of the Regional Project Manager was to raise and sustain belief at political and private sector level that the project would succeed in bringing access to these facilities through the library service. By the end of the Feasibility and Definition phase (and with a new Central Library due to open in Veria during July 1999), that belief already commanded support at the local and regional level, with services being formally launched by the Greek Minister of Culture in October 1999. Indeed, local and national politicians and MEPs in all 4 regions involved have demonstrated strong interest in and support for the project, illustrated by similarly high-profile service launches taking place in Northern Ireland and Germany.

The ISTAR Services

Following a one-year preparation phase encompassing feasibility, definition, marketing, specification, training and procurement activities, an ISTAR Network centre plus ‘nodes’ was set up in each region. Services were launched and promoted to target communities in each region. A full year’s pilot operation of services was been completed with close monitoring and evaluation. Results show that there has been a measurable increase in awareness and take-up of network and other ‘Information Society’ services relevant to each regional economy.

ISTAR services as defined, fall into 4 broad groupings containing 16 separate categories, each with their own specific target groups in the different regions:

**GROUP A – AWARENESS RAISING**
- Computer Awareness Sessions
- Office packages - awareness sessions
- Internet Taster Sessions
- Electronic Imaging

**GROUP B – TRAINING PACKAGES**
- Training in specific office applications
- E-Mail Training
- WEB site design
- Self Tutored Core Skills
- Effective website searching

**GROUP C – PAID SERVICES**
- Use of Workstations.
- WEB site hosting
- Videconferencing
- Electronic Image Capture/Processing

**GROUP D – INFORMATION PROVISION**
- Access to Business Information
- Access to Partners’ databases
- Access to specific information

Services were introduced at different times in different regions and even at different service points within regions according to local operational and financial circumstances. The characteristics of the regions differ – settlements in Imathia, for example are small as are total catchment populations. The number and characteristics of ISTAR service points also differ from region to region. Not all regions planned to offer all services. Equally, services began to change in response to local needs.
Performance Indicators – Problems and Solutions

The project faced a number of problems in relation to performance indicators. Firstly, the project’s paymasters were interested in employment outcomes for specific target groups. For purposes of international comparison and reporting it was agreed to collect data primarily by employment status on the following groups into which all ISTAR users would fall:

- Self-employed
- Employed people extending/updating skills
- Unemployed seeking work or updating skills
- Looking after home [includes women considering rejoining the labour force]
- Retired
- Students
- School
- Further and higher education.

Public libraries do not usually evaluate the effect of their services in such detail nor attempt to target their marketing so precisely.

An obvious problem arising from this situation was that traditional public library indicators [members/visits/loans] would not be good enough – new indicators would need to be devised.

This is in turn created a need for standardisation between all the project partners on:

- Service definitions
- Indicators for each service
- Data collection methods and timing.

In selecting performance indicators, the project team took the following into account:

- Cost effectiveness [could we afford to collect the evidence/was it worth the cost of collection?]
- Importance [did it tell us anything important]
- Project aims [could we demonstrate that these were met]
- Audiences/stakeholders [principally the Commission, local politicians, local managers but also the wider European audience which needed convincing of the usefulness of public libraries or of the appropriateness of our chosen activities]
- The different ISTAR services on offer
- Both quality and quantity as appropriate.

Methods Employed By The ISTAR Project Partners

For each of the services to be provided, a standard definition was drafted together with its performance indicators as in the following example:

Methods of acquiring data are indicated:

- D = diary with totals.
- S = survey.
- N = number- may arise from diary or otherwise.
- C = case studies.

Table 1:

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Brief</th>
<th>Description</th>
<th>Target groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wa01, Va01, Ta03</td>
<td>Short taster sessions (45-60 minutes), basic operations e.g. using the keyboard and the mouse, basic introduction to applications. Support on a one-to-one basis or in small groups, maximum size 4.</td>
<td>To provide local, easily accessible opportunities for members of the public to achieve a basic level of literacy in computer operation and raise awareness of computer applications.</td>
<td>All</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Targets and Performance indicators</th>
<th>Number of sessions [d]</th>
<th>Number of attendees [d]</th>
<th>Ease of use of service [s]</th>
<th>Skills improvement' [s, c]</th>
</tr>
</thead>
</table>

It was recognised that it would be difficult to use surveys effectively for certain key groups, so focus groups were used to get the views of the following groups:

- Independent learners
- ISTAR staff
- Representatives of small business
- Unemployed people

A total of 6 focus group sessions were conducted in the partner libraries of the 3 regions. They aimed to cover groups of people who were important targets of the ISTAR project but for which it would not have been possible to obtain representative samples for a questionnaire action. The focus groups were conducted by library staff, none of whom had done this before. It proved to be a pleasurable and rewarding experience.

This is an example of the kind of feedback received from representatives of small businesses:

- ISTAR improved their perception of the value of the library
The library can play a key role in heightening perception in the community about the value and use of ICT.

- They recognised the importance of the fact that its services are available to ALL and thought services should remain free of charge.
- ISTAR in the library helps reduce workers’ fears of new technology and can be a key resource for job-seekers and those seeking to develop new skills, leading to economic benefit for the whole community.
- ISTAR improved their surfing skills and allowed them to make more productive use of the Internet.
- ISTAR also refined their perceptions of the value and possibilities of e-commerce and caused them to progress such developments in their companies more rapidly than they would otherwise have done.
- ISTAR also enhanced the value of traditional library services [e.g. inter-library loans].
- The business websites created by ISTAR were thought to be of good quality but they had not been effectively submitted to the major search engines.
- For very small businesses, ISTAR provides crucial support in the early stages of their IT development.
- BUT the success of ISTAR was sometimes a problem [too much noise, not enough machines, need for an “instant access” machine].
- Inability to use services charged for on the net is a problem.
- Library could do more to provide specialised portals.
- Need for longer library opening hours.

ISTAR Pilot Case Studies

The purpose of the case studies was to provide evidence of the effects of the ISTAR services on individuals in the main target groups in a way that has impact at the human level. All the libraries were asked to help find good case studies and were encouraged to use them as appropriate in local publicity. The case studies were grouped under the following headings:

- ISTAR helps people find work
- ISTAR succeeds where conventional methods have failed
- ISTAR helps people improve their skills
- ISTAR strengthens families and friendships
- ISTAR builds people’s confidence
- ISTAR helps people at work
- ISTAR helps ensure social inclusion

Here is an example of our style of case study:

“ISTAR helps people find work.”

Mrs E. makes a fresh start.

“I was completing a qualification and could not see how I could use it in Meiningen, so I decided to try other local towns, but it did not occur to me to try Munich, which is where I have happily ended up thanks to the Internet and Meiningen library.

I was afraid of the Internet but signed up for a half-hour introduction that led to many more hours surfing. Eventually I found the right job on the Internet, applied, was interviewed and accepted, but the job was in Munich, a long way off. Next problem was to find a flat and for 3 or 4 weeks I was in the library every day, surfing the net for a flat. The library staff supported me all the way and we succeeded in finding what I needed.

I have had only good experiences from the Internet and hope that many other job seekers try this route. My thanks go to the ISTAR staff. Without their help and support I might have given up along the way.”
Baseline and exit questionnaires

Partners decided to use a baseline survey and a final survey. All partners planned to register users for ISTAR services which provided an opportunity to conduct the baseline survey, aimed mainly at collecting demographic information and identifying ICT skills levels. Each partner aimed for 500 completed surveys and there was a rolling start as services were launched. Partners translated the forms into German and Greek. The exit sample was conducted at the end of the pilot period.

Monitoring and coordination

Because this was an international project, we created a monitoring mechanism independent of the service providers. The monitoring process served:

- To improve overall quality and
- To improve project cohesion and international learning.

Two monitoring visits took place in each region.

Diary/collection of numerical data

Diaries were maintained at all ISTAR service points to collect the data specified. A sample diary layout was devised because all partners needed to collect the same data but they were free to design their own forms if they wished and use the technology they preferred. The diary was designed to contain all income information from all ISTAR services but partners could compile the financial data in other ways if this was more convenient. The diary data was brought together at a central point in each region for monitoring and reporting purposes.

ISTAR pilot project results

RISI II projects needed to be evaluated against the ‘four pillars’ of employability, entrepreneurship, adaptability and equality of opportunity. In designing and implementing its own evaluation scheme, ISTAR sought to address questions such as the impact of services on: the skills gap, the labour force, the economy, local companies, the number of people with new skills - and what skills these were, how these related to the local economic strategy/skills gaps, the number of trainees who got jobs and a wide range of other issues.

The tools which were used to monitor activity in each region, include:

- Surveys (questionnaires) – e.g. to test ease of use skills improvement, impact on users
- Baseline surveys were carried out in each region
- Focus Groups – to test user reaction in more depth.

Summary of results

The case studies show that ISTAR:

- Helped people find work
- Improved their skills
- Strengthened families and friendships
- Improved confidence
- Improved social cohesion and
- Helped people at work.

The focus groups:

- Supported the work of the project
- Demonstrated that it had met its objectives
- Made some valid suggestions for improvements and
- Overwhelmingly supported ISTAR’s continuation.

The exit survey demonstrated that ISTAR:

- Continued to reach its chosen target groups
- Achieved high satisfaction ratings for its services
- Improved the skills of its users
- Was successful in helping people find work
- Was useful for business purposes
- Encouraged people to learn more about computers and to use them more
- Provided people with valuable information

The statistical reports show that ISTAR:

- Was continuing to draw in customers and to grow at a rapid rate.

Note

1. The baseline survey will provide a measure of skills at the outset. The final survey will indicate skills at the end. The difference will be the measure of skills improvement.
Abstract

Many indicators of academic library effectiveness have been accepted and implemented, but it is clear from the literature that measuring objectively the impact of academic library services has remained an intractable problem. While it is recognized that the value of library services is a multidimensional construct that will not easily be captured by single or simplistic measures, one of the major goals of academic institutions has always been the education and qualification of students that conform to certain standards. Academic libraries in turn have aimed at the provision of resources that assist students in complying with these standards. This presentation suggests that with two different approaches to the correlation of use data with final grades obtained at a South African university, it was indeed possible to demonstrate practically that students’ academic achievement may be positively associated with using the library.

Introduction

One of the early writers on performance evaluation in library and information services, Orr, had emphasized that one should not try to establish how good a library is, but how much good it does (1973: 317). Many others have quoted this maxim and have battled with the intractable problem of how to demonstrate the impact of information services. It is generally agreed that the ultimate outcome of using a library is neither a simple construct nor something easy to measure. Some writers have even proposed that it may be impossible to find a valid measure for the impact of library services, as “one cannot separate knowledge derived from library use from that from other sources” (Pull & Boekhorst, 1996: 21).

Libraries provide many services to different user groups, whose needs and requirements may differ markedly and sometimes even be in conflict. For this reason it has often been stated that meaningful performance evaluation is impossible without a clear understanding of the goals and objectives of the parent institution. One cannot tell how much good is done if one doesn’t know what good one is supposed to be doing in the first place. In academic libraries, these goals are usually tied to supporting their institutions’ own goals of teaching and research.

Researchers are no longer trying to find one single measure or indicator of impact either. A number of writers had tried to prove goodness by combining in relatively complex mathematical statements, different selections of input and output measures. These attempts have by now been abandoned, perhaps at least partly as a result of the fact that mathematical expertise is relatively rare among library managers (McDonald & Micikas, 1994: 15).

Library goodness conceivably means different things to different people. One researcher might rate a service as “excellent” when an important document is located and delivered so that a research paper could be completed in time, while a doctoral student could value the librarian’s assistance with the preparation of a reading list. These activities are related to supporting the research goals of an academic institution. Measuring the impact of library services in support of research activities is subject to very specific investigations such as counting the research publications from an institution and attempting to establish the extent to which the library had an active role in assisting the researchers with their information needs.

As far as undergraduate students are concerned, however, an academic institution “can only legitimately assess itself on how effectively it develops the talents of its students” (McDonald & Micikas, 120) as this is the core of the academic endeavour. Or as Wells stated: “Undergraduate students have known objectives; their main aim is in terms of academic success” (1995:121). Undergraduates come to academic institutions to gain enough knowledge, experience and skill to become graduates in their chosen fields. A library that wishes to serve this population should legitimately ask itself how much it has contributed to that process of enabling students to graduate.

Attempting to show correlation between library use and academic achievement is not new either. A number of writers, mainly in Australia and the USA, have attempted to investigate whether students who use (or do not use) their libraries, tend to do better or worse academically. In the 1960’s, Barkey had found a direct correlation between books borrowed from the library by ‘freshmen’ and their grade point averages, but he had also been concerned by “the high incidence of nonuse of libraries” (1965:115). Russel et al. (1982) found that students with higher grade point averages...
were much likelier to use the library than students with lower averages. Hiscock (1986) was unable to prove that a strong relationship existed between library usage and academic performance. Self (1987: 36) on the other hand could show (with reference to a library’s reserve collection), that “[h]igh-users do better than medium-users, who do better than low-users who do better than non-users”. He did, however, also point out that although these differences were clear, they were small and he was unable to show that they had any predictor value (38).

Some consistently recurring findings have appeared in association with investigations of the relationship between library use and academic achievement. A number of writers have commented on issues relating to short loan or reserve collections, such as the perception that short loan collections might actually discourage students from using their open shelf collections (Self, 30) and that these collections are themselves both expensive and underutilized (34). The danger that reserve readings might become the primary source of readings for undergraduate students was pointed out by Jordan (1998: 50) and Lane had noted earlier that reserved books were the most used items of all library materials (1966: 278).

Writers have also been concerned about findings suggesting that that academic libraries were generally underutilized, that many students never used their libraries, or used them only as study venues (Lane, 1966: 278; Mays, 1986: 57; Breivik & Wedgeworth, 1988: 170). Barkey found that a disturbing number of students did not use the library at all (115). Mays suggested that libraries were not used very much by undergraduate students, because library use was not encouraged or rewarded by lecturers (51), that students frequently had no need to use their libraries (51) and that library use may be “superfluous to success in the academic programmes of those who do use the library” (57).

McDonald and Micikas commented that library collections will not be heavily used unless requirements for library use are built into curricula (13).

It has been emphasized that the extent of library use very much depends on courses of study (Whitmire, 1997). Students in the humanities, languages and literature have a far greater need for borrowing books (Lane, 280; Wells, 1996: 158) while they are less used by students in the “more scientific and career-oriented disciplines” (Russel, et al.10-12). Kramer & Kramer found a significant correlation between grades and library use among students majoring in the arts, but not for students majoring in science or engineering (1968: 311).

It is acknowledged that book borrowing is but one aspect of library use and a number of authors have commented that a true measure of outcome would also take into consideration the use of other library materials beyond borrowing books (Wells, 1995:123). Other authors have suggested that disciplines where low book use is demonstrated may make greater use of the serials collection and this should be investigated. It is also becoming increasingly necessary to assess the impact of the use of electronic resources on academic activity. From the point of view of the undergraduate student, however, Wells pointed out that a “book collection available at their home campus is still crucial to the academic success of undergraduate students” (1996: 158).

A new investigation

For this researcher, the relationship between academic performance and library use remained one of those questions that would not go away. Together with Jordan it is believed that the library should be seen as “an integral part of the educational enterprise” (115) and that demonstrated correlation between library use as expressed by borrowing materials, and academic success can provide librarians with a powerful output measure to show in tangible terms the value of library services to undergraduate students.

A few years ago an attempt was made (and reported in a poster presentation at the very first Northumbria conference in 1995) to see whether it was possible to show that students with high academic scores had borrowed more books from the library than students with low scores. The library computer system at the University of Cape Town (UCT) at that time was rather limited, but it was possible to collect enough data to find that undergraduate students of History and Sociology who achieved the highest marks in a given class also borrowed more books from the open shelves (not necessarily from the reserve collection), than students who achieved the lowest marks. Borrowing books, on the other hand, seemed to have no influence on the marks of students of Economics. The inevitable response to these findings was that economists didn’t read books anyway and what about students of all the other subjects that had not been investigated?

Shortly after concluding this investigation, the circulation module of the UCT library system was changed and it was no longer possible to get hold of students’ borrowing records at the end of each academic year. So it became the question that wouldn’t go away: do students who do well at university borrow more books from the library than students who do poorly?

Fortunately, even computer systems get replaced eventually. By the end of 2000, new software made it possible to obtain the necessary data from the library system and the question could be investigated once more.

Methodology

As first degrees are one major output of our university, the population was limited to students in their final years before graduating with a bachelor’s degree. Subjects were selected that were served by the main...
university library, thereby excluding areas such as medicine, music, law and architecture, which have their own branch libraries. Core courses in the broad subject areas of economics, psychology, social science, science, engineering and language were therefore sought and class lists noting the final marks in each of the selected subjects were obtained. From these class lists (which are posted on public notice boards) the students achieving the highest and the lowest marks were identified. No group of high or low scorers was smaller than ten or greater than twenty. Reports were generated from the library circulation system to indicate how many items from the open shelves and from the reserve collection respectively, were borrowed by each of the identified students during the academic year. For the sake of anonymity, student numbers only were used to generate these reports.

It should be noted that although the students were identified on the basis of their scores in one particular subject field, the loan records did not reflect borrowing activity in that subject only, but their total borrowing throughout the academic year. While final year students normally do two majors, it was therefore assumed that a student who did well or poorly in a single major subject would be representative of a student who did well or badly in the final year of the course.

It was acknowledged from the beginning that borrowing books is only one, and possibly not even the most important, library activity for many undergraduate students. A number of writers including this one (1991) found that undergraduates value the academic library in the first place as a place to study. Students in certain disciplines may use serials or electronic resources more frequently than books. For this study, however, book borrowing was regarded as one indicator of library use. Support for this position is to be found from Mays, who suggested that borrowing was “an accurate predictor of overall use of the library collection” (58).

**Findings**

The following table summarizes subjects, sample sizes and average low and high marks:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Class Size</th>
<th>Sample Size</th>
<th>Low score: average mark</th>
<th>High score: average mark</th>
<th>Whole class: average mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>43</td>
<td>23</td>
<td>49%</td>
<td>72%</td>
<td>59%</td>
</tr>
<tr>
<td>Economics</td>
<td>266</td>
<td>36</td>
<td>48%</td>
<td>74%</td>
<td>61%</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>85</td>
<td>37</td>
<td>45%</td>
<td>80%</td>
<td>65%</td>
</tr>
<tr>
<td>Environmental &amp; Geographical Science</td>
<td>57</td>
<td>29</td>
<td>52%</td>
<td>74%</td>
<td>64%</td>
</tr>
<tr>
<td>English</td>
<td>117</td>
<td>31</td>
<td>47%</td>
<td>79%</td>
<td>66%</td>
</tr>
<tr>
<td>History</td>
<td>47</td>
<td>21</td>
<td>53%</td>
<td>74%</td>
<td>64%</td>
</tr>
<tr>
<td>Psychology</td>
<td>230</td>
<td>36</td>
<td>43%</td>
<td>75%</td>
<td>60%</td>
</tr>
<tr>
<td>Sociology</td>
<td>46</td>
<td>22</td>
<td>48%</td>
<td>69%</td>
<td>60%</td>
</tr>
</tbody>
</table>

*Average mark over all classes selected (n = 891): 62.2%*

In order to pass a subject at UCT, a minimum mark of 50% is required; third class marks fall between 50–59%; second class marks are between 60–69%; upper seconds range between 70–74% and from 75% denotes a first class pass. In the eight subjects selected, there were a total of 891 students of whom 82 (9.2%) obtained first class passes, 156 (17.5%) upper seconds, 274 (30.8%) got thirds and 69 (7.7%) failed. The overall average mark was 62%. Table 1 shows that apart from Environmental & Geographical Science and History, the lowest marks on average in the other subjects were failures. The mean highest marks were first class passes in Electrical Engineering, English and Psychology. The smallest classes were Chemistry, Sociology and History, while the largest classes were Economics and Psychology. It is noticeable that class averages are fairly consistent over the different disciplines, ranging between 59%–66%, with an overall average of 62.2%.
Fourth Northumbria

Table 2: Borrowing by Subject

<table>
<thead>
<tr>
<th>Subject</th>
<th>Open shelf low score average loans</th>
<th>Open shelf hi score average loans</th>
<th>Short loan low score average loans</th>
<th>Short loan hi score average loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>13</td>
<td>22</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Economics</td>
<td>2</td>
<td>14</td>
<td>25</td>
<td>33</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>11</td>
<td>8</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Environmental &amp; Geographical Science</td>
<td>8</td>
<td>19</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>English</td>
<td>31</td>
<td>33</td>
<td>30</td>
<td>26</td>
</tr>
<tr>
<td>History</td>
<td>31</td>
<td>36</td>
<td>32</td>
<td>28</td>
</tr>
<tr>
<td>Psychology</td>
<td>21</td>
<td>37</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td>Sociology</td>
<td>30</td>
<td>15</td>
<td>20</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 2 indicates the loan records and the differences in borrowing activity by low and top scorers. It is apparent that borrowing activity varies a great deal from subject to subject. The heaviest borrowers were students of History and English, the lowest were from Electrical Engineering, followed by Chemistry. Seven students (of whom three studied English) had borrowed more than 70 books and six out of the seven were from the high scoring categories.

Top students in Psychology, History and English borrowed the most books, both from the open shelves and from the Short Loan Collection. In English and History there is not a great deal of apparent difference between the borrowing of top and low scorers. Sociology students borrowed somewhat less than the first three groups, but this was the only subject where low scorers borrowed more from both the open shelves and short loan than the high scorers.

As far as the sciences were concerned, Chemistry students borrowed slightly more from the open shelves than students of Environmental and Geographical Science. Electrical Engineering students borrowed the least from short loan. The least open shelf borrowing was among the top scoring Economics students. By and large, therefore, the findings of previous writers that students in the humanities and languages borrow more books than students in the sciences, are upheld.

It is clear that there is some correlation between high marks and high borrowing of library materials from the open shelves. In all the subject areas apart from Electrical Engineering where the number of loans were very low and in Sociology, the number of items borrowed from the open shelves was higher among the students with the high scores than among those with the poor scores.

As far as borrowing activity from the short loan collection was concerned, the expressed fears that undergraduates may come to rely entirely on such pre-selected works and not use the open shelves much, do not seem to be justified. In English and History, where the highest rate of borrowing of open shelf materials was noted, borrowing of short loan materials was high as well. In Economics and to a lesser extent Environmental & Geographical Science, the use of the short loan collection was more than the use of open shelf material.

**Significance**

It is not possible, however, to state on the basis of these average scores that the differences are statistically significant. The standard deviations were very high as a result of large individual differences in borrowing behaviour. It became obvious, for example, that odd students could obtain first class passes (75% or more) in Economics, Engineering and even in English without ever borrowing a single book throughout the entire year! Some students on the other hand borrowed more than sixty books and although these high borrowers usually were grouped among the top students, students in the low categories also sometimes borrowed more than fifty. In one case a student who failed his subject (Sociology) had borrowed more than a hundred books.

As a result of the large spread in standard deviations mentioned above, it was not possible to test for significant differences between the two sets of samples by using the t-test, which is one generally accepted way of testing for significant difference between the means of two samples. The Mann-Whitney test, which is used to compare two independent groups of sampled data (TexaSoft), was therefore invoked to test whether the apparent differences between the upper and lower scores in the sets of sample marks could be shown to be statistically significant.
The results may be summarized as follows:

**Table 3: Significance**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Open Shelf Borrowing: difference between top &amp; low scores</th>
<th>Short Loan Borrowing: difference between top &amp; low scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>Significant p .025</td>
<td>Not significant</td>
</tr>
<tr>
<td>Economics</td>
<td>Significant p .05</td>
<td>Not significant</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>Not significant</td>
<td>Significant p .05</td>
</tr>
<tr>
<td>Environmental &amp; Geographical Science</td>
<td>Significant p .10</td>
<td>Not significant</td>
</tr>
<tr>
<td>English</td>
<td>Not significant</td>
<td>Not significant</td>
</tr>
<tr>
<td>History</td>
<td>Significant p .10</td>
<td>Not significant</td>
</tr>
<tr>
<td>Psychology</td>
<td>Significant p .001</td>
<td>Significant p .001</td>
</tr>
<tr>
<td>Sociology</td>
<td>Not significant</td>
<td>Not significant</td>
</tr>
</tbody>
</table>

From Table 3 one may conclude that the circulation of library materials indeed correlates significantly with academic achievement in certain subjects. In Psychology, this correlation is highly significant and one may confidently state that students who on average obtained a first class mark (75%) used both open shelf and short loan materials much more than the lowest scorers who failed the course (average 43%; pass mark 50%).

A particularly interesting observation is that the English students, one of the most actively borrowing groups, borrowed comparable numbers of books, regardless of whether they obtained high or low marks. While this finding cannot therefore be used to demonstrate that library use is related to academic achievement, this may be seen as a particularly powerful indicator of a demonstrated need for library materials: all students had used many library materials and even those who had failed had done so. A similar observation is evident among the History students, even though a small significant correlation could be distinguished between the use of open shelf materials and obtaining top marks. This finding provides strong support for earlier writers who stated that students in the humanities, languages and literature have the greatest need of library materials.

A surprising finding was the significant correlation in Economics. My previous investigation had failed to establish any significant correlation between loans and achievement. This time it was possible to establish that although the borrowing of open shelf material was not high among the top scorers in Economics, they used open shelf books significantly more than students who failed.

The need for borrowing library materials among students of Sociology seems to require investigation. Although the differences could not be shown to be statistically significant, top scorers borrowed fewer books than students who failed.

A further look

It was then decided to attempt a measure of triangulation and an additional context for students’ lending behaviour, by investigating further the borrowing patterns of undergraduate students who borrow large numbers of books. The purpose of this investigation was to establish how the marks of undergraduate students who borrow the most books over all, compare with good or poor marks from the previous investigation.

A further sample was therefore drawn from all undergraduate students throughout the university who had borrowed the most books during the academic year. The sample consisted of 104 students who had borrowed more than 135 books from the open shelves during 2000, from a total undergraduate student body of nearly 12,000. The student who had borrowed the most books had taken out a total of 421. Of the 104 students in the sample, the final marks of 20 of them were not available, leaving 84 undergraduate student records. Students ranged from first to final years, but were simply grouped according to their courses of study. Some heavy borrowing activity was evident from groups that were not represented in the previous sample. Students of music, architecture, law, fine art and medicine all appeared in the second sample but were left out of the first as they are not served by the main library because they have their own branch libraries at UCT. As students in different courses and different years of study take varying numbers of subjects each year, it was decided to record the marks of their two best subjects in every case.
Some surprising results came to the fore:

<table>
<thead>
<tr>
<th>COURSES taken by students in the sample</th>
<th>Mean Number of books borrowed</th>
<th>Mean Best Mark %</th>
<th>Mean Second Best Mark %</th>
<th>Number of Students in the Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Arts</td>
<td>151</td>
<td>73</td>
<td>69</td>
<td>25</td>
</tr>
<tr>
<td>Music</td>
<td>183</td>
<td>80</td>
<td>74</td>
<td>19</td>
</tr>
<tr>
<td>Architecture</td>
<td>162</td>
<td>81</td>
<td>76</td>
<td>15</td>
</tr>
<tr>
<td>Law</td>
<td>238</td>
<td>69</td>
<td>66</td>
<td>6</td>
</tr>
<tr>
<td>Bachelor of Social Science</td>
<td>175</td>
<td>67</td>
<td>63</td>
<td>6</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>157</td>
<td>72</td>
<td>69</td>
<td>5</td>
</tr>
<tr>
<td>Fine Art</td>
<td>148</td>
<td>71</td>
<td>69</td>
<td>5</td>
</tr>
<tr>
<td>Medicine</td>
<td>221</td>
<td>75</td>
<td>67</td>
<td>3</td>
</tr>
<tr>
<td>MEAN</td>
<td>181</td>
<td>76</td>
<td>71</td>
<td>Total = 84</td>
</tr>
</tbody>
</table>

Of the students who had borrowed the most books during 2000, the largest group were Bachelor of Arts students served by the Main Library, followed by students of music and architecture, who have their own libraries. Of the 84 students selected, only eight (five from science, three from medicine) were not from disciplines broadly regarded as the arts and the humanities. The evidence of the marks seems clear. In not a single case had even the second best mark been a failure, while 54% of the best marks were first class passes. In the first investigation, the marks of 891 students were on average 62%, well below the “best mark” scores in all the courses of study indicated above. Students who borrowed exceptional numbers of books, obtained much higher than average marks in at least one and even two subjects, although the differences may then not be as great. The deduction seems inevitable: undergraduate students who use their libraries a lot, also do well in their exams.

**Conclusion**

It has yet again been confirmed that measuring the impact of library use on undergraduate performance is neither simple nor obvious, but it has also been possible to show that students who do well, tend to borrow more open shelf library materials than students who do poorly. Many variables apart from library use impact on student performance and choice of discipline; teacher expectation and student determination all play significant roles. Of these, only the role of choice of discipline has to some extent been considered and these findings strongly uphold earlier findings that students in the arts and humanities need and borrow the most library materials.

**References**


Abstract

This paper is a revision of the report prepared for the Web Development Committee as summary of the Library Web User Survey conducted in March 2001.

The Web Development Committee of the Carnegie Mellon University Libraries conducted a Library Web User Survey in March 2001 to generate information that would support the redesign of the Library’s web site. Provided as an electronic as well as paper and pencil survey, the survey totaled 367 eligible responses.

The results of the Web User Survey, though indicating no major problems, suggested that a revision was in order. The problems indicated by the responses focused on the front-page layout, locating information and navigating the site, and the Cameo search engine and interface. Respondents also requested the addition of new features and links. Recommendations for redesign efforts would emphasize reorganizing and re-labeling links, featuring the reference and student services links on the home page; providing a global navigation bar and footer; providing a logical movement through the site; providing a site map; improving the functionality of the “Search this Site” link; increasing the visibility of the online librarian assistance; creating a simple, uncluttered, visually pleasing design; and adding some of the new features and links that have been suggested by users.

Introduction

Background. The services provided by academic libraries have extended well beyond those offered at an on-site facility. With the number of online journals, books, materials, services, and search options continuing to increase, offsite use increases. Over 60% of students at Carnegie Mellon are conducting their research in areas outside the library. The web site has become a significant aspect of the libraries and the services they provide. Therefore, the design, usability, and functionality of the web site are critical if the libraries are to continue providing essential services to its patrons in a timely and efficient manner. For this reason the Carnegie Mellon University Libraries are currently reviewing the design of the web site and seeking feedback that can provide a basis for improving the site to meet the needs of the patrons. Though a number of different methods will be used in the process of redesigning the site, this study focuses on a preliminary survey to determine the general strengths and limitations of the current web site to support redesign decisions. The goal of the survey was to generate information about reasons for use, navigation, visual elements, search options, databases, usability and functionality.

The survey. The survey was self-administered as a paper and pencil design and an electronic version was available via the Libraries’ web site. As an incentive, a $50 Cash Drawing was offered to participants. Participants were self-selected from a pool of all Carnegie Mellon students, staff, and faculty members. It was reasoned that by making the survey available both on-site and via the web site, the survey respondents would be those most likely to use both the libraries’ resources and the web site, therefore most likely to provide the most relevant and useful feedback.

The survey consisted of 21 items. Four items were multiple choice and used to collect information that described users. Sixteen items used a five-point scale rating reasons for use, navigation, visual elements, search options, databases, usability and functionality. A final item was open-ended and provided the opportunity for participants to offer suggestions. Of the 367 eligible surveys, 90% were electronically entered.

Participants

Over 80% of participants were students, almost evenly represented by undergraduate students and graduate students, as shown in Figure 1. This is probably consistent with the users of the web site. It is important to design a site that is relevant to the research interests of the graduate and undergraduate students. It is also important that further usability studies evenly focus on these two groups, though interests of staff and faculty, also represented in this study, should also be included.
Frequency of access. Over 78% of the participants visited the site frequently, either daily or weekly as shown in Figure 2. Over half of the participants used the site on a weekly basis. Looking at the user groups, undergraduates visited the site slightly more than weekly, while faculty/staff were the least frequent visitors, slightly less than weekly. Though it will be necessary to provide easy access for infrequent users or newly incoming students, the site must also be applicable to continual use by providing a means of getting to the most used links quickly. Frequent users will have time to become familiar with favorite links. A site designed only for infrequent users can become boring and even annoying to more frequent users who might prefer some of the shortcuts to familiar sites.

In the last six months how frequently have you visited the Library’s web site?

Accessing the Site

Browser. Nearly all participants (99%) reported using Internet Explorer, Netscape or both to access the site. Slightly more reported using Internet Explorer (42%) than those using Netscape (33%). About 24% reported using both. Development language and conventions should be consistent with both browsers to enable consistent visual and textual display for the majority of users.

How did you find the site?

Finding the site. Over half responded that they found the site using the Carnegie Mellon University Home Page (Figure 3). This is interesting because the Libraries’ web site is not a direct link on the Carnegie Mellon home page. Respondents had to use the search option or one of the other links to locate the Library site. This might be a good argument for adding a direct link on the University’s home page for the Libraries. Not surprisingly, the second most frequently used method was a Library Workstation (24%). The University Libraries have an icon on the screens at each workstation. The other 25% reported finding out about the site from staff, faculty, word of mouth, handouts, orientation, workshops, and classes.

Table 1: Frequency of Use for Site Areas

<table>
<thead>
<tr>
<th>Use the web site for...</th>
<th>Rating Scale 1 to 5 with 5 as the highest rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use the web site for reference</td>
<td>4.26</td>
</tr>
<tr>
<td>Use the web site for information about services</td>
<td>2.99</td>
</tr>
<tr>
<td>Use the web site for libraries’ hours, etc.</td>
<td>1.85</td>
</tr>
<tr>
<td>Use the web site for information about staff, etc.</td>
<td>1.78</td>
</tr>
<tr>
<td>Total participants – 367</td>
<td></td>
</tr>
</tbody>
</table>

Frequency of use for the site areas

Four items rated which areas of the web site had the most use. The current Library Home Page has four main sections: 1. Resources includes links to the Library’s online catalog and other reference links; 2. Services includes links to the Library’s interlibrary loan, tutorials and other services; 3. Information includes links to “What’s New”, library hours, etc.; and 4. Organization includes links about staff, the library organization, etc. Though all of this information might be important to include on the web site, the responses
from these items can help to determine the emphasis on links, sometimes established by positioning, color or font size. Table 1 shows the average of the responses for each of the main areas of the site. The reference area, with an average rating above 4 (5 point scale), is used most frequently.

**For accessing library catalogs, reference materials, full-text journals...**

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Undergrads</th>
<th>Graduates</th>
<th>Faculty/Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>4.3</td>
<td>3.8</td>
<td>4.7</td>
<td>4.6</td>
</tr>
<tr>
<td>Total responses</td>
<td>364</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 4*

**Reference links.** Over 80% reported using the reference areas at above average rates, while nearly 60% reported using them very often (Figure 4). Referred to on the current web site as **Resources**, this section includes links to the Libraries' online catalog to library materials, the databases, and the full-text journals and newspapers. Undergraduate students accessed these areas slightly less than other user groups though they still indicated frequent use. Graduate students reported the most frequent use. Responses indicated that the reference links should have the greatest emphasis on the front page.

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Undergrads</th>
<th>Graduates</th>
<th>Faculty/Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>4.0</td>
<td>2.8</td>
<td>5.2</td>
<td>5.0</td>
</tr>
<tr>
<td>Total responses</td>
<td>355</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 5*

**Services links.** Only 32% reported using the services section at above average rates, considerably less than the references (Figure 5). Over 60% reported visiting this section at average or above average rates. This section includes links to information about services such as reference, borrowing, reserves, tutorials, access to the Libraries' interlibrary loan and journal article delivery, and others. Again, graduate students accessed this section most frequently, slightly above average in frequency. These ratings indicate slightly less emphasis on the web site for the services links.

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Undergrads</th>
<th>Graduates</th>
<th>Faculty/Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>1.9</td>
<td>1.8</td>
<td>1.9</td>
<td>2.1</td>
</tr>
<tr>
<td>Total responses</td>
<td>340</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 6*
**Information and Organization links.**

Approximately half of the respondents reported that they used the two other areas, Information and Organization almost never (Figures 6 and 7). These sections include links to such information as the Libraries’ hours, job opportunities, copyright information, archives, and the staff directory, and they’re not directly related to library reference services. Though the links might be an important part of a web site, they’re visited infrequently. The web designer might want to consider treating these links with less emphasis by using positioning or font size or include as secondary links on other pages in the site.

**For information about staff, archives, the Carnegie Mellon Libraries…**

**Table 1**

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Undergrads</th>
<th>Graduates</th>
<th>Faculty/Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>1.8</td>
<td>1.6</td>
<td>1.9</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Total responses = 322

**Figure 7**

**Value of the information**

While the four items previously discussed determined which areas had the most frequent use, the next two items rated the quality of the information available on the site and how well the site supports the research of respondents. Responses on both items indicated an above average level of usefulness.

**Table 2**

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Undergrads</th>
<th>Graduates</th>
<th>Faculty/Staff</th>
<th>Occasional Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>4.2</td>
<td>4.0</td>
<td>4.5</td>
<td>4.5</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Total responses = 362

**Figure 8**

**Usefulness of information.** Over 80% responded that the information is above average in usefulness and above average in its ability to support research (Figures 8 and 9). These ratings are strong support for the value of the information, however, the group of occasional users responded with a slightly lower rating than other user groups on both items. They might be unaware of all of the information that is available on the site. Frequent users might have had more opportunity to explore the site and find information more appropriate to their needs and useful for their research. Further user testing would be necessary and interesting to determine how much or what information is being described and what information sources are actually being utilized.

**How useful is the web site for your research?**

**Figure 9**
**Links.** Links to outside information were also rated by more than half of the respondents (54%) as above average (Figure 10). Though very few respondents rated this item as below average (11%), about 35% rated it average. The ratings fluctuated slightly among user groups, with the lowest rating from occasional users. The results might indicate consideration in evaluating the current links that are provided and looking into providing additional links for outside information. Only about 15% responded that it was “not applicable” suggesting that the links are being used, though the lower rating from occasional users might indicate that they haven’t yet had the opportunity to explore available links. Again, further testing would help determine which links are most valuable.

![Figure 10](image-url)

<table>
<thead>
<tr>
<th>Links to outside information are</th>
<th>Poor</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>3%</td>
<td>8%</td>
<td>35%</td>
<td>34%</td>
<td>20%</td>
</tr>
</tbody>
</table>

**Presentation – textual and display**

The manner in which the information is presented can affect the site's usability. The next two items were designed to rate the presentation of the information. Participants were asked to rate the vocabulary and also the visual display.

**Vocabulary.** Approximately 80% of the respondents rated the vocabulary as above average in clarity (Figure 11); over 40% rated the vocabulary as “very clear”. The results were fairly consistent among the user groups including the occasional users. No apparent problems are indicated for the respondents in the survey; however these results should be interpreted cautiously.

Vocabulary should not be confused with labeling or category headings. Some users indicated some confusion about the labeling, for example they said:

- “Provide short descriptions as to what links do when it’s not immediately obvious from the title”
- “Some of the terms used are too close in meaning to others. It’s hard to keep them straight.”

To further rate the vocabulary and labeling, individual interviews or user tests with participants who are less familiar with the current web site can help to identify specific problems areas.

**Visual Appeal.** Only 40% of the respondents rated the visual appeal of the site as above average while approximately 60% rated it at the average or below average level (Figure 12). The results were fairly consistent among user groups with the average rating fluctuating around the midpoint (average appeal). Though no serious problems are indicated, only 21% rated it as below average in visual appeal, the ratings indicate that the front page might benefit from revision that focuses on a simple, clear, uncluttered design. Strong consideration should be given to reducing the number of links. For example, many respondents commented that it was too cluttered and poorly organized saying, “[I] don’t think a more interactive, fancier web page is more helpful than a simple but reliable one.”

![Figure 11](image-url)

<table>
<thead>
<tr>
<th>Visual Appeal</th>
<th>All</th>
<th>Undergrads</th>
<th>Graduates</th>
<th>Faculty/Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>4.2</td>
<td>4.1</td>
<td>4.5</td>
<td>3.9</td>
</tr>
<tr>
<td>Total responses</td>
<td>363</td>
<td>(5.6)</td>
<td>(5.5)</td>
<td>(5.7)</td>
</tr>
<tr>
<td>Total responses</td>
<td>310</td>
<td>(5.8)</td>
<td>(3.8)</td>
<td>(3.5)</td>
</tr>
</tbody>
</table>

**Figure 11**
Finding information on the site

**Finding information.** The majority (64%) rated finding information on the site as above average, though only 17% rated it as “very easy” (Figure 13). Though less than 12% felt that it was either “very difficult” or “below average”, most of the respondents were frequent users of the site. The responses by the occasional users are slightly lower than for other user groups. Users who are less familiar with the site and first time users might have more difficulty. Many comments indicated that users are having trouble finding information:

“there is just too much information and one becomes really frustrated to think where to start from”

“Frequently I find myself looking for something in a wrong place…”

Navigating Though the majority (55%) rated navigating through the site as above average, nearly half rated this item as average or below average (Figure 14). Respondents seem to be having a little more trouble “determining where I have been and where I can go”. The rating for occasional users was slightly lower. Ratings and comments suggest that revision efforts focus on improving the navigation:

“Links do not interact well within the site, therefore making it difficult to navigate and find information.”

“I’m also not always able to go back to the pages where I began an initial search, I get stuck in a loop…”
Search. Only 38% of respondents rated “Search This Site” as above average in usefulness (Figure 15). The average for user responses hovered around the midpoint. This was consistent across all user groups. An almost equal proportion rated this item as below average. These ratings indicate that if the “Search this Site” option is to be useful, it will have to be revised. Also important is that approximately 30% rated this item as “not applicable.” This could indicate either that respondents chose not to use this “search” option or were not aware the option was available. Again further testing could provide some insight, but consideration must be given to making it more visible and more useful. One option is to provide a site map to improve the user’s ability to find information. These sentiments were echoed by some of the respondent's comments, “…it would be helpful if there was a small site map explaining where to go for what.”

“Ask a Librarian”

The Library web site provides an option called “Ask a Librarian.” This option provides an opportunity for patrons to receive help from a Carnegie Mellon librarian using the “real-time” chat service or by sending an email to a librarian. One item rated how well users could find the option and the second item rated the usefulness of the service.

Finding assistance. Approximately 48% rated “Finding librarian assistance” as above average in level simplicity (Figure 16). Respondents seem to be having more trouble finding this option than in using the service. The average of all responses was closer to the mid range. This rating fluctuated among user groups with faculty/staff and graduates’ responses slightly above the group of occasional users. Apparently it is more difficult for inexperienced users to find. Many users failed to rate this item. These ratings strongly suggest that users might not be aware of this service and the “Ask a Librarian” option might be more useful if it were more visible on the web site and easier to find.
**Finding librarian assistance on the Web site**

<table>
<thead>
<tr>
<th></th>
<th>Very Difficult</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Very Easy</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>3%</td>
<td>16%</td>
<td>33%</td>
<td>30%</td>
<td>18%</td>
</tr>
</tbody>
</table>
| Total responses = 205

**Total responses = 205**

**Figure 16**

"Ask a Librarian". Approximately 61% rated the "Ask a Librarian" option as above average in usefulness (Figure 17). Most users reported that this option is useful or very useful, occasional users rated the item somewhat lower. More significantly, over half of participants failed to rate this service. This can indicate that they're not aware that it is available or that they don't know exactly what services are provided.

**Providing an interactive Web page**

<table>
<thead>
<tr>
<th></th>
<th>Not Desirable</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Highly Desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>11%</td>
<td>9%</td>
<td>29%</td>
<td>24%</td>
<td>27%</td>
</tr>
</tbody>
</table>
| Total responses = 324

**Figure 18**

**Librarian assistance on the web site**

<table>
<thead>
<tr>
<th></th>
<th>Not Useful</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Very Useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>3%</td>
<td>6%</td>
<td>30%</td>
<td>33%</td>
<td>28%</td>
</tr>
</tbody>
</table>
| Total responses = 172 (475 of participants)

**Figure 17**

**Providing a version of the Web site for specific user groups**

<table>
<thead>
<tr>
<th></th>
<th>Not Desirable</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Highly Desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>14%</td>
<td>13%</td>
<td>25%</td>
<td>26%</td>
<td>23%</td>
</tr>
</tbody>
</table>
| Total responses = 337

**Figure 19**

Customizing the site

Approximately half of respondents expressed an above average interest in the option to customize or personalize the site (Figures 18 and 19). Two items asked participants to rate their interest in some form of customization of the site. The first item asked about providing an option for users to customize a web page with preferred links, while the second focused on providing a site that is designed for specific user groups. Though respondents seemed to be indicating some interest in customization, these results, should be interpreted with caution because the descriptions are general. Specific designs for personalization would be determined useful and desirable only after additional testing of specific design options.
Suggestions

The final open-ended item provided an opportunity for participants to offer suggestions and comments. These are categorized based on key areas that are summarized in Table 2. All of the feedback generated through the suggestions, of course, should be considered in the context of the whole system. Some are the opinions of a few and might not represent the views of the majority. Some, however, are repeated often and would be important considerations for a redesign effort. These key areas are summarized below.

Table 2: Suggestions - Library Web User Survey
Total respondents – 130 or 35% of participants
Total response areas – 180

<table>
<thead>
<tr>
<th>Area</th>
<th>Number</th>
<th>Percent</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cameo</td>
<td>32</td>
<td>18%</td>
<td>Cameo - Library’s online catalog</td>
</tr>
<tr>
<td>Front page</td>
<td>26</td>
<td>14%</td>
<td>Links, labels, layout, organization</td>
</tr>
<tr>
<td>Finding information</td>
<td>25</td>
<td>14%</td>
<td>Finding information, navigating</td>
</tr>
<tr>
<td>Satisfied</td>
<td>18</td>
<td>10%</td>
<td>What they like about the site</td>
</tr>
<tr>
<td>New features</td>
<td>18</td>
<td>10%</td>
<td>New options, features and links</td>
</tr>
<tr>
<td>Journals, databases</td>
<td>14</td>
<td>8%</td>
<td>Searching, listing, and descriptions</td>
</tr>
<tr>
<td>Collections</td>
<td>12</td>
<td>7%</td>
<td>New materials and online collections</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>12</td>
<td>7%</td>
<td>A assortment of suggestions</td>
</tr>
<tr>
<td>ILLiad</td>
<td>9</td>
<td>5%</td>
<td>Library’s inter library loan service</td>
</tr>
<tr>
<td>Links</td>
<td>5</td>
<td>3%</td>
<td>New links</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>5</td>
<td>3%</td>
<td>More visually pleasing</td>
</tr>
<tr>
<td>Technical</td>
<td>4</td>
<td>2%</td>
<td>Technical suggestions</td>
</tr>
<tr>
<td>Total</td>
<td>180</td>
<td>101%</td>
<td></td>
</tr>
</tbody>
</table>

*Will not sum to 100% due to rounding error.

Front Page and Finding/Navigating

As mentioned previously in this report, a few areas received a great deal of attention from respondents. About 28% of comments were about the design of the front page, finding information, and navigating. All relate to similar problems. Respondents expressed difficulty moving from the front page to a location in the web site that has the information that they want and also moving within the site. Many of the comments referred to the multitude of links and the difficulty in understanding their meaning. And others commented on the difficulty of moving through the web site from one page to another and still being aware of where they are and how to get back.

Cameo, the online catalog

The online catalog to the Library’s holdings, Cameo, received a great deal of attention from the pool of suggestions. Respondents expressed frustration with several aspects of the catalog including the search engine, the interface and results list, and requested new features. Most of the attention (22 responses) was focused on the Cameo search engine with criticisms about the lack of appropriate results, inability to do Boolean searches, and poor operation of the search engine, even though some of these options are currently available. For example, comments included:

“I often finding myself struggling to find even books I know the authors and titles for!”

“Searching for books should be made less confusing. I should be able to use Boolean searches.”

They commented that the terminology was difficult to understand and requested options to change the number and display of results.

Satisfied with the site

About 10% of the comments expressed satisfaction with the site as it is. These are users who know how to navigate the system and find what they want.

“I am impressed with the plethora of electronic resources available on the website…”

“I also find the ‘ask a librarian’ feature intriguing…”

Of course everyone has their favorites.

“I love the Hunt! The Third Floor Librarians are superstars (Gloria and Geraldine).”

New features

Approximately 10% had suggestions for new features, options, or links to include in the web site. Some suggested including options to customize their space, adding a place for suggestions on the web site, adding abstracts of books, adding a materials request page. They also wanted some additional links such as to other top colleges, for feedback/suggestions, and a link from Carnegie Mellon home page to the web site.

“…create a material request page for books/cds/whatever…”

“Group sites for business school students (company research).”

Online database, full-text materials

Many requested more online databases and easier access to those available. Some requested the ability to
search over several online catalogs. They also requested better access to a list of those available and better definitions or descriptions of databases.

"More full-text articles online…"

"I would like the library to subscribe to better biography index-type databases."

"Simple, short description of each of the databases for searching articles."

**Other feedback**

In addition to making some suggestions for improving Iliad, respondents requested better feedback regarding requests, a more user-friendly system, and faster responses. Some comments referred to technical difficulties, problems with web availability, use of databases at home, and browser defaults. Some suggested making it more aesthetically pleasing by using more color and graphics. Additional miscellaneous feedback included some of the following comments.

"More training to students, ideally without using class time."

"Continue to work with HCI, MAPW, and/or Design classes to evaluate and improve site."

"Improve the login processing for book renew"

**Recommendations**

Many of the following recommendations relate to several different categories; for example, "consistency in design and labeling" listed under front page is also an aid to navigation. These will be listed in only one category, however. Many of the suggestions listed below are consistent with the principles of Jakob Nielsen.

**Recommendation: Prototype**

Design a prototype and focus on an iterative process of development with user testing that evenly consists of undergraduates and graduates with minor representation from faculty/staff. Include inexperienced users.

**Recommendations: Front page – visual appeal**

- Focus on a redesign that is simple, uncluttered and contributes to a clearly functioning site.
- Focus on student interests with links in reference areas and student services emphasized.
- Treat the "Information" and "Organizations" areas with less emphasis (smaller font, less prominent on the page) or eliminate links from the front page.
- Use colors effectively and consistently in the navigation bar and footer throughout the site as well as with the links and labels. Use colors, fonts and positioning to draw attention to areas or information on the page.
- Use a consistency in design, labels, and buttons throughout the site to provide a cohesive site that is both visually pleasing and easier to navigate.

**Recommendations: Finding information**

- Reorganize and re-categorize the links on the home page. To create a simpler design, links can be limited to major categories of frequently used areas related to reference and services and create secondary links as subdivisions for other links (information and organization) or included but with less emphasis (smaller font, less prominent part of the page).
- Reevaluate the labels to make them clearer using vocabulary consistent with user's own. Group by content.
- Continue user testing regarding the organization of the links and the labeling.
- Provide a global navigation bar and footer for a more cohesive look and feel to the site and to ensure that users can always get "home" and avoid "getting caught in a loop."
- Provide a site map displaying an overview of what information is available.
- Improve the functionality of the "Search This Site" option.
- Make the Librarian Assistance, "Ask a Librarian" link available at all areas of the site preferably on the navigation bar and more prominently displayed.

**Recommendations: Cameo search and interfaces**

- The Library might have little, if any, ability to change the catalog's search engine. However, other methods might prove helpful. Librarians currently recommend search terms words, and offer advice on how to find information in workshops and online. To make this service better known and available, it might be helpful if the "Ask a Librarian" feature were easily accessible on the Cameo interface with new labeling e.g. "Need Help With a Search."
- Examples of Boolean searches might be included on the Search interface.
- The "help" section might also include definitions of terminology used in the bibliographic descriptions and some clues as to how to find the materials that are desired.
- Continue to focus on using the search options in workshops.
Recommendations: New features

• Add links that were suggested by respondents when possible e.g., suggestions for new databases, books, or materials; top colleges; materials request page; feedback/suggestions; group sites for business school students.

• Provide a dedicated space on the front page for “What’s New” features.

• Provide an email feature that alerts users to new information or features. This might operate something like a brief newsletter or bulletin of new features, books, links, or even feature services that the site already offers, but might be little known.

Recommendations: Online database, full-text materials

• Increase the number of online databases and full-text materials.

• Make available databases more obvious to users and easier to find by using color and font size to subject headings.

• Provide a list of available journals in addition to using Cameo to search for materials.

• Though descriptions for journals are available, they require an additional click to access. Providing short descriptions with a “more” button where necessary would place the information on the same page.

• By making the “Ask a Librarian” option more readily available, librarian help would be more accessible and questions regarding the Library’s collection and resources easier to ask and answer.

Recommendations: Customization

Consider a form of customization or personalization for the site and test with users.

Conclusion

In general the survey revealed no major problems with the Library web site. However many ratings, which were often in the average to slightly above average range, and feedback indicated that the site would benefit from a redesign or revision. The major problems indicated by the responses suggested that users a.) had difficulty finding information; b.) had difficulty navigating the site; c.) preferred a visually pleasing site; d.) had difficulty using the Cameo search engine and interfaces and e.) wanted new features and links.

Recommendations for focusing revision efforts would emphasize a.) reorganizing and re-labeling links and terminology; b.) emphasis on the reference and student services links on the home page; c.) providing a global navigation bar and footer; d.) providing a logical movement through the site; e.) providing a site map, increasing visibility and improving the functionality of the “search this site” link; f.) improving the access to the “Ask a Librarian” link; g.) creating a simple, uncluttered, visually pleasing design and h.) adding new features and links that have been suggested by users.

References


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Introduction

The environments in which libraries operate are under the constant pressure of change. On the technology front, emphasis increasingly is centred on providing effective services, instead of just selling more products. The Internet is growing fast, and the wireless environment is exploding. The amount of digital information available is increasing even faster and the need to have better access to this information glut is of strategic importance to society. Customers are expecting more control on how they access and use information. Customers want simplicity and easy access to services and information. One response to this need is that portals (Lakos, 2001), which are emerging as transformational applications, are becoming the environment of choice for delivery and access to information.

Libraries have to deal with external funding agencies, accreditation agencies and governments who want to make sure that outcomes are positive and measurable. Increasingly they are dictating the measures they want to see and they tie outcomes to funding.

The question posed in this paper is: what is the essence of culture of assessment and can it influence the culture of libraries, can it contribute to a culture change?

In the ‘Choosing Our Future’ (Stoffle, et al, 1996, pp. 213-225) article in 1996, Carla Stoffle, Robert Renaud and Jerilyn Veldof predicted that libraries have to take present and future changes seriously in order to stay viable and true to their mandates of ensuring equitable access to information and in order to deliver services that are needed by library users and citizens. The article emphasized the need to ‘studying processes and using process improvement tools…collect data and use them as the basis for decision-making …benchmarking costs and processes…need to look at customer needs…focus on education, knowledge management, assessment, connection development.” (Stoffle, et al, 1996, pp. 220-222) This situation continues to be true today and change pressures are mounting in intensity and the rate of change is not letting up.

As we live in an information environment dominated increasingly by the Internet, we have to understand that it is primarily a communication environment. All organizations and businesses are busy rediscovering and reinventing themselves and adapting themselves around the potentials and the pitfalls of the Internet. The Internet opens tremendous and until now inconceivable possibilities and it enables the creation of communities of interest. Librarians have to realize that they are in the information business rather than in the library business. They have to adjust, re-evaluate their core services, and change their perspective and purpose. Libraries have to rediscover and re-imagine themselves in order to stay relevant or fade. In order to change successfully, libraries have to change their systems, processes, but mainly their organizational cultures. To do this, they have to measure – they have to know why, what, how and for whom.

In this environment, libraries need to be nimble, innovative, responsive, pro-active and willing to change. To be able to deliver on these challenges, libraries have to be able to measure their outcomes effectively and systematically and to make decisions based on data, assessment and customer feedback.

Libraries have to transform themselves into organizations that support the values of quality and quality management (Brophy & Couling, 1996). This also means that libraries should build organizations that support learning. (Senge, 1994) Libraries that focus on customer needs increase their ability to provide quality service to their customers. By concentrating on their ability to learn and create solutions, the learning organization “is continually enhancing its capacity to create its future.” (Senge, 1990) Libraries have to create environments that enable successful assessment and the implementation of results based on these assessments. In other words, libraries need to create organizational cultures that are focused on effective outcomes for customers. The culture change needed will be greatly enhanced by the adoption of a culture of assessment (Lakos, 1999).

How do we create a culture of assessment? What hinders and what helps us in this endeavor? Most management studies stress the importance of measurement activities for ensuring business and organizational success.

What are the criteria for successful organizations?

A Canadian study that examines the attitudes of senior executives of large Canadian companies on their views about critical factors needed to create and sustain wealth, found that the three most important factors contributing to business success are (1) managerial leadership and vision, (2) customer service and
(3) skilled and motivated employees. The study (Armitage, 1999) found that the principal components of managerial leadership include clarity of purpose, the ability to communicate the purpose, creating a positive working environment and careful measurement of results. Further, good customer service is built on management commitment, relationship development (working with the customers), customer service training, “walking the walk” (accepting responsibility) and measuring results (through customer surveys, customer retention rate, etc). Employee skill-set and motivation are related to the organizational culture which includes management vision, teamwork, measuring results including performance and rewarding performance.

Three themes kept appearing in this analysis. First, understanding what matters to an organization means clarity of purpose, management vision and the ability to plan for the organization’s future success. Second, it is the importance of communicating what matters. Third, measuring what matters, which also includes benchmarking, is viewed as a strategic need in all aspects of organizational success.

The importance of measurement has a number of implications. Modern organizations are attempting to link hard financial measures with such aspects of decision-making as vision and leadership. This means that organizations are moving toward measures of outcome and measures of process effectiveness. The study also observed an increase in the importance of measures of customer satisfaction, employee turnover and process improvement, which are consistent with looking at organizations from a multi-stakeholder perspective and the importance of the balanced scorecard approach to performance measurement developed by Kaplan & Norton. (Kaplan & Norton, 1996). Another implication is the realization that what gets measured gets managed. The study emphasizes that creating value lies in understanding, communicating and measuring what matters to the organization, and although these elements are self-evident, implementing them is what makes for successful organizations. (Armitage & Jog, 1999).

In addition to measuring as a strategic prerequisite for success, a number of researchers have identified organizational culture as a prerequisite for survival in times of radical change. Organizations that are not cognizant of the importance of their culture and that do not pay attention to the power of organizational culture when undertaking various change initiatives may find themselves failing. Businesses that thrive over long time periods are differentiated by their culture. “The major distinguishing feature in these companies, their most important competitive advantage, the most powerful factor they all highlight as a key ingredient in their success, is their organizational culture.” (Cameron & Quinn, 1999) It is important that in times of fundamental change, organizations pay particular attention to their culture, as the success of change is very much dependent on the management of cultural transformation. (Martin, 1995)

What is Organizational Culture and Why Does it Matter?

Organizational culture is important because initiatives and changes undertaken without its consideration often have unforeseen consequences, and usually negative ones from the perspective of effectiveness. Culture matters because it is a “powerful, latent, and often unconscious set of forces that determine both individual and collective behaviour, ways of perceiving, thought patterns, and values…cultural elements determine strategy, goals and modes of operating” (Schein, 1999). Leaders’ and managers’ patterns of thought and activities are often determined by culture.

Organizational culture focuses on beliefs, values and meanings used by members of an organization, and the practices and behaviours that exemplify and reinforce them. Researchers, consultants and managers have gravitated to the concept of culture in order to better grasp why and how organizations originate, evolve and operate. Culture is not simple. It is tempting to think about culture as just “the way we do things here,” “the rites and rituals of the company,” “the company climate,” “the reward system” or “our basic values.” These are all manifestations of culture, but not at the level where culture really matters. A better way to think about it is to realize that it exists at several levels and we need to understand the deeper ones.

Organizational culture refers to the overt and covert rules, values and principles an organization owns and that is influenced by history, custom and practices. These are an enduring set of tenets and norms that form the basis of a social system and allow the members to attribute value and meaning to the external and internal events they experience. The essence of culture is the values, beliefs and assumptions that over time become shared and taken for granted. This results from a joint learning process.

Organizational culture is stable, difficult to change, and represents the accumulated learning of a group. The important parts of culture are essentially invisible. Culture is the shared mental model that the members of an organization hold and take for granted. Culture is difficult to decipher for insiders. There is no right or wrong culture, except in relation to what the organization wants to achieve. The relative strength of an organization culture is dependent on how well the group deals with external adaptation and internal integration (Schein, 1984). In essence, the organization needs to pay attention to its survival as an organization and to the systems it uses to do what it has to do in order to deliver its products and services in such a way that it ensures its ability to survive and succeed.
The Need for Transforming Institutional Cultures

Educational reform in higher education has increasingly focused on the need to transform institutional cultures. In the public libraries area, competition is increasing for information not only from the Internet. Giant bookshops are providing strong alternatives to traditional public library services. Municipalities, themselves under constant financial and social pressures are closely evaluating their services and are demanding measurable value and outcomes. The same is true for corporate libraries as well as for government libraries. Libraries of all stripes need to prove their value to their stakeholders, customers and funders.

Legislators emphasize accountability to particular societal needs, and educators emphasize improving particular forms of student learning. In educational institutions at all levels there is also general agreement on the need to foster collaboration in achieving institutional missions and that this requires a culture of improvement. Assessment within institutions is generally seen as a key lever for creating an institutional culture of improvement, inquiry, responsibility, and (in the language of some circles) quality. For example, regional accreditation agencies in the U.S. are emphasizing student learning outcomes and using assessment for improvement. What kind of assessment fosters a culture of collaborative inquiry into student learning outcomes? How will the roles, commitments, and identities of faculty and staff formed in one culture be appreciated or changed as part of the process of transforming culture? What is most needed to achieve a transformation of institutional culture that achieves our shared and diverse purposes?

If we focus on the higher education environment and the role of the library in fostering the educational role of an institution, we have to examine some of the following issues:

- Where does the institution focus its efforts and resources to make the most effective transformation to a culture of assessment?
- What are the characteristics of leadership that bring about the transformation toward a culture of assessment?
- How do we sustain a culture of assessment over time?
- How can we balance assessment that stresses collaboration with the one-on-one nature of student and faculty relationship? How can we balance the tension between collaboration and one-on-one approaches?
- How do we transform a traditional research culture so that it also values scholarship of assessment?
- What steps are necessary to keep the focus on student learning outcomes?
- How is institutional culture formed/shaped/changed? Who sets the norms and the constructs that define institutional culture? Who are the drivers/definers of culture in an institution? How do internal and external forces affect culture?
- Given increasing globalization, where can we make international comparisons of assessment approaches? (AAHE Research Forum 2001).

Libraries, Librarians and Culture of Assessment

The challenge associated with making assessment more influential in libraries is an amalgamation of the librarian profession’s set of values and the parent organization’s value set. A profession that sees itself as “doing good” is less concerned with outcomes and impacts, since it sees its activities as inherently positive. Assessment activities also require a certain skill set, which has not been readily available to the profession. The evolution of library activities into functional silos such as circulation, cataloguing, acquisition, reference service, imposed an organizational structure that assigned to the periphery the activities concerned with data, planning, surveys, etc. To change, libraries have to incorporate assessment into their everyday activities, they have to create structures for assessment activities and use these measures to create environments that are effective and truly client centred.

Libraries have to be more efficient and effective. They have to be managed well. This implies better decision-making, the capability and willingness to prioritise scarce resources, both human and material, and to be accountable for the use of those resources. It is imperative that they establish and institutionalize planning processes in order to foster an environment of assessment. To focus on client needs, libraries must base their services on the expressed needs and requirements of their clientele, to deliver high quality service and to find ways to ensure service quality. The focus on results, on outcomes, on added value is essential. These are the prerequisites for creating a culture of assessment.

Defining a “Culture of Assessment”

“A Culture of Assessment is an organizational environment in which decisions are based on facts, research and analysis, and where services are planned and delivered in ways that maximize positive outcomes and impacts for customers and stakeholders. A Culture of Assessment exists in organizations where staff care to know what results they produce and how those results relate to customers’ expectations. Organizational mission, values, structures, and systems support behavior that is performance and learning focused.” (Lakos, Phipps & Wilson, 1998-2000)

A Culture of Assessment Exists When:
The library needs to be externally focused. The focus has to be on delivering value to customers. In libraries,
the purpose is defined on creating learning and research outcomes for the customers, listening to the voice of the customer and closing the decision-making loop in the library’s processes to create outcomes that are needed and measurable.

- The library’s mission, planning, and policies are focused on supporting the customer’s information and communication needs.

The formal documents, which define what the library is about (mission or vision), explicitly identify the need for customer focus. These measures are incorporated into the various organizational policies, so that they actually support the purpose and the mission. Libraries have to pay attention to the parent institutions’ culture, the academic culture itself which may be conservative and inward looking; the organization’s structure may be rigid and not ready for experiments; the power relationships between university departments and faculties may inhibit or slow down change; the faculty culture and reward system may be a challenge; existing employment policies and reward systems may be difficult to change. All these have direct effect on the culture of the library. The limits of what is possible are very much determined by the parent institution.

- Performance measures are included in library planning documents such as strategic plans.

There exists a planning framework that identifies exact and explicit targets to achieve the organizational purpose. The planning document identifies specific performance measures to achieve. The plans identify certain level of service that have to be achieved and also identifies schedules for achieving these levels of service. These measures have to be spelled out and be measurable.

- Library administrators are committed to supporting assessment.

Library executives have to be visibly and continuously committed to assessment work. They have to understand the importance of assessment to the success of the organization. Lack of leadership will stop any meaningful change. Leadership is essential for success. Leadership has to be visible, present and credible. If leadership is perceived to be lacking or it is perceived not to walk the talk, it will not be able to support meaningful culture of assessment. Management which is control oriented tends to develop a centralized and authoritarian structure that is not well suited to free exchange of data and information flow which is the lifeblood of an assessment environment. Since assessment may produce unknown results, executives have to support staff, invest in staff and resources as a form of long-term investment.

Leadership also has to continuously articulate the organization’s purpose. Staff needs a strategic framework to do measurements and this has to be linked to the strategic purpose of the organization. This purpose has to be explicit and understood. If this is present, it means that the organization knows where it is going and it can develop measures to achieve it. This will enhance the move to an assessment culture.

Lack of purpose may also translate into lack or insufficient planning. Planning gives a framework of understanding, clarity and direction to assessment and eventually to buy-in.

- Staff and leaders recognize the value of assessment and support and participate in assessment as part of their regular assignments. Individual and organizational responsibility for assessment is addressed explicitly.

The value of assessment is being absorbed both by the leadership and staff. It is continuously explained and celebrated. Assessment is slowly becoming part of the work process. It is becoming part of the normal decision making loop in the organization. Staff and leaders understand that assessment is “normal” work – it is part of each work process. A challenge to overcome is workload, the grind of everyday work, the lack of time for doing anything extra, the amount of time needed for new activities and new services. This factor is especially challenging since so much of the work is changing and may be seen as just more work and more responsibility. Work processes have to be re-evaluated for efficiency and effectiveness. Old processes and services should be phased out in order to focus on what is needed strategically. Since assessment work may be new and unfamiliar, and viewed as risky, risk should be encouraged. In essence risk taking will have to be the norm in libraries.

Assessment work is explained in organizational policies and in process documents. Assessment responsibilities are detailed in organizational structure and plans. Assessment is made part of each person’s individual work assignment and the achievement of his personal work goals.

- Continuous communication with customers is maintained through needs assessment, quality outcome and satisfaction measurements. Relevant data and user feedback is routinely collected, analyzed, and used to set priorities, allocate resources and make decisions.

Structures, resources, plans and processes are in place to continuously communicate with customers about their needs, their expectations and their successes in using library services. Customers...
are made aware of the level of service they should expect and the library measures its service based on expected delivery of service quality. Systems are developed to identify and collect relevant data. Data is analysed and converted into information that is used to set new priorities for service, to allocate resources where they will be best used to further the mission of the institution. Decisions will be made based on evidence and analysis supplied by relevant data.

Support Systems

- A Management Information System or Decision Support System supports assessment.

A Management Information Service is set up in order to support the data and information needs of the organization. Library leaders who possess clearly defined expectations, and understand the need for data and information to support decision making, will support the MIS. The MIS unit will be responsible for the coordination of all assessment activities, identification of information needs, creation of an appropriate environment for organizing data and information, analysis of information and making information available to the processing and management units of the library.

The need for management information systems in libraries was recognised over twenty years ago. One of the earliest and most persistent promoter of the necessity and advantages of MIS in libraries is Charles McClure who wrote about this already in the early 1980s. (McClure, 1980). However, setting up an MIS or a DSS requires awareness, commitment and resources. Current examples of functioning MIS systems in academic libraries are almost nonexistent. Setting up an MIS is not simple, but it will have benefits, especially as demands for accountability are increasing. A MIS will enhance the creation of assessment culture in libraries. In order to sustain quality services, institutions that aspire to be continuously effective and successful have to rely on decision support systems. An example of MIS development is work at the University of Waterloo Library and the Tri-University Library Group Consortia between 1993-1999 (Lakos, 1998) and newer MIS type implementations at the University of Virginia and the University of Pennsylvania Libraries.

- All library services, programs and products are evaluated for quality and impact.

All services are evaluated from the perspective of customer expectations, in order to deliver measurable outcomes and impact for the customer. Special efforts are undertaken to identify appropriate measures of quality and ways to measure them.

Service standards are identified and services and processes are measured against these standards.

It is essential that the value of quality, in particular the focus on delivering service quality be the core value of the library. Understanding and applying this value to every decision and every process should be the basic tenet of the library. Activities and decisions have to be checked against this value constantly. Service quality has to be understood as being based on quality for the customer and the stakeholder and being defined by them. This also means that these quality measures have to be identified and measured and acted on constantly. Implementing service standards may also enhance quality service. In Great Britain (Citizen’s Charter, 1994) and New Zealand and also in the US (National Performance Review, 1994), governments are introducing programmes designed to increase the standards of public service and make them more cost effective. Parts of these initiatives are concerned with being more customer-centred. In the public library field in particular, this led to the introduction of quality service standards and to ways of tracking these standards. Some service standards were also introduced in academic libraries, for example at the University of Sunderland (Aitkins1998) in the U.K., and in the US at Wright State University Libraries (Hernen & Altman, 1996). ARL and Texas A&M are instrumental in developing the LibQual Project that will help libraries understand better the issues associated with service quality and adapting the SERVQUAL instrument to the library environment (ARL LibQual, 2000). At the same time, the ARL/OLMS developed an Online Lyceum Course - Measuring Library Service Quality (ARL/OLMS Online Lyceum, 2000) that is teaching academic librarians the importance of measuring and implementing service quality into their services. These intelligent-ly introduced and imaginatively administered service standards could become enabling tools for the enhancement of assessment activities and increase the acceptance of the value of service quality in academic libraries.

- Staff continuously improve their capability to serve customers and are rewarded for this. Rewards support removing barriers to quality customer service.

Staff is given support and resources to keep up their skills and to keep up their focus on delivering measurable higher quality services. Systems are in place to rewards staff for achieving and surpassing defined quality service standards. Library staff receive feedback from their peers and from their superiors about their achievements and in acquir-
ing new competencies that contribute to achieving them.

A well conceived reward system would contribute to acceptance of performance measurement activities in libraries. This may be a system of praise and recognition or a system of effectiveness rewarded by monetary compensation. Libraries should focus on the effects of incentives on improving the working environment and on the effectiveness of the outcomes.

A visible reward system is developed that recognizes outstanding customer service as its base. There will be correlation between staff rewards and increase in customer satisfaction. Reward systems that are tied to clear organizational goals and expectations will enhance not only individual staff effectiveness, but also help align the organization with their purpose, and enhance the effectiveness of the organization. This issue is of utmost importance in achieving organizational effectiveness.

- Units and staff have customer focused S'M'A'R'T goals which are monitored regularly.

These goals are Specific, Measurable, Attainable, Results-Oriented and Timely. These goals should be developed in conjunction with the strategic purpose of the organization. Developing the goals enhances the understanding of the individual of their purpose and place in the organization and greatly facilitates their buy-in into the assessment process and into aligning their performance to a clearly articulated set of goals and rewards.

- On-going staff development in the area of assessment is provided and supported.

The changes in the information environment point to the need for continuous upgrading of skill sets at all levels of the organization. Without a well-structured learning and training environment, the library will not keep up with new information opportunities and will be less effective. Continuous learning is becoming part of the job of each person. The library has to plan and set up each job to include enough time and opportunity to upgrade skills. Good training programs also boost the confidence level of staff and enable effective execution of change.

Staff development in all areas of assessment is needed. This includes training on appropriate information analysis tools and software as well as continuous skills upgrading in assessment work. Many librarians feel that they lack the technical and computer skills needed, and resist acquiring those skills. Many feel that they lack the skills to use data gathering techniques such as surveys and focus groups. They also are unsure about using statistics.

Professionals hesitate working in areas where they lack knowledge, as this seems to signify lack of confidence. Much assessment is not carried out because staff lacks the confidence to try out new and unfamiliar activities. The skills issue may also be aggravated by a lack of well-organized technical support for non-technical staff. Without this supportive environment, staff's capability to use assessment and analysis tools is derailed.

Opportunities for Creating a Culture of Assessment in Libraries: How Do We Get There and How Do We Create Organizational Cultures That Are Effective?

Introducing a new concept and set of activities such as continuous assessment into an established library environment is difficult. Developing new attitudes in a well established organizational environment is difficult as well. There are built in cultural and personal obstacles to overcome. Some of the more important issues to focus on are:

Leadership with a Clear and Articulated Purpose

The presence of visible leadership cannot be emphasized enough. Leadership is paramount for any organizational culture change to take hold, to be taught to the organization, to be nurtured and sustained over time until it becomes ingrained. This has to be facilitated by well-articulated purpose and vision. Only leadership that understands this, is committed to it and has staying power to guide it through will eventually create a real culture change.

We need to provide superior leadership and leaders. At the same time it needs to be a leadership that has an articulated purpose. The leadership understands the purpose of creating a learning organization, it understands it and it believes in it and articulates it constantly to its staff, to organizational stakeholders and to external customers. In order to change a culture, purpose has to be learned, and learning takes time, repetition and creation of structures and environments that are supported and sustained over time. The culture change has to be also measurable – hence the need for a "culture of assessment", which itself will drive and push the culture change.

The leadership has to be inclusive, support learning and create openness between people. A leadership steeped in culture of control will usually deliver either no change or it will rather reinforce the status quo and the present power structure. A "culture of assessment" stands in contradiction to a "culture of control" and to strong hierarchical relationships that impede change. At the same time we should be aware that changes that strive to create a learning environment and to deliver sustainable service quality cannot be imposed from above. For positive change to take hold, it has to
come from a common vision and articulated purpose that is transmitted well and is in turn understood and embraced by most of the organization.

People have to be empowered for real change to take hold. People need a personal stake in the change. Only then will they embrace change. Change is resisted because it is “not familiar” and is viewed as imposed externally. In order for change to take root, leadership has to create organizational ownership.

Culture of assessment is an environment, a process that encourages learning. Ownership happens by doing and seeing results. As people learn how to do assessment, their confidence increases, they see results, they realize that they are the creators of the new environment and eventually it spreads through the organization.

Create a Systems Thinking Environment – Develop a SIPOC (Suppliers, Input, Processes, Output, Customers) Framework

Creating an assessment environment and the corresponding MIS infrastructure depends on seeing the whole picture, its various components and the links between them. Administration and staff have to be encouraged to look beyond the details. Understanding organizational purpose, seeing the big picture, being customer-centered and understanding the links and interrelations between goals, outcomes, processes and constant change are of primary importance.

Every organization is part of external environments and needs to deal with stakeholders that determine its activities. It is important that members of the library understand in what kind of environment they live, what is the purpose for the library’s existence, who are the customers that need their services and what are the processes needed to deliver value to the customers and stakeholders. How will libraries anticipate where they are going if they are not thinking systematically, if they are not thinking about their customers needs, if they are not organizing their processes for flexibility and innovation. What will happen if their reward systems for staff are out of line with the needs of the stakeholders and the reality of what the changes impose on libraries. Therefore, it is imperative for libraries and librarians to be educated about systems thinking, about dynamic relationships between expectations and inputs, about seeing the big picture, about thinking outside the box. Adopting the framework of SIPOC will enable libraries to create learning environments that understand the need for the feedback loop with customers and appreciate the need for assessment as an everyday, reflective, systematic activity (Scholtes, 1998).

Thinking Strategically and the Balanced Score Card Framework

It has been clear for some time that organizations that know their cultures, that know their purpose and that use well designed performance measurement systems, are more likely to succeed. The relationship between focused performance measurements, driven by organizational strategy and a reward system has been around for a long time. Over twenty years ago Steven Kerr summarized the pitfalls of many organizations whose performance measurement systems rewarded different behaviors than the ones they were hoping to obtain from their employees. (Kerr, 1995) The Balanced Scorecard developed by Robert Kaplan and David Norton (Kaplan & Norton, 1996) describes a strategically oriented set of performance indicators that are grouped into four perspectives: financial, customer, internal processes, and learning and growth. The idea is to link performance measurements to strategy. The balanced scorecard gives managers a framework of integrating and coordinating their activities and linking their strategies to performance metrics and ties them to compensation systems in a meaningful way. This also helps the development of non-financial measures and assigns to them measurable values. Over time, there were many diverse implementation of the balanced scorecard and it was also adapted to the non-profit sector (Epstein 2000). Adapting the balanced scorecard to the library environment is possible and will tie our strategic purposes to our processes and rewards and give a coherent framework to our assessment endeavors.

Openness–Integrity–Trust

Assessment and evaluation work needs open communication. This is usually impossible in an environment of turf wars and personal distrust. Nothing inhibits innovation, creativity, team-building, and a sense of purpose more than lack of trust in an organization. This usually creates a sense of fear that is very difficult to overcome. The result is usually resistance to change. When new ideas are introduced, those are particularly difficult to be accepted and absorbed, especially in an environment of distrust and fear. Management in particular may see no advantages for themselves from any assessment work. Change has to be seen as unavoidable and ultimately personally beneficial.

A culture of assessment cannot develop or succeed in an environment of distrust. Trust can develop only in an environment where divergent positions can be articulated and differences discussed calmly. Open and fearless institutional environment will foster better communication and enhance the success of common values for the achievement of quality outcomes. An environment which is free of distrust will work more efficiently and ultimately more effectively.
Conclusion

Culture of assessment is essential to maintaining libraries as relevant institutions in the new information environment. The culture of assessment pushes the organization forward toward focusing on customers and outcomes for customers. It encourages self-examination and openness between staff, customers and other stakeholders. It becomes embedded in everyday processes and it for dynamic organizational change. This in essence is one of the prerequisites to change that over time becomes accepted and changes the culture of the organization.

A culture of assessment is about learning how to learn. It is about developing the organization’s and the individual’s learning capabilities. It necessitates curiosity. The new competence, experience and learning agility that is part of the creation of a culture of assessment leads to new confidence and enhanced expertise. This is turn lead to more effectiveness and more measurable outcomes and impacts for customers and stakeholders.

Organizational culture change still needs an amalgam of committed leadership, repeated articulation of purpose, time, and group learning to really penetrate the organization and take root. In this way, focus on achieving positive and tangible outcomes assisted by a culture of assessment will contribute to positive organizational culture change, but may not be decisive by itself. Assessment has to become part of the work processes, part of the organizational structure, part of organizational learning and part of the decision-making loop, in order impact the culture and act as a catalyst for organizational change. Culture of assessment has to become a basic value to the organization, it has to become embedded in everyday work, automatic, taken for granted - it has to become our culture.

References


ARL LibQual Project - http://www.arl.org/libqual


The need for data

Both publishers and librarians are discovering that usage statistics are a topic on their agendas for several reasons:

- Librarians depend on publishers and aggregators to provide usage data
- Publisher revenues depend on budgets justified by librarians
- Librarians need this data to:
  - Obtain funding for electronic resources
  - Make internal selection decisions.

With so much information “free on the web” and declining print usage statistics reflecting the shift to electronic resources, librarians need data and new tools to “tell the story.” When electronic journal usage stats are available, they confirm expectations that electronic resources delivered to the desktop are increasingly popular with users.

During the NISO Forum on Performance Measures and Statistics (http://www.niso.org/stats-rpt.html) held in Washington DC in February 2001, librarians acknowledged the need to have access to data they could use to demonstrate how the user is served and how the library supports the institution’s goals. This requires both quantitative data on usage of electronic resources and qualitative data on user satisfaction.

The challenge to define the data

The White Paper on Electronic Journal Usage Statistics published by CLIR (the Council on Library and Information Resources) in October 2000, presents issues on the availability of usage data (http://www.clir.org/pubs/reports/pub94/pub94.pdf). Continued conversations emphasize the need to address the complexities of how the data is processed in order to reach meaningful conclusions about data elements.

The obvious need to reach consensus on the definition of common terms is complicated by the ways in which those activities are counted. For instance, most libraries want to count “sessions” as users without realizing that reports on sessions will vary dramatically if one publisher’s system times out at 20 minutes and another publisher’s system times out at 40 minutes.

Usage data comes from web logs and how this is counted also varies significantly. For instance, if one publisher counts HTML views and PDF downloads and another publisher only PDF downloads, the latter is at a distinct disadvantage. If one publisher screens out dramatic spikes from “robot contamination” and another ignores the spikes, the publisher working to present an accurate picture is at a disadvantage.

So the process of defining data that libraries would find useful is inextricably intertwined with the process of determining the protocols on how the data is collected. This must be an iterative process with librarians and experienced techies involved in the process of selecting and defining terms that represent a meaningful level of activity.

Why is this important?

When we consider how data is used, consistency and reliability are essential to being able to assess trends (comparing data over time) or assess performance (comparing data across institutions).

Data by itself is a meaningless number. It needs a context to put it in perspective. Libraries want to compare:

- this year’s activity with last year’s activity
- their library’s performance with another library’s performance
- journal title usage from one publisher with another publisher

Interpretation is contingent upon data that is produced with the same set of variables. There is growing recognition of the need to create a set of guidelines to produce data that we all can use.
Getting Statistics We Can Use

Judy Luther
Informed Strategies LLC
August 2001

Current Initiatives

- ICOLC – under revision
- NISO Forum
- ARL – eMetrics, LibQUAL
- NCLIS – definitions approved
- JISC/PALS – code of practice
- Elsevier White Paper
- STM – validation and compliance
Council on Libraries & Information Resources

Electronic Journal Usage Statistics
www.clir.org/pubs/reports/pub94/pub94.pdf

- Libraries: Ohiolink, Los Alamos, FCLA
- Publishers: Academic, Elsevier, MCB, IOP
- Aggregators: Jstor, Catchword, Highwire

Challenges - emotional

Fear of statistics
- Unclear what to count
  - User activities
  - Institutional summary
  - Journals/database

- Unclear what it means
  - May use for cancellation
  - Use does not equal value
  - Denominator is the key*
Challenges - functional

- Reliability of data*
  - Caching – how to include
  - Robot contamination
  - Software – how it counts
  - Log files – double clicks, images

- Process for development
  - Learning curve - evolutionary
  - Libraries must depend on publishers
  - What is needed? Possible? Useful?

Shared concerns - data

- Lack of comparable data
  - Varied definitions and implementation
  - Only valid from same platform*

- Lack of context
  - No historical reference
  - Activity does not equate to use

- Incomplete usage data
  - Multiple sources and formats
Shared concerns - service

- Marketing and access
  - Ramp time – learning curve customer
  - Promotion – do they know about it

- Content being provided
  - Timeliness – how quickly available
  - Amount – how far back archive

- Interface affects usage
  - Links & indexing
  - Website Usability
  - System performance

Shared concerns - issues

- Interpretation
  - Cost per use
  - How to assess value

- User privacy
  - Data on users & on libraries
  - FTC in US, European Commission
Publisher Issues

- Internal applications
- Expensive to create functionality
- New role for publishers

Library Issues

- “To Know” - manage internally
  - Make acquisition/space/service decisions
  - Rethink ownership vs access
  - Journals = 70% budget

- “To Show” – manage externally
  - Budget justification
  - Demand for journals not owned (Ohiolink)
  - Survival
NISO Forum – Measuring Value

- Statistics = input/output data
- Performance indicators = how well they do
- Economic Value = what they are worth
- Outcome Measures = what good they do

Measures Vary by Product Type

- Bibliographic data – searches
- Journals – downloads
- Books & reference tools – data bits
What are we measuring?

- **What is being used?**
  - Data by journal title

- **Who is using it?**
  - Use of IP addresses

- **How is the database used?**
  - Searching by subject vs browsing from TOC

- **When is the content being used?**
  - Administrative

Producing statistics

1. Identifying data – defining elements
2. Analyzing data – assigning meaning
3. Presenting/delivering – make available
How will the data be presented?

- Query the database, specify period
- Two years of data up online
- Downloadable
- Compare with selected institutions
- Email alert

PALS Working Group

1. Gateways/hosts
2. Defining searches/sessions
3. Authentication – proxy servers
4. Market elements – institution
5. Data Model – taxonomy
6. Data Processing – data integrity
7. Types of reports
Opportunity for the Community

◆ Not a point of differentiation*
  □ Valid reliable data

◆ Working together - iterative*
  □ Best practice
  □ Global issue
Abstract
Throughout its history, the library profession has been bedeviled by the question of how to measure the value and usefulness of our services. In an encounter as complex as the reference interaction, how can we tell if we are serving our users as effectively as we possibly can? The effects of the Internet and information technology have only added to the chaos. As many libraries worry about losing their users to commercial information services, assessment has taken on a new urgency.

In this presentation I will examine the current reference service environment and how this context affects the climate for assessment. I will also take a step back in time to review existing evaluative methods and criteria. While some of the issues are new, the basic questions of effectiveness and value remain the same. It should not be necessary to reinvent the assessment wheel with every technological advance. I will conclude with a few concrete examples of qualitative criteria that can be adapted to online reference services.

Current Reference Service Environment
Assessment does not take place in a vacuum. The context we operate in shapes the questions we seek to answer. An environmental issue that is having a significant impact on reference services is the widespread phenomenon of the vanishing reference questions. My own institution recorded a dramatic decline in reference desk questions, falling from 504,321 inquiries in 1995 to 352,647 in 1999. In part this can be attributed to local circumstances (a massive construction project in the library), but a similar trend has been reported throughout American research libraries. The median reference statistics reported by ARL member libraries dropped from 162,336 in 1997 to 129,482 in 1999.1

The reasons for the decline in reference statistics remain the topic of much speculation and discussion. It can be argued that the decline is cause for celebration rather than alarm. Fewer questions at the reference desk may reflect the increased ability of our users to find the information they need without our assistance. If this is truly the case then we should be patting ourselves on the backs for our success in organizing information so effectively that our users no longer need us!

Others have pointed to problems with our data collection methods as the explanation for declining reference statistics. As the library liaison to the history department, I spend significant amounts of time responding to e-mail and phone queries sent directly to me. These interactions are rarely recorded. There is some evidence that mine is not a unique experience. When Ohio State University began recording off-desk reference interactions, they discovered that those activities consumed almost as much of their time as their scheduled desk hours.2 While the Ohio State librarians did not answer as many questions in their offices as they did at public service points, they generally spent more time with each off-desk question.

A satisfactory explanation for why our reference statistics are going down almost certainly involves a combination of many factors. All of the uncertainty has drawn attention to the shortcomings of relying solely on quantitative data for assessing reference services. Lacking other forms of information, the library profession is reduced to educated guesswork on this very important question. Ultimately no one really knows how to interpret the decline in reference statistics. What is clear is that we need to develop and implement methods to generate better data if we are to advance beyond speculation.

A topic that has generated almost as much discussion as the drop-off in in-library activity is the mysterious and persistent failure of most electronic reference services to capture the imagination of our users. In the early days of e-mail reference, libraries adopted stringent policies that were designed to limit usage. Anticipating a horde of computer-savvy users from all corners of the globe, many libraries placed restrictions on who could use the service, when, and how. Unaffiliated users and others such as genealogists were discouraged from making use of e-mail reference services. Unfortunately, it appears we have become too successful at deterring use. The members of the Association of Research Libraries reported receiving an average of 67 questions per month (or a little more than 2 per day) in an October 1999 SPEC Kit survey. The majority of these libraries indicated that their usage was increasing, but only at a moderate pace.3 Some library chat sites have reported significantly larger numbers, but they typically pale in comparison to commercial services like AskJeeves, which receives upwards of 100 million inquiries a month.4

Intuitively many librarians remain convinced that remote users are floundering and need our help. This may be the case, but the numbers indicate that they are not turning to libraries in their hour of need. More
Assessment Methodologies

Probably the most widely used evaluative tool in libraries is personal observation and experience. Ask any veteran practitioner about their service and they can usually provide an estimate of the level of activity, and their perspective on the positive and negative aspects of the service. This information is often supplemented by gathering what are (hopefully) more precise records about the service. Collecting available data is an important component of assessment that will be discussed in more detail later.

An electronic variant on personal observation is the transaction log. Originally used to track user behavior in online catalogs and databases, transaction logs are standard features of most chat reference utilities. They have tremendous potential in service assessment, as they can automatically create a record of the reference encounter. This has tremendous potential not just for reference evaluation, but also for training and professional development. The main concern with transaction log tools is privacy. The institution will need to develop procedures to reassure staff and patrons who may be worried about “Big Brother” observing their reference encounters. While this issue should not be downplayed, neither should it unduly interfere with efforts to improve reference services. Stripped of identifying personal information, the recorded encounters provide opportunities to discuss research strategies and resources in a spirit of cooperative improvement.

Surveys and focus groups are widely used techniques and are well covered in numerous guides to research. Briefly, surveys are best used if you want a standardized set of responses from a large group of people. Interviews or focus groups (group interviews) allow for more in-depth probing of feelings and attitudes. Often these are effectively utilized in tandem. One approach to evaluating a new chat reference service might be to conduct a survey of users of the service. This could then be supplemented with information from a focus group of non-users to ascertain their thoughts about the service.

I would like to focus a bit more attention on two research methods that are less frequently used in reference assessment. The first is called contingent valuation. This method of analysis utilizes the concept of willingness to pay. This technique is described in a study conducted at Virginia Commonwealth University. Patrons who agreed to participate in the study were given information on the cost of selected campus services (e.g. the art museum, parking, etc.). They were then asked to estimate how much they would be willing to pay to maintain existing reference hours, and how much they would pay for expanded service hours. Two key findings of this study were: 1) users placed a high value on reference service, even if they did not plan to use it themselves, and 2) the value assigned by users for current services was about 3.5
times the estimated cost of providing the service. Similar studies focusing on electronic reference could help to establish the relative value of such programs. It may be that our users, who are largely ignoring library e-reference services, still see great value in having the option of sending a remote query at 2:00 a.m.

A relatively recent research method that is becoming increasingly popular is the usability study. This approach is typically employed to assess the ease of navigation of an institution's web site. Users are given a set of tasks and their performance is recorded and analyzed to see how well they were able to perform the assigned tasks. Library studies using this methodology have asked users to locate online research resources such as the online catalog, or a listing of e-journals. While not specifically designed to measure services, I believe that this approach can provide useful information for the evaluation of electronic reference services, particularly the question of why so many receive relatively little use. A recent usability study at the University of Newfoundland found that seventy-six percent of the participants could correctly identify where to go for help from the library's front screen. This discovery can be interpreted a number of ways, depending on one's perspective. I would argue that there is cause for concern if almost a quarter of our users are unable to even locate our electronic reference service. This would automatically exclude one in four potential questioners! Also of concern is the fact that none of the users in the study reported having ever used the service before. Findings like these raise questions about the accessibility of our e-reference services. We need more research to determine if we are reaching our users effectively.

Quantitative Methods

A decision that is closely linked to the choice of methodologies is the question of what to collect. What you decide to measure will help determine the approach you use to gather information. Probably the most common approach is gathering statistics from existing records. This technique is hardly unique to e-reference, but what has changed in the digital environment is the amount of information that can be preserved for analysis. My previous institution assigned a staff member the duty of manually recording data from all of the e-mail inquiries we received. Now, many chat reference programs can be configured to automatically record such information. As we gain in our ability to gather data it is useful to consider what we want to know about our electronic reference transactions. I have included below a few examples of statistics that might be collected for your consideration. For a good example of data collection and analysis of a chat reference service see the report of the Ready for Reference project.

- Number of users/Number of sessions
- Number of questions asked
- Category of user/User affiliation (undergraduate, faculty, general public)
- Length of reference encounter
- Day/Time of question
- Response time
- Number of repeat users

The problem with quantitative data is not so much the collection as the interpretation. With chat reference logs you can discover with a high degree of precision that you averaged six users per hour, that the average transaction took 14 minutes, and that 82% of your users were undergraduates. The question then becomes, so what? Information in the abstract is of limited usefulness. What is needed is context. How does e-mail or chat reference compare with in-person reference? If there are differences are they important and if they are, what can be done to address them?

Of course, this type of comparative analysis assumes that you have similar information about related services. The first survey I did was an examination of the OCLC Firstsearch service. Our evaluation team eagerly gathered as much data as we could. We also polled users and discovered that x% of respondents were satisfied with Firstsearch after using it. Unfortunately we had no comparable data for other services, so were baffled as to how to interpret this information. We had no idea if the recorded level of satisfaction was higher, lower, or about the same as that expressed by users of other products. A comprehensive program of continuing assessment can fill in these gaps.

Besides facilitating comparisons between services, quantitative data can also be used to compare the service with itself. Data collected over time can be especially useful in documenting user attitudes and after changes in services. Benchmarking against prior performance is also a good way to continually raise the bar. If eighty percent of your e-reference users are satisfied this year, you can look for ways to ensure that eighty-five percent are satisfied next year.

Finally, it is human nature to want to use numbers when comparing ourselves to others. While this needs to be done with some caution, it does serve the purpose of situating the institutional data in a broader context. Some comparative data is available for electronic reference services. The members of the Association of Research Libraries (ARL) were polled in a SPEC Kit survey on Electronic reference service. Responses indicated that the average level of activity for ARL libraries was 67 questions per month, excluding outliers such as the Library of Congress and the National Library of Medicine. The numbers are from 1999, but the libraries surveyed did not anticipate a
sudden rise in their e-reference activity. While seventy-five percent reported a gradual increase in usage, only one respondent indicated that the number of questions were increasingly rapidly.

The SPEC Kit responses apply primarily to e-mail reference, as most libraries did not offer chat reference at the time the survey was conducted. What then are the usage statistics for chat reference? Comprehensive data is not currently available, but some institutions have chosen to publicize their usage statistics. The Ready for Reference project, a consortium of Illinois libraries reported 474 sessions during the period February-April. A service offered by the Business library of the University of Chicago received an average of two questions/day. In the absence of comprehensively collected information those desiring use statistics will most likely need to contact libraries offering similar services. This task is made easier by the existence of online registries that link to libraries offering e-mail and chat reference.

Qualitative Methods

While statistics can be useful, numbers by themselves rarely tell the whole story. It is possible for a widely used service to be quite unpopular if there is no acceptable substitute (e.g. the local OPAC). Similarly it is possible for a less widespread service to be highly valued by those few who use it. Ultimately we owe it to our users to determine not just if the situation is satisfactory, but also if we are providing the best possible mix of resources and services. This requires that we look beyond the number of users and consider qualitative factors such as satisfaction, usefulness, and efficiency. Ultimately cost must also be a consideration. Money spent on one service invariably limits the available funds for other, potentially more useful services.

The library profession does not lack criteria with which to measure reference quality. In fact there are so many that it is not possible to discuss the entire range of proposed measures. A few qualitative measures that I believe could be applied to assessing electronic reference service include:

- Accuracy of Response
- Approachability
- Cost
- Effectiveness in meeting needs
- Efficiency
- Impact
- Reliability
- Response Time
- User Satisfaction
- Usefulness/Value
- Willingness to Return

In general the criteria listed above fall into one of two categories. Some are outcome measures that seek to capture the results of the transaction. (Was the response accurate, was the user's need effectively met?) Other criteria are input measures. They look at factors that contribute to the success or failure of the enterprise. Reliability and response time are examples of input measures. Having data on these factors can help us to interpret why we achieved the outcomes that we did.

Most of the measures I have listed are not new. Approachability and accessibility are two criteria that have been around for some time. They appear as factors in reference desk success in the RUSA Behavioral Guidelines for Reference Service Providers. Although these measures were originally created to evaluate reference services provided in person at a reference desk, I believe that it does not take much creativity to adapt them to the online environment. The examples below show how a program of assessing electronic reference services might be implemented. The percentages used are arbitrary and are included merely for demonstration purposes. We need more data before we can develop true benchmarks. Once collected, the qualitative measures can be usefully combined with quantitative measures such as number of users and response time, to create a more complete picture of an e-reference service.

Applying Qualitative Measures to Digital Reference Services: A Few Examples:

<table>
<thead>
<tr>
<th>Measure</th>
<th>Methodology</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility</td>
<td>User survey, Focus group, or Usability study</td>
<td>95% of population can correctly identify and access online reference services</td>
</tr>
<tr>
<td>Approachability</td>
<td>Observation, Surveys, Focus groups, Usability study</td>
<td>95% of population rate e-reference site as welcoming and friendly</td>
</tr>
<tr>
<td>Accuracy of Response</td>
<td>Transaction analysis, Survey</td>
<td>80% of answers are accurate (user or peer librarian assessment)</td>
</tr>
<tr>
<td>Willingness to Return</td>
<td>Transaction logs, Survey, Focus group</td>
<td>90% of users express a willingness to use the service again as needed</td>
</tr>
</tbody>
</table>

Electronic Reference Assessment: Where do we go from here?

I have presented some approaches to the assessment of electronic reference services. There is no shortage of techniques for those wishing to assess their reference programs. What the profession does lack are standards and benchmarks by which to judge performance. There
are only a few studies presenting qualitative data on the use of electronic reference services. This is not especially surprising given the relative newness of e-reference services. What is more alarming is the profession’s inability to reach any consensus on quality standards for more traditional reference activities. Based on this it appears that it will be some time before the library community is able to develop quality standards for digital reference.

There are some things you can do as a researcher to hasten progress. Most importantly, don’t conduct your research on an intellectual island. As you begin designing your project consider ways that you can expand upon or replicate existing studies. We need more comparable studies to create a critical mass of evidence. Towards this end Dr. Matthew Saxton is creating a web database of reference research studies. Researchers will be able to use the database to identify studies by data collection method and outcomes measured.16

While the efforts of individual researchers are essential, the ultimate goal should be a national assessment program in which libraries collect quantitative and qualitative data in a standard fashion. This would reveal broader trends and issues affecting the entire library community. In the United States the feasibility of a national assessment program is being investigated by Charles McClure and David R. Lankes.7 Their project seeks to gather information on what the library profession should be measuring in the electronic service environment. I urge everyone to take a look at this site and consider how you can contribute to this effort.

While librarians have not always embraced assessment, the future is not without promise. Questions about reference effectiveness have been discussed for decades, but the success of online competitors has given new urgency to the debate. I have suggested some approaches that we can take as a profession to get the information we need. I look forward to continuing the discussion as we collectively explore these issues.

ENDNOTES


Abstract
Overall, initial results of a study to evaluate the current state of the art of statistics and performance measures suggest there is much agreement on the need for standardized statistics and measures to describe networked services and resources. There is an evolving sense of agreement for specific statistics and measures that can be used for improved library planning and decision-making. The nature, definition and procedures for collecting data for these statistics and measures, however, are still in some flux. Finally, the study also has found a broad range of interest from a range of national and international organizations and professional associations in the development of such statistics and measures. Coordinating these organizations and associations to agree on specific statistics and measures will continue to be important as statistics and measures are proposed, tested, refined and used.

Introduction
Academic libraries increasingly require a range of data to describe the use and users of electronic and networked services and resources. These data are essential for collections decisions; cost analysis; justification of services; services planning and evaluation; and a host of other reasons.

The working definition of networked services is those electronic information resources and/or services that users access electronically via a computing network 1) from on-site in the library 2) remote to the library, but from a campus facility; or 3) remote from the library and campus. Examples of networked resources include local, regional, and statewide library hosted or authored web sites and library-licensed databases (e.g., InfoTrac, EBSCOHost, JSTOR, Project Muse). Examples of networked services include:

- Text and numerical databases, electronic journals and books;
- Email, listservs, online reference/assistance;
- Training in the use of these resources and services; and
- Request for services via online forms (i.e., interlibrary loans).

The range and types of services accessible through and supported by networks will continue to evolve as network technology changes. While there is excitement with all the developments related to the provision of networked services, there are a number of challenges that require resolution in the area of statistics and measures for networked services.

In this paper, we report on the results from the study conducted to (1) identify and describe the current state of the art of statistics and performance measures, and (2) propose and field test a set of statistics and measures for networked services and resources at ARL (Association of Research Libraries) libraries. The study is being conducted as part of the ARL E-Metrics Project where a group of 24 ARL member libraries (Figure 1) funded the study and participated in it. Study goals, objectives, project documents, information on participants, and activities to date can be found on the project website at: http://www.arl.org/stats/newmeas/emetrics/index.html.

Figure 1. E-Metrics Study Participants

<table>
<thead>
<tr>
<th>University of Alberta</th>
<th>Arizona State University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auburn University</td>
<td>University of Chicago</td>
</tr>
<tr>
<td>University of Connectct</td>
<td>Cornell University</td>
</tr>
<tr>
<td>University of Illinois-Chicago</td>
<td>University of Manitoba</td>
</tr>
<tr>
<td>University of Maryland-College Park</td>
<td>University of Massachusetts</td>
</tr>
<tr>
<td>University of Nebraska-Lincoln</td>
<td>University of Notre Dame</td>
</tr>
<tr>
<td>University of Pennsylvania</td>
<td>Pennsylvania State University</td>
</tr>
<tr>
<td>University of Pittsburgh</td>
<td>Purdue University</td>
</tr>
<tr>
<td>University of Southern California</td>
<td>Texas A&amp;M University</td>
</tr>
<tr>
<td>Virginia Polytechnic Institute and State University</td>
<td>University of Western Ontario</td>
</tr>
<tr>
<td>University of Wisconsin-Madison</td>
<td>Yale University</td>
</tr>
</tbody>
</table>

The study used surveys and site visits to document the current state of data collection and use of statistics.
related to electronic resources and services at the participating libraries. We also conducted extensive analysis of database providers’ usage statistics to assess their offering and the level of comparability. Several iterations of surveys and focus group meetings produced the list of statistics for field-testing in which 16 libraries participated with varying degrees of involvement. It is important to understand that the participating libraries contributed not only financial resources but also significant staff resources and logistical assistance to make the study possible.

The study demonstrates that standardized statistics and measures can be developed to show the extent of networked resources and services, their usage, and investment in research libraries. However, due to the evolving nature of underlying technologies and shifts in the network environment, these statistics will need to be reviewed and modified in the future.

**SURVEY RESULTS**

Analysis of the data gathered through a survey questionnaire and site visits reveal a wide range of data collection and use activities among the 24 ARL libraries. It appears that measures related to patron-accessible resources (e.g., number of electronic database titles, number of e-journals, and number of library web pages available) and costs (e.g., expenditure for e-journals, total cost of database subscription) are collected more consistently and systematically than measures related to electronic resource use or users of those resources. Due to the often inconsistent and non-comparable nature of vendor-supplied statistics, libraries seem to have considerable difficulty in tracking overall electronic database usage and use patterns.

Here are some of the main findings from the survey:

- The data collected by the libraries seemed to be shared widely among library staff and with parent institutions. However, the manner in which the information is communicated and the nature of the reporting process appeared to be limited.
- Data is most often used to make purchasing decisions for licensed vendor materials. People also indicated various uses of the data for the purpose of internal and external reporting and service assessment and evaluation.
- Regarding the most important issues related to performance measurement of networked resources and services, the majority of respondents cite the lack of consistent and comparable statistics from database vendors as the most serious problem.
- Relatively few respondents recognized or identified problems associated with the library’s inability to process and utilize collected data.

**PROPOSED STATISTICS AND MEASURES**

Based on the survey results and other findings, the study team developed a preliminary set of statistics and performance measures for the field-testing. In view of the fact that many of the proposed statistics and measures were never collected in a systematic way, we wanted to know 1) whether the statistics and measures could be collected; 2) whether the recommended procedures would facilitate data collection; 3) the estimated time and efforts to collect data; and 4) the utility of statistics given the amount of time and effort to collect them among other things. The initial list of statistics and measures was refined and modified through several iterations based on input from the study participants.

The following 22 statistics and measures were field-tested (Refer to Table 4 for the changes made after the field testing):

- **Statistics Related to Patron Accessible Resources**
  - R1 Number of electronic full-text journals (through institutional subscription)
  - R2 Number of electronic full-text journals (through consortia and other arrangements)
  - R3 Number of electronic reference sources (through institutional subscription)
  - R4 Number of electronic reference sources (through consortia and other arrangements)
  - R5 Number of electronic books (through institutional subscription)
  - R6 Number of electronic books (through consortia and other arrangements)

- **Statistics Related to Use of Networked Resources and Services**
  - U1 Number of electronic reference transactions
  - U2 Number of logins (sessions) to electronic databases
  - U3 Number of queries (searches) in electronic databases
  - U4 Items examined (marked, selected, viewed, downloaded, emailed, printed) in electronic databases

- **Statistics Related to Expenditures for Electronic Resources**
  - C1 Cost of electronic full-text journals
  - C2 Cost of electronic reference sources
  - C3 Cost of electronic books
  - C4 Library expenditures for bibliographic utilities, networks, and consortia
  - C5 External expenditures for bibliographic utilities, networks, and consortia

- **Statistics Related to Library Digitization Activities**
  - D1 Size of library digital collection
  - D2 Use of library digital collection
  - D3 Cost of digital collection construction and management
• Performance Measures of Networked Resources and Services

P1 % of electronic reference transactions of total reference

P2 % of electronic materials use of total library materials use

P3 % of remote library visits of all library visits

P4 % of electronic books to all monographs

The categories used in classifying statistics and the statistics themselves show that the current effort still focuses on library input-output framework of performance evaluation. Most noticeable is the attempt to construct statistics and measures of electronic resources and services that are analogous to their print counterparts. The statistics and measures proposed provide for research libraries means of accounting for resources and services delivered through electronic channels; thus a better view of or justification for the changing face of libraries.

Table 1: Field Testing Participation Results

| Library  | R1 | R2 | R3 | R4 | R5 | R6 | U1 | C1 | C2 | C3 | C4 | C5 | D1 | D2 | D3 | P1 | P3 | P4 |
|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Library-01 |    |    |    |    |    |    |    | n/a |    |    |    |    |    |    |    |    | n/a | n/a | n/a |
| Library-02 |    |    |    |    |    |    |    |    | n/a |    |    |    |    |    |    |    |    | n/a | n/a | n/a |
| Library-03 |    |    |    |    |    | n/a |    |    |    |    |    |    |    |    |    |    |    |    | n/a | n/a | n/a |
| Library-04 |    |    |    |    |    | n/a |    |    |    |    |    |    |    |    |    |    |    |    |    | n/a | n/a | n/a |
| Library-05 |    |    |    |    |    |    | n/a |    |    |    |    |    |    |    |    |    |    |    |    | n/a | n/a | n/a |
| Library-06 |    |    | n/a | n/a |    |    |    | n/a | n/a |    |    |    |    |    |    |    |    |    |    |    | n/a | n/a |
| Library-07 |    |    |    |    |    |    | n/a |    |    |    |    |    |    |    |    |    |    |    |    |    |    | n/a | n/a |
| Library-08 |    |    | n/a | n/a | n/a | n/a | n/a |    | n/a | n/a |    |    |    |    |    |    |    |    |    |    | n/a | n/a |
| Library-09 |    |    |    |    |    |    |    |    | n/a |    |    |    |    |    |    |    |    |    |    |    | n/a | n/a |
| Library-10 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | n/a |
| Library-11 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | n/a |
| Library-12 | n/a |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Library-13 | n/a |    | n/a | n/a | n/a | n/a |    |    |    |    |    |    |    |    |    |    |    |    |    |    | n/a | n/a |
| Library-14 | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  |
| Library-15 | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  |
| Library-16 | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  |

*: data reported
n/a: not applicable (libraries who are not testing digital collection statistics) or unable to report
x: no submission

The table shows that even excluding highly experimental digital collection statistics (D1-D3), many libraries could not report quite a number of data elements. For example, library-04 is missing three cost statistics (C1, C4, and C5), two digital collection statistics (D1 and D2), and one performance indicator (P3). On the other hand, library 11 was able to report all but one cost statistic (C5).

It appears that although libraries were able to report statistics related to electronic resources (R1 through R6, in particular R1 through R4), they seem to have more difficulty collecting statistics related to expenditures (C1-C5, in particular C5) due to the fact that it is often hard to separate costs of bundled services.

However, this can be misleading. Just because libraries were able to report certain statistics, the data collection was not necessarily complete and easy. Even a cursory reading of the comments in the evaluation forms leads us to believe that, in some cases, numbers were generated at a cost of many staff hours and development of local procedures to collect them.

A number of libraries have not made investments in electronic books, which resulted in many unreported R5 (# of e-books by institutional subscription) and R6 (# of e-books by consortia arrangements).

Electronic reference transactions (U1) were reported by a majority of the libraries. In the cost statistics (C1 through C5), C2 (cost of electronic reference
sources) was most readily available by field-testing libraries whereas C5 (external expenditures for bibliographic utilities, networks and consortia) was reported by only a handful. The majority of missing performance measures data (P1, P3, and P4) is due to missing base statistics data elements (R3, U1, U2) required when necessary to calculate performance measures.

Table 2 shows another picture of the data collection efforts. It shows the number of staff hours spent to collect each category of data elements. While the field-testing instruction required that field-testing libraries keep track of staff hours devoted to preparing and carrying out data collection activities, we believe that the reported hours are an underestimation. We estimate that more stringent time keeping could have resulted in increased reported staff hours.

Looking at the total number of hours spent, we see a wide range from a mere 3 hours to 167 hours, which is equivalent to one staff member spending 4.5 weeks (based on 37.5 hour week) for field testing. It is difficult to tell, just by looking at the number of hours spent, which libraries were more efficient in executing field-testing.

### Table 2: Approximate time taken to collect data

<table>
<thead>
<tr>
<th>Library</th>
<th>Resource</th>
<th>Cost</th>
<th>Use</th>
<th>Digital</th>
<th>Performance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library-01</td>
<td>12</td>
<td>n/a</td>
<td>2</td>
<td>8</td>
<td>n/a</td>
<td>22</td>
</tr>
<tr>
<td>Library-03</td>
<td>13</td>
<td>17</td>
<td>1</td>
<td>16</td>
<td>n/a</td>
<td>46</td>
</tr>
<tr>
<td>Library-04</td>
<td>33</td>
<td>32</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>72</td>
</tr>
<tr>
<td>Library-05</td>
<td>13</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Library-06</td>
<td>27</td>
<td>14</td>
<td>n/a</td>
<td>n/a</td>
<td>10</td>
<td>51</td>
</tr>
<tr>
<td>Library-07</td>
<td>32</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>3</td>
<td>32</td>
</tr>
<tr>
<td>Library-08</td>
<td>1</td>
<td>n/a</td>
<td>8</td>
<td>n/a</td>
<td>n/a</td>
<td>9</td>
</tr>
<tr>
<td>Library-09</td>
<td>1</td>
<td>n/a</td>
<td>2</td>
<td>20</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>Library-11</td>
<td>78</td>
<td>2</td>
<td>8</td>
<td>70</td>
<td>9</td>
<td>167</td>
</tr>
<tr>
<td>Library-12</td>
<td>3</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>&gt;3</td>
<td></td>
</tr>
<tr>
<td>Library-13</td>
<td>15</td>
<td>6</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>21</td>
</tr>
</tbody>
</table>

n/a: not available or not applicable

Library-11, which was by far the most involved field-test library based on the number of hours spent, not surprisingly, reported the most complete data. It was clear from the reported data and the comments that the library had internal resources (such as an electronic resource management database) to support data collection, which are missing in many other field-testing libraries. Nonetheless, it tried to conform to the field-testing definitions and procedures, which resulted in high staff hours spent.

On the other hand, Library-12 was also able to report more statistics than average participants while spending minimal hours (> 3 hours). It was because library-12 used rough numbers that it already had without investing extra efforts to refine those and trying to conform to the field-testing definitions and procedures, which resulted in high staff hours spent.

Simple comparison of staff hours spent does not permit any conclusive relationship between the completeness of data and the invested efforts. Library-4 spent at least 72 hours collecting data but had to miss quite a few statistics. One the other hand, Library-8 spent 9 hours and predictably, was able to report only a few statistics.

One clear conclusion from the results is that there is a varying degree or level of efforts. But it is not certain whether the same levels of effort at these libraries will remain in the production mode when these statistics become regularly collected and reported. Better internal systems that support this kind of data collection combined with more settled and consistent data collection procedures will certainly improve the efficiency of data collection operations.

Many libraries commented that a good portion of their time was spent to understand the field-testing instructions and establish local procedures and organizational arrangement. For example, library-01 reported “3 FTE staff spent 4 hours compiling the data for measures R1-R6. Initial 8 hours to develop the local in-house electronic resources spreadsheet.”

A number of libraries also commented that it took them a lot of hours, probably because this was the first time they collected these statistics and that ongoing data collection would improve in terms of efficiency (“This was pretty much done for the first time here”).

Field-testing was time consuming, partly due to the artificial requirements imbedded in the field-testing. For example, we asked for more detailed information than necessary in an ongoing regular data collection, to make sure that there was consistency in reporting data. Without asking for detailed data, we would have no way of knowing, for example, that what one library treated as a full-text journal was treated similarly by other libraries. This created an extra burden on the libraries and may have contributed to some of the missing data. We believe that with more relaxed requirements, we could have avoided situations such as, “About 4 man-hours to verify that we could not do this,” and “About 8 hours until the effort was abandoned.” However, this would exacerbate the already
significant problem of inaccurate, inconsistent, and unreliable statistics.

The following points sum up what we have learned from analyzing the time taken to carry out field-testing and library comments.

• It is likely that libraries will spend a varying degree of staff hours and resources to do ongoing collection of statistics and measures related to electronic resources and services. The degree of effort depends on the library’s capability (resources) and interest in data collection and use.

• With investment in internal information systems and establishing ongoing local procedures, the effort to collect these statistics can be decreased significantly.

• Standardized definitions and procedures will improve data collection and lead to consistent reporting of these statistics.

In the field-testing instructions, we asked libraries to assess the usefulness/value of each statistic relative to the amount of time and effort spent. The first thing we noticed was that there were not many outright rejections of statistics and measures due to unworthiness. As for the reasons why the statistics and measures can be useful, we could not find a wide range of answers. Typical examples of use were trend plotting, benchmarking, and reporting. Perhaps the question itself was not specific enough: we did not ask what kinds of questions could be answered by having these questions, only the degree to which a statistic was useful. Another explanation for the lack of specificity may have been that the statistics and measures tested were more or less gross figures and by themselves may not directly relate to specific decision-making instances. One could also point to the fact that the comments and evaluations reflect the views of people who replied (librarians) and may not encompass others’ views (such as library directors or university administrators) that exist in the context of evaluating statistics and measures of networked environment. Overall, it appears libraries saw these measures as good things to have in the absence of more detailed data.

Table 3 shows verbatim statements as they relate to the usefulness of statistics. It shows a range of reasons why a statistic or a measure can or cannot be useful. It also suggests that in some cases, a change in the definitions and procedures needs to be made.

Table 3: Examples of usefulness statements

<table>
<thead>
<tr>
<th>Useful</th>
<th>Not Useful</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Useful for benchmarking. (R1)</td>
<td>• We have an electronic journal database, so this was actually easy to get. I am not sure why it is important. (R2)</td>
<td>• For us, it isn’t worth the time if we must separate institution subscriptions from consortia and other. (R1)</td>
</tr>
<tr>
<td>• This is a very useful stat to keep as we anticipate the % of e-reference to total reference will be shifting. (U1)</td>
<td>• Not very useful, though not difficult. (R4)</td>
<td>• We do need to simplify these statistics. (C1)</td>
</tr>
<tr>
<td>• Essential for fiscal accounting and reporting. (C1-C3)</td>
<td>• It is of doubtful value. (U1)</td>
<td>• The overall data is worth collecting. The time needed to prorate expenditures is cost-prohibitive. (C1)</td>
</tr>
<tr>
<td>• A best buy in terms of benefit: cost. (C3)</td>
<td>• I don’t know. (C5)</td>
<td>• Maybe of local interest only. Less useful for inter-institutional benchmarking. (D2)</td>
</tr>
<tr>
<td>• Very valuable, as it captures a significant expenditure made on behalf of the library. (C5)</td>
<td>• It seems not worth collecting. As defined here it is too imprecise and it seems to be a very small cost compared to the other ones. (C4)</td>
<td></td>
</tr>
<tr>
<td>• It is important and often asked for. (D2)</td>
<td>• Not worth it. What we submitted here is a partial answer, and an incorrect one at that. (D5)</td>
<td></td>
</tr>
<tr>
<td>• We were very interested in determining personnel costs and found the data gathering worth the effort. (D3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Very useful. The stat will enable us to establish trends for our service areas that are useful for planning purposes. (P1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Since ebooks are only recently becoming more prevalent, it will become an increasingly important measure, no doubt. (P4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Notations in the parentheses refer to the statistic or measure to which the comment was made.
Upon careful analysis of field-testing data and comments regarding management issues, we were able to revise the list of statistics and measures, and respective data collection procedures. Table 4 shows, side by side, the statistics and measures field-tested and the changes made to them after the testing.

**Table 4: Changes in the make-up of statistics and measures**

<table>
<thead>
<tr>
<th>Field Tested Statistics and Measures</th>
<th>Statistics and Measures After Field Testing</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1 Number of electronic full-text journals (through institutional subscription)</td>
<td>R1 Number of electronic full-text journals</td>
<td>Eliminated institutional/consortium subscription distinction.</td>
</tr>
<tr>
<td>R2 Number of electronic full-text journals (through consortia and other arrangements)</td>
<td>R2 Number of electronic reference sources</td>
<td></td>
</tr>
<tr>
<td>R3 Number of electronic reference sources (through institutional subscription)</td>
<td>R3 Number of electronic books</td>
<td></td>
</tr>
<tr>
<td>R4 Number of electronic reference sources (through consortia and other arrangements)</td>
<td>R4</td>
<td></td>
</tr>
<tr>
<td>R5 Number of electronic books (through institutional subscription)</td>
<td>R5</td>
<td></td>
</tr>
<tr>
<td>R6 Number of electronic books (through consortia and other arrangements)</td>
<td>R6</td>
<td></td>
</tr>
<tr>
<td>U1 Number of electronic reference transactions</td>
<td>U1 Number of electronic reference transactions</td>
<td>Change the unit from questions to transactions.</td>
</tr>
<tr>
<td>U2 Number of logins (sessions) to electronic databases</td>
<td>U2 Number of logins (sessions) to electronic databases</td>
<td>Field-tested separately. No change</td>
</tr>
<tr>
<td>U3 Number of queries (searches) in electronic databases</td>
<td>U3 Number of queries (searches) in electronic databases</td>
<td></td>
</tr>
<tr>
<td>U4 Items examined in electronic databases</td>
<td>U4 Items examined in electronic databases</td>
<td></td>
</tr>
<tr>
<td>U5 Number of virtual visits to the networked library resources</td>
<td>U5</td>
<td>Newly created to calculate new P2.</td>
</tr>
<tr>
<td>C1 Cost of electronic full-text journals</td>
<td>C1 Cost of electronic full-text journals</td>
<td>Relaxed the expenditure prorating.</td>
</tr>
<tr>
<td>C2 Cost of electronic reference sources</td>
<td>C2 Cost of electronic reference sources</td>
<td></td>
</tr>
<tr>
<td>C3 Cost of electronic books</td>
<td>C3 Cost of electronic books</td>
<td>No change</td>
</tr>
<tr>
<td>C4 Library expenditures for bibliographic utilities, networks, and consortia</td>
<td>C4 Library expenditures for bibliographic utilities, networks, and consortia</td>
<td></td>
</tr>
<tr>
<td>C5 External expenditures for bibliographic utilities, networks, and consortia</td>
<td>C5 External expenditures for bibliographic utilities, networks, and consortia</td>
<td>No change</td>
</tr>
<tr>
<td>D1 Size of library digital collection</td>
<td>D1 Size of library digital collection</td>
<td>Emphasize local use of data and de-emphasize cross comparison.</td>
</tr>
<tr>
<td>D2 Use of library digital collection</td>
<td>D2 Use of library digital collection</td>
<td></td>
</tr>
<tr>
<td>D3 Cost of digital collection construction and management</td>
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<td>P1 % of electronic reference transactions of total reference</td>
<td>P1 % of electronic reference transactions of total reference</td>
<td>No change -&gt; See U1</td>
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<tr>
<td>P2 % of electronic materials use of total library materials use</td>
<td>P2 % of virtual library visits of all library visits</td>
<td>No change</td>
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<td>P3 % of remote library visits of all library visits</td>
<td>P3 % of electronic books to all monographs</td>
<td>No change</td>
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<td>P4 % of electronic books to all monographs</td>
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ISSUES

In general, despite the fact that many statistics are gross figures and concerned mostly with resource counts and costs, data collection was not easy. There are a number of issues and challenges that affect the library's ability to collect statistics and measures to describe its electronic resources and services. Here are several examples of them.

- Acquisitions, accounting, and cataloging systems are not set up to support this kind of data collection. Current bibliographic and management information systems, for the most part, reflect practices in the pre-Web, print-dominant environment. It appears that providing access to electronic resources is keeping many research libraries busy enough already. The lack of efficient information systems that pull together elementary data elements forced many field-testing libraries to resort to labor-intensive processes to collect data. According to a recent survey done by Tim Jewell at University of Washington Libraries, there are about 10 ARL libraries that have a production system for managing electronic resources, and several others in the planning or development stage (http://www.library.cornell.edu/cts/elicensestudy/home.html). While these systems are not developed solely for data collection purposes, they certainly facilitate the data collection efforts such as the E-Metrics project. In the absence of such fully developed information systems, we advise ARL libraries to develop, at a minimum, an in-house spreadsheet or database file to keep track of key data elements related to electronic resources and services.

- Prescribed definitions and procedures are not compatible with local practices. Several field-testing libraries independently have been collecting some of the similar statistics and measures but their definitions and promulgation of the methodologies differ from what the field-testing entailed. It seems that the majority of libraries want to build their local procedures in sync with the standardized ARL practices and such a sentiment is echoed in the following comment: “We will adjust our in-house practices to be able to report in this way.” The data collection manual produced from this study is one step in that direction.

- The nature of electronic resources and services is still fluid and makes it difficult to devise clear-cut definitions and procedures. For instance, as several people have already argued (Snowhill, 2001; Sottong, 2001), the concept of electronic books is still evolving due to changes in technology, market, and use of resources among other things. As an illustration, think of the full-text search capability in most electronic books. It can be argued that there is no clear distinction between electronic books and reference sources, especially from the user's point of view. We observe that electronic access can trigger an entirely new conceptualization of a given information object as in the case of electronic books. Libraries need to deal with the implications of this changing environment and be more elastic and flexible. We acknowledge that the distinction made for different electronic resources in the study and in the current E-Metrics work is only temporary and has to be revised as we progress.

- The dispersed nature of resources in the networked environment makes it difficult to consolidate and manage statistics. It is also a growing source of frustration for many librarians who deal with electronic resources. Various listservs devoted to electronic resources and voluminous correspondence in the listservs reflects this trend. Traditionally, library materials, with a notable exception of government publications, are centrally managed through a library catalog. Also, library visit counts have traditionally been normalized by using turnstile counts whenever possible. However, in the networked environments, libraries have to deal with a whole range of resources and access points. This in turn creates more complexity in not only managing resources but also collecting data about the resources and their use. For example, with respect to usage statistics of licensed materials, while setting up a library database gateway may allow the library to collect a coherent statistic (e.g., attempted logins to licensed databases), it does not account for traffic that goes directly to vendor websites. On the other hand, usage statistics from database vendors are more complete in the sense that they capture all requested use of the database but the incompatibility of statistics from various vendors makes it difficult for the libraries to compare and aggregate usage data. Therefore, it is important that libraries need to deal with incomplete, incompatible data from multiple sources and make the best decisions based on the given data.

- There are a number of definitional and procedural issues among database vendors, library consortia (e.g., ICOLC), and other standards organizations (e.g., NISO, ISO) on how to report database usage statistics. Particularly working with major database vendors is one of the important areas to work in the future. The study initiated a good dialogue with selected vendors and their involvement was very useful and needs to be continued.

- The findings indicate that there are varying levels of resources and support available in the libraries
to support data collection and reporting. The degree to which libraries will be able to collect these data and use them is linked to the amount of resources they can commit.

- There is a range of situational factors and data needs/expectations that varies considerably from academic library to academic library. Individual libraries will need to determine which statistics and measures would be best to use, strategically and politically, in their own settings. They will also need to consider possible organizational structures and resources needed to successfully collect, manage, and report the data.

**Conclusion**

The explosion of networked information services has been relatively recent and the impacts from this increase of services and the corresponding technology are only beginning to be understood. An ever-increasing portion of library collections’ dollars is committed to purchasing networked services. Yet relatively little is known about how these services are used, who uses them, and the overall impact and quality of these services. Many academic libraries simply have inadequate resources, staffing, and expertise to collect, manage, and report the data related to describing networked services.

The study we described in this paper provides one approach, a beginning approach, for describing and measuring some of the resources, uses and expenditures for supporting network services in an academic library setting. Given the rapidly changing technology environment, the changing milieu of factors affecting higher education; changing organizational structures within ARL libraries; and the complexity of measuring such networked services; it is likely that the statistics and measures proposed in this study will continue to evolve.

At the time of this writing, the study team has completed the draft Phase II report (Shim et al., 2001) that is under review by participating members. After the review, a revised report will be available at the project website (http://www.arl.org/stats/newmeas/emetrics/index.html). Some of the statistics and measures as reported in this paper may change in the final project report.

The study team has been investigating institutional outcomes and the role of libraries in these outcomes. We expect to submit a proposal for additional research in this area and further refinement and development of network statistics and measures.

**References**


<http://www.dlib.org/dlib/july01/snowhill/07snowhill.html>
Abstract

This paper presents preliminary findings of an ongoing cost benefit comparison of print and electronic journals in the University of California, Davis Library. Emphasis was placed on rapid, cost-effective data collection and analysis. This paper discusses emerging use and cost trends among print and electronic titles, and demonstrates a cost model that provides some insight to relative costs of electronic and print journals.

Background

A substantial amount has been written about growth and change in key indicators in the electronic information environment: numbers of electronic journals, linking, use; costs and complexities of licenses and workload shifts; and so on. Tenopir (2000) addresses key issues and trends in the history of electronic journals in libraries. Montgomery (2000) reviewed recent cost analysis techniques for assessing costs in the transitional library.

Citation analysis has long been a staple of print journal evaluation, yet little has been said about the effect of electronic accessibility on impact factors or similar indicators. The problem is complex: electronic journals and e-archives packaged within continually advancing technologies have been multiplying rapidly for over a decade and we still do not fully comprehend their impact on scholarly communication. On a more fundamental level, there is confusion on basic facts; this researcher even found disagreement among ISI sales representatives and trainers over whether their own product, Journal Citation Reports, actually covered citations in electronic journals. Research is progressing however on various other ways of evaluating the use and impact of electronic journals (Harter, 2000; Mercer, 2000; Covi, 2000). This latter area of electronic evaluation is beyond the scope of this study.

Hypothesis: effect of electronic growth on print

The effects of electronic growth on the print side of the house have been less well documented. The common assumption seems to be that print use would decline, especially if users were given a choice between a printed copy of a journal and an online equivalent, and particularly if presented with convenient links to full-text. In the UC Davis library, users have access currently to a fairly large number of titles in dual print and electronic formats, and it was surmised that a study of print and electronic use in this environment would be useful for collection planning, particularly in making print vs. electronic decisions. The information would also inform our understanding of relative cost and value of format in different subject areas.

It is important to note that a primary goal for this exercise was to create more efficient methods for analyzing collection use, cost, and value information. Cost-benefit studies are historically among the most time-consuming and costly efforts libraries undertake. Although their value is rarely questioned to support cancellation projects, the pace of change in today’s collections demands faster access to use, cost, and value information. The study team is attempting to develop routines which make better use of circulation and cost data already resident in library systems, with the goal of developing an automated system wherein collection managers can submit queries for evaluative information on journals, subject areas, and so on.

UC Davis facts

The University of California, Davis is a general academic campus with particular strengths in the agricultural and veterinary sciences, engineering, biological sciences, and more recently, humanities and social sciences. In 2000-2001, campus students and faculty numbered 20,239 undergraduates, 5,765 graduate and professional students, and 6,735 faculty and academic personnel. Ten to twelve percent enrollment growth is anticipated over the next ten years.

The University Library consists of a main library for the general arts and sciences and three campus libraries: health sciences, physical sciences and engineering, and agricultural and resource economics. An additional off-campus library serves the Medical Center. The Library is an ARL member institution with collections totaling close to three million items. UC Davis Library frequently negotiates cooperative licensing and/or purchase agreements in consortium with the nine other UC campuses and the California Digital Library.

The study

The intent of this study was to compare use, cost and value data between a set of journals owned in print
format over a specified time period, with a set of journals owned in both print and electronic formats - the “hybrid” collection - during the same time period. Our primary goal was to identify characteristics of use, cost, citation patterns, and so on, particular to the print-only and hybrid print/electronic environments.

Key questions to be answered included: what was happening to the print titles where we had an electronic copy available? How do we compute a cost-per-use of an electronic journal? How do we account for differences in licensing terms? How can we compare this to a cost per use for a print subscription? Has the availability of electronic versions of scholarly journals had an effect on citation patterns, such as might show in impact or immediacy factors? Does having a journal carried in or excluded from an aggregated product affect use?

Data collection

We started with a set of data associated with a traditional cost-benefit analysis: use and cost data, impact factors and immediacy indexes, the number of abstracting and indexing (A&I) resources providing coverage, and the number of years of library holdings. Cost and print use data was collected for the time period 1998 to 2000; electronic use for 2000; citation data for the years 1993 and 1999; and A&I coverage information for 2000.

It is important to note that at the time the use and cost data were collected, UC Davis Library did not have an integrated library system (ILS). Although the team has created and will continue to refine a database, query structure, and report formats in Microsoft Access™, data extraction routines will likely have to be rewritten for the ILS when it is brought online in 2002.

Use data for our print titles came from a DRA circulation module, cost information from an Innovative Interfaces acquisitions program. Impact factors and immediacy indexes came from ISI Journal Citation Reports. A&I coverage data will be extracted from the JAKE database1, as will be full-text/aggregator availability. Electronic journal use data was provided from the vendors.

Approximately 1,100 titles were included in the preliminary exercises reported below: 623 titles available in print and electronic formats, and 584 titles in print only. Print/electronic titles were selected from three vendors whose use statistics were reasonably consistent and whose license agreements and pricing structures were similar. Print only titles were selected at random from the balance of the journal titles whose use and cost data were quickly verifiable.

Preliminary results

Following are highlights of the preliminary cost and use analysis.

1) USE

- Total print use for all 1,100 titles in this study declined from 1998 to 2000 (figure 1).

- The use of print-only titles actually increased 2 percent from 1998 to 1999. In 2000, however, print use of these titles declined 10 percent (figure 2).

- Online use of journals continues to increase exponentially, although it is difficult to calculate use prior to 2000 because of irregular use reports (1998 and 1999 use was estimated for figure 1). Over 110,000 articles were viewed or downloaded during 2000 for the 623 titles in this study. In contrast, total print use of these titles, as measured by circulation or re-shelving transactions, was around 50,000.
2) COST

Compiling accurate costs continues to be one of the most time-consuming parts of the study. The data for these 1,100 titles are approximate, and are based on order records from Innopac as well as information from the California Digital Library and vendor lists. Title-by-title review is still necessary to assure accuracy.

- For the titles in this study, average cost per print use for print-only titles is about half that of titles also available online ($24 vs. $56 in 1999).

In the electronic environment, we have several other complicating issues that seem to preclude pursuing the same type of simple print cost per print use calculation. Detailed discussion is beyond the scope of these proceedings but these include access restrictions, annual fees paid by the California Digital Library, and size of back-files. As Odlyzko (1999), Montgomery (2000), and others have noted, costs of managing and maintaining an electronic journal collection are different from costs in the print collection, for example:

- print journals generate costs in stacks, processing, binding, and periodicals desk, where e-journals do not.
- acquisition of e-journals has shifted staffing patterns to accommodate online processing, license management, and trouble-shooting, among other tasks. In addition, even as estimates of staffing are accurate for the tasks being performed in the current environment, these will certainly change quickly as we begin operating an integrated library system, and as we continue to respond to changes in the external serials environment (changes in vendors, holdings, technology).

Despite these limitations, we can examine these “other direct costs” for print and electronic subscriptions at a given point in time to get a more accurate picture of the costs of print vs. electronic. For example, in 1999, subscription and other direct costs for current journals amounted to approximately (figures 3 and 4):

**Figure 3. Print journal costs**

- Subscription: 82%
- Stacks: 5%
- Binding: 4%
- Public services: 2%

**Figure 4. Electronic journal costs**

- License Mgmt: 15%
- Content/delivery fee (subscription): 62%
- Access/admin fees: 5%

Applying this model to a very simple cost-per-use formula using the data collected on the 1,100 sample titles, the differences between electronic and print average cost-per-use amount to $24 per use for print titles and $11 per use for electronic. While this oversimplified approach does not take into account indirect costs of facilities, systems, public services, and administrative activities spread throughout the library, it does indicate that despite added licensing and other acquisitions and management costs, higher levels of electronic use have resulted in more cost-effective access.

Measuring print and electronic use

An important variable to be addressed at this point is the inherent difference in measurement techniques between print and electronic journals. As McClure and Lopata (1996) have noted, the ways we calculate print and electronic usage do not measure the same thing. How can we compare the two?

In our study, print use is derived from scanning items as they are re-shelved, and includes all use: outside circulation and in-house use, as well as use by all users: students, faculty, staff, non-UC. No attempt is made to prevent users from re-shelving their own materials, nor do we observe any other characteristics of use. Because of this, we know that our estimate produced by scanning will thus be less than some unknown “actual” value. We can assume, however, that the amount of error between our transactions records and the unknown actual use will approach a constant rate for the collection as a whole. In other words, our system is not exact but it is consistent. And more importantly for trend analysis, it is consistent over time.

Electronic use on the other hand, is purported to be a more precise figure, despite the current wide variation in vendors’ methods for calculating article “views”, “downloads”, etc. This variation will likely continue to decline over time as pressure is brought to bear from various library groups for better consistency. For now however, we could assume, based on our limited knowledge of user behavior, that the amount of electronic use is possibly over counted to some also unknown degree.
Here too we can assume that this rate of error will also approach a constant for the collection.

As our sample size increases, accepted statistical methodology tells us that our observed rates of error will approach these constant rates. So, while we do not have an exact apples-to-apples comparison, we do have two sets of data which we can rely on to be consistent in what they represent in terms of relative use of the collections. This is vitally important for understanding emerging trends in use in the hybrid print/electronic environment.

Measuring costs of electronic journals

So far our study has confined itself to three electronic journal vendors whose license terms are somewhat similar although not identical. We have calculated and included license-specific costs for content, media delivery, and annual access for the titles in this study. There are, however, other license conditions regarding access, cancellations, and interlibrary loan (ILL) which are more difficult to quantify and these latter conditions are not included, although they may be considered later.

The cost sharing that occurs in the system-wide consortium environment and especially the cost contributions of the California Digital Library (CDL) have a substantial impact on local costs. In order to accurately assess total costs of electronic journals, however, our cost model should provide some visibility for annual “administrative”, “access”, or “platform” fees charged by a vendor, even if those costs may be paid for in whole or in part by the CDL. The formulas for including these fees were approximated based on ratios of subscription costs among campuses for the titles in the study.

Conclusion

Results of the preliminary exercises in the UC Davis study suggest that electronic journals do affect use and cost of the print collection to a significant degree. More discrete analysis by title and subject area will provide locally useful information for collection managers. Future tasks in the study include 1) analyzing changes in impact factors from these journals to explore whether there is a relationship between electronic access and impact; and 2) assessing the rate and quality of online A&I coverage and linking of journal titles.

References


Note

1. The JAKE database is a free dataset containing a large body of information on specific electronic journal titles and other resources. It is cooperatively maintained by librarians and programmers in several institutions. <http://jake.openly.com/>
Changes in usage, usability, and user support

Denise A. Troll
Associate University Librarian, Carnegie Mellon, USA

Abstract

Two research projects are being conducted as part of the Digital Library Federation’s initiative on usage, usability and user support. In the first project, preliminary survey results indicate that library usage and usability data is often gathered, but not analyzed and put to use; that libraries are reorganizing and re-staffing to centralize and manage data gathering, analysis and application, and that libraries need guidance in gathering data appropriate to their strategic needs and that will enable comparison with peer institutions. Further research will be designed and conducted to address strategic aims and audiences that are not well served with existing data gathering methods. The survey report will be available in June 2001.

The second project leverages existing new measures initiatives and formulates additional measures to develop baseline and comparable trend data that will document and help explain changing patterns of demand for and use of academic library collections, services and facilities. To provide a broader environmental context in which to interpret changing trends in library use, this research project includes examining the use of information resources, services and computing facilities not provided by the libraries, as well as changes in academic curricula and practice that could impact demand for and use of the library. Tentative plans are to gather trend data for the selected measures for a five-year period, beginning 1999-2000.

The Problem

Libraries are changing in response to changes in the environment and in the behavior of users. The changes are evolutionary. Libraries are adding new, digital resources and services while maintaining most of the old, traditional resources and services. Finding and funding the appropriate balance of digital and traditional initiatives challenges strategic and financial planners. Librarians feel pressured to respond to the changing needs and expectations of users, and in some cases, pressured by university and college administrators to account for their expenditures and demonstrate the outcomes they achieve. Though traditional and emerging library performance measures capture some of the changing costs of library operations and the changing behaviors of users, they do not capture the changing needs and expectations of library users, or demonstrate the educational and research outcomes, cost-effectiveness, or cost-benefits of library expenditures. New measures being developed focus on assessing how library use is changing in the networked environment, but these measures will not explain why library use is changing or capture the full scope of how libraries are responding to these changes. The absence of standard definitions and procedures for gathering and interpreting reliable information that would explain shifting patterns in library use, costs, and operations is adversely affecting strategic planning and the cases that library directors must make to win or bolster support for the library and its changing directions. Academic libraries cannot effectively prepare for the future or position themselves on campus until they understand their changing roles in the current learning and research environment – which itself is changing rapidly.


The Approach

The Digital Library Federation (DLF) convened a meeting on usage, usability, and user support at the Forum on Organizational Practices, April 2000, in Atlanta, Georgia. The purpose of the meeting was to identify a research, development, and sharing agenda that would inform and support efforts to evaluate the use and usability of digital library collections and services. The meeting participants enthusiastically endorsed a preliminary framework and agenda for a DLF initiative in this area. (See http://www.clir.org/diglib/use/useframe.htm.) In November 2000, the DLF offered Denise A. Troll a Distinguished Fellowship to lead the usage, usability, and user support initiative. The Fellowship involved two primary tasks:

• Study the usage and usability assessment practices of leading digital libraries.

• Study the assessment priorities of academic library directors and facilitate research that supports their highest priority need for data.

This paper provides a brief overview of the process and outcomes of both of these studies.
Study of Usage and Usability Assessment Practices

The usage and usability survey was conducted from November 2000 through February 2001 to:

- Help libraries understand how and why to conduct use and usability assessments of online collections and services.
- Surface issues and problems that arise from real experience conducting such assessments.
- Stimulate discussion and essential research in this area.

Telephone interviews were conducted with 71 individuals at 24 institutions, for a 92% institution response rate and an 86% participant response rate. With one exception, the institutions were academic libraries. The interviews took thirty to sixty minutes each. Most were individual interviews; a few were conference calls. Participants were asked a standard set of open-ended questions. Follow-up questions varied based on the work being done at the institution. The results of the survey present assessment practices and concerns in leading digital libraries. They are neither comprehensive nor representative of library efforts, but indicative of trends that are likely to inform library practice.

The full report of the results of the usage and usability survey will be available on the DLF web site in September or October 2001. The discussion in this article focuses on issues and problems that leading digital libraries have encountered in conducting use and usability assessments, which suggest areas for future work. The full report will explain why to conduct use and usability assessments, provide basic instruction in how, when, and why to use popular research methods, and describe real experiences and lessons learned from conducting and applying the results of such assessments. Sample research instruments and a bibliography for further information about different research methods will also be included.

Participants from each institution interviewed in the survey talked about the changing focus in their libraries. Driven by a service ethos and perhaps by a broader institutional imperative, the libraries’ primary focus is to meet the needs and expectations of their users. Though participants used different vocabularies to describe their efforts, each institution is endeavoring to define its user communities, assess their skills, identify their areas of interest, and understand what they value. Three common threads of the user-centered discussion were the design of Web user interfaces, concerns about undergraduate students, and the importance of continuous marketing of library collections and services.

The promise and potential of Z39.50 to provide a single user interface for information retrieval has not been realized. Even if libraries have expended the effort to provide a single interface to all their Z39.50 supported products, their Web sites no doubt link to collections and services that are not accessible through their Z39.50 user interface. Furthermore, contrary to popular belief a decade ago, libraries participating in the DLF usage and usability survey no longer believe that one well-designed user interface can meet the needs and expectations of diverse user groups. Diversity has many different meanings in terms of library users, and each meaning potentially entails special collection or service needs, for example, different levels of experience using traditional or digital library resources (novice, expert), different status in the institution (graduate student, faculty), different locations of use (outside or inside of the library facilities), different learning or physical disabilities (dyslexia, or impaired vision, hearing, mobility, or dexterity), and different ethnic or cultural assumptions and practices. Libraries are considering or implementing different approaches to support diverse user communities. Some are providing a customized library Web site user interface for each user group (e.g., students and faculty). Others are providing a personalized Web sites user interface for each individual. Even if the approach to the libraries’ Web sites is still “one size fits all,” libraries are committing considerable human and financial resources to the design, implementation, and maintenance of their Web sites and the Web interfaces to digital collections they create or manage locally. The resource commitment includes a substantial investment in conducting user and usability studies related to library collections and services. Beyond the interfaces that libraries create and maintain is a plethora of other user interfaces. The library Web site serves as a portal or gateway to licensed information products and other resources with interfaces that may or may not be customizable by the library. In cases where customization is possible, librarians are frustrated by what they cannot customize to meet the needs and expectations of their user communities — needs and expectations discovered through user and usability studies.

Empirical data and anecdotal evidence indicate that undergraduate students are enamored with the surface Web, and unable or unwilling to evaluate the appropriateness of resources for use in their assignments. Course management software like BlackBoard exacerbates the problem by linking to resources that have not been vetted by librarians. The growing concern among librarians participating in the DLF usage and usability survey is that many undergraduate students may be searching only a small portion of the surface Web to complete their assignments, ignoring entirely the deep Web and the books, journals, databases, full-text digital resources and other scholarly materials provided by the library. The consensus appears to be that undergradu-
ates are using library collections and services less than in the past because access to the surface Web is easy and convenient and because they assume that everything – or at least everything relevant or up-to-date – is available on the Web. Librarians and faculty are concerned that the quality of information and tools on the surface Web imperils the quality of student learning. How do we guide students to and get them to use appropriate resources, regardless of format? And whose job is it to provide such guidance and motivation – librarians or faculty or (ideally) some melting-pot brotherhood and sisterhood of both? Whoever assumes this responsibility, one thing is clear from the DLF survey. To support undergraduate students, we need to study them in their environment, not ours. Academic librarians need to know how undergraduates find and use information and why. This information would provide a context for interpreting the data we have on shifting patterns of library use and facilitate the development of collections, services, and tools that meet the needs and expectations of undergraduate students. Unfortunately, though perhaps understandably, library user studies focus on the use and usability of library collections, services, and Web sites. The larger environment remains unexplored – so we know how undergraduate use of the library is changing, but not why.

Research indicates that users are often unaware of the resources the library provides. In an environment of escalating costs and pressure to account for expenditures, advertising has become a critical imperative. Competition, the speed of change, and the well-known importance of reaching users at point of need compel libraries to invest human and financial resources in continuously promoting their collections and services to their different constituencies. Such marketing requires an investment of human and financial resources.

The focus on serving users necessarily leads to a focus on assessment. Libraries are conducting research to assess service quality, patterns of use, the usability of Web user interfaces, and user needs, expectations, and satisfaction with library collections and services. To a lesser extent, they are trying to assess the cost-effectiveness and cost-benefits of library resources and operations, the impact of marketing efforts to increase user awareness of library resources, and the impact that using library resources has on users. The emerging culture of assessment quickly leads to discussion of statistics and data points. The results of the DLF usage and usability survey indicate significant challenges to be addressed in the imminent future. Survey participants shared four areas of common ground concerning data:

- Conducting assessments that collect meaningful, purposeful data
- Developing the skills to conduct, analyze, present, and use the results of various assessments
- Managing the data collected from assessments
- Appropriately organizing the library to conduct and use the results of assessments effectively

Libraries are struggling to find the right measures to inform their decisions. Participants in the DLF survey expressed concern that data are being gathered for historical reasons or because they are easy to gather rather than because they serve useful, articulated purposes. Many sites participating in the survey are considering, beginning, or completing examinations of the data they currently gather or think they should gather for internal and external purposes. Libraries need to compile measures that capture the extent of their activities in both the digital and traditional realms. Much of the discussion about “right” measures focuses on usage data. Composite measures are needed to get a clear picture of library use, for example, totaling the number of visits to the physical library (gate counts) and the number of virtual visits to the digital library (Web site visits). Immediately the issues of definition and difficulty arise. What constitutes a virtual visit and how do we capture the data? To date, emerging new measures appear to have limited penetration in even leading digital libraries. Though the consensus is that librarians should decide what constitutes meaningful data in a hybrid library environment, not university administrators, accreditation or other outside agencies, libraries want national guidelines for what and how to count. Echoing discussion at the February 2001 NISO Forum on Performance Measurement and Statistics for Libraries, participants in the DLF usage and usability survey commented that life would be easier if professional surveys like those conducted by ARL, ACRL, and IPEDS defined and measured the same activities. Similarly, librarians are frustrated that information vendors do not define and measure the same activities in regard to their products. To track trends and make informed decisions, we need comparable usage data on resources provided by the library, by commercial vendors, and by other information service providers. We also need environmental measures to provide a context in which to interpret trends in library use.

Even if libraries know what the right measures are for their purposes, developing the requisite skills to conduct, analyze, present, and apply the measures is a separate challenge. Collecting data is one thing – sometimes software can do it. Working with the data is another. Analyzing, interpreting, presenting, and applying the data in meaningful ways require different skills from data collection. Participants in the DLF survey said they need methodological guidance. Libraries must invest financial resources in training and professional development, and dedicate or designate human resources to gather, verify, analyze, interpret, present, and apply data. The focus of this discussion is not usage data, but users and usability. Comments about usability testing ran the gamut from “we don’t do usability testing but know we should” to please tell us...
how to descriptions of fledgling or well-organized usability testing programs and laboratories. Participants from many of the institutions expressed a need to know *what* research methods are available to assess user needs and expectations and the usability of Web user interfaces, and *why* methods are best suited for which purposes. They want instruction in how to use quantitative and qualitative data to make informed, effective – rather than intuitive – decisions and strategic plans. In response to this discussion, a workshop on research methods for conducting user and usability studies was held at the DLF Forum in San Francisco, California, May 2001.

Managing the data collected from various assessments is yet another serious challenge. Participants in the DLF survey questioned whether the sheer volume of data being gathered prohibits its careful analysis and whether data are being used to their full advantage. Participants from several institutions commented that they spend lots of time gathering data, but don’t have the time or talent to do anything with the results.

Librarians need a simplified way to record and analyze data, and to generate statistical reports and trend lines. They are beginning to think about systems to manage the assessment data they gather, which raises questions about how long data should be kept, how it should be archived, and whether one system can or should manage the data from different kinds of assessments.

Developing a “management information system” is a huge, expensive task, which unfortunately is being replicated at multiple institutions. One wonders why a commercial library automation vendor has not seized the opportunity to market a product that at the very least manages the standard library input and output measures, or the opportunity to work with librarians to understand, define, and develop a system to manage data needed for other quantitative measures, like cost-effectiveness. Statistical work is essential, time-consuming, and costly – so costly that librarians are beginning to question, and in some cases measure, the costs and benefits of gathering and analyzing different data. The local costs of gathering, analyzing, managing, interpreting, presenting, and applying data in effective ways, not to mention the cost of training and professional development required to accomplish these tasks, could exceed the cost of purchasing a commercial library data management system, were such a system available. The market for such a system would probably be large enough that a savvy vendor who made it affordable would also make it profitable.

The results of the DLF usage and usability survey indicate that individually, libraries aren’t organized internally in a manner appropriate to gathering, analyzing, or using assessment data strategically or cost-effectively. Often there is a breakdown in a process that should flow seamlessly from the decision about needing information, to data collection, analysis, interpretation, and use in planning. The result is a kind of purposeless data collection. Collectively, libraries have been unable to surface methods, common standards or definitions, and guidelines to use the methods, which are needed for comparing the results of assessments across institutions. This may have something to do with the fact that library use and library roles are too much in transition, or there may be something organizationally wrong within libraries. Maybe it’s both. The fact of the matter is that libraries have diverse practices in a transitional world. We are trying to measure things that are hard to define because they are changing rapidly.

The final area of common ground among the DLF survey participants was reorganizing the library to accommodate digital library developments and the changes in work and workflow precipitated by information technologies. Several sites have created new positions – usually from open positions, not new budget lines – to conduct research, establish research agendas or programs, design Web user interfaces, coordinate the gathering of statistics, or assess organizational effectiveness. New organizations, work, and workflow precipitate increased investment in staff training and professional development, covering the gamut of management and leadership skills, assessment methods, data analysis and presentation tools, customer service, and technical competencies. At some institutions user studies are centralized and performed by recently hired experts in the field. At others, it is system-wide, involving efforts to teach librarians and staff throughout the organization how to conduct research using different research methods. The overall trend is to create a culture of assessment focused primarily on meeting user needs and expectations and secondarily on the cost-effectiveness and efficiency of library operations. However, frustrations abound because of the speed of change and constraints on human and financial resources. Libraries urgently need research results that will generalize to avoid the cost of duplicated efforts.

### Study of the Dimensions and Use of the Scholarly Information Environment

The DLF commissioned the white paper – referenced earlier in this article as elaborating the problem of understanding how and why libraries are changing – to establish a sense of urgency and motivate selected library directors from small liberal arts colleges, mid-size and large universities to attend a meeting convened by the DLF and CLIR in March 2001. This group accepted the role of guiding coalition and the task of designing research to begin to fill the gaps in our understanding of how and why libraries are changing.

The range of changes that libraries are experiencing and the many environmental factors that must be explored to explain them are too broad for a single research study to address. To help decide where we should begin, the DLF conducted an informal survey prior to the March meeting to discover what library
directors considered high priority areas for data collection and research. The survey, distributed to DLF library directors and the directors invited to the March meeting, asked participants to list their five top reasons for documenting trends in library use, the audiences to be addressed in each of the five areas, and the key indicators of use that must be taken into account in each of the five areas.

Library directors did not strictly adhere to the instruction to provide reasons for documenting trends in library use, but rather provided their five top reasons, audiences, and indicators for conducting assessments of any kind. The results easily grouped into four areas of focus closely resembling the Balanced Score Card (BSC) categories. (For an introduction to the BSC, see http://library.nepean.uws.edu.au/about/staff/gegan/balscore.html and http://educate.lib.chalmers.se/IATUL/proceedcontents/chanpap/gerrys.html.)

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<tr>
<th>DLF Survey Results</th>
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<td>User studies - to meet user needs and expectations</td>
<td>Customer or client</td>
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<td>Cost analyses - to allocate expenditures to meet user</td>
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<td>and expectations cost-effectively</td>
<td>internal processes</td>
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<td>Expenditures &amp; funding - to validate expenditure of</td>
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<td>Human resources - to recruit</td>
<td>Learning &amp; growth</td>
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<td>and retain competent librarians and staff</td>
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Library directors at the March 9th meeting explored research aims, audiences, goals, and possible starting points drawn from the survey results. The DLF and CLIR proposed that participants reach consensus on collecting and analyzing comparable trend data on the nature, cost, and use of selected library collections, services, and facilities, and the use of complementary and competing collections, services, and facilities offered by agencies other than the library (on or off campus). The proposal included considering commissioning research to examine how students and faculty locate and use scholarly information and information services and/or how curricula and methods of instruction shape student and faculty information seeking and related behaviors. The library directors quickly agreed that the highest priority research to be conducted was an assessment of the dimensions and use of the scholarly information environment as perceived by students and faculty. Librarians need to know more about how academic users find and use information to meet their needs and expectations for information.

The outcome of the March meeting was an agreement to commission Outsell Inc. to survey academic users. The research will contribute empirical evidence to our currently speculative understanding of the overall information environment, how academic users view the library’s role or position in this environment, and how user behaviors and preferences affect demand for and use of library collections, services, and facilities. Plans are for Outsell Inc. to conduct quantitative telephone interviews of faculty, graduate students, and undergraduate students in different disciplines in liberal arts colleges and public and private universities to discover:

- What information and services they use to support research, teaching, and learning;
- How different user groups locate, evaluate, and use these information sources and services;
- Gaps where information needs are not being met.

This baseline understanding of user behaviors will help academic libraries and their institutions plan information services focused on the current and emerging needs of their users, and avoid investing in what is not, or is no longer, important to them. The data will facilitate evaluation of the library’s current and possible future roles in the information landscape, and provide essential contextual information for interpreting trends in the use of library resources. The results of the study will also benefit the academic community by helping publishers and other information providers create better information products based on increased knowledge of user needs, preferences, and behaviors.

A small group of experts will meet August 24, 2001, in Washington DC to finalize the survey questions. The questions will be designed to test five hypotheses:

1. The scholarly information landscape is a complex and evolving combination of information resources, only some of which are managed by academic libraries.
2. Academic libraries have a distinct and vital role to play in the evolving networked information landscape.
3. Academic libraries must promote themselves in the networked environment because they are not the only or most accessible provider of scholarly information in this environment.
4. The nature and use of the scholarly information landscape varies by institution type and academic discipline.
5. Information use is conditioned by many factors, including speed of access, ease of use, and the quality of the resource.

Outsell Inc. will conduct the research and submit the reports by February 2002. The reports will be publicly accessible on the DLF web site, and the data gather...
Discerning Patterns in Library Priorities and Practices

Tentative plans are to adapt the informal survey of library directors described above to discover whether librarians in different departments and at different levels in the organizational hierarchy have similar perceptions, priorities, practices, and problems related to the gathering and use of data. As with the survey of library directors from small colleges and mid-size and large universities, though local strategic plans and institutional missions admittedly influence assessment priorities and practices, the results of such a survey may surface:

- Commonalities across departments and organizational levels that suggest areas for collective effort, problem solving, and the development of best practices.
- Discrepancies across departments and organizational levels that suggest areas for improved communication, coordination, and planning.
AFTER DINNER SPEECH
Seven Toasts for a Summer Evening in Pittsburgh

After-Dinner Speech
Conference Dinner, Carnegie Music Hall
August 15, 2001

Based on the speech given after the Conference Dinner by J. Stephen Town,
Director of Information Services, Royal Military College of Science, Cranfield University

When Joan Stein asked me to give this speech she suggested to me that she expected it to be charming. Unfortunately, like Anthony Blanche in Evelyn Waugh’s ‘Brideshead Revisited’, I regard charm to be the curse of the English. In addition, as Jennifer Cram reminded us at a previous conference, librarians have no morals, no politics and no religion. Consequently this speech will break all the normal taboos of after dinner speaking, covering at a minimum sex, politics and death. Those who are easily offended should go to the bar now. I do however have a charming title: “Seven Toasts for a Summer Evening in Pittsburgh”. The object, of course, is to get you all increasingly merry so that by the end you will not care what is being said.

Standing here before you I must confess to feeling vulnerable. Being an Englishman in America is of course not necessarily an enviable position. Some of you will soon be heading for Boston for the IFLA Conference, and I was there recently on holiday. Whilst in Boston we took the tour bus, and at every turn we were offered stories from previous times generally along the lines of ‘this is where the British soldiers shot five of our valiant patriots for throwing snow-balls’; ‘this hill is where fifteen hundred of our valiant militiamen held out against two thousand six hundred English troops’; ‘this is the Hall where our forefathers rioted against the unfair and cruel taxes of the British’ and of course finally ‘this is where we dumped the tea into the sea’.

But it is a great pleasure to be here in the US again, and especially to be in Pittsburgh. It is comforting to note that this city was named after a British Prime Minister. There were, of course, two British Prime Ministers called Pitt. Pittsburgh was named for Pitt the Elder when George Washington defeated the French at Fort Duquesne. William Pitt, Earl of Chatham, was a great friend and supporter of the then colonies, and rejoiced when America resisted in the Revolutionary Wars. His son, unsurprisingly referred to as Pitt the Younger, went to the same College as I did at Cambridge, but not of course at the same time. This Pitt was remarkable, going up to the University at the age of fifteen, becoming a member of Parliament at twenty-two, and Prime Minister at twenty-four. Like many politicians he was well aware of the power of the sound-bite and consequently on his death-bed he was careful to ensure that he had suitable last words prepared. These were “My country, how I leave my country”, and he invited suitable people round to witness them. Unfortunately after achieving this he felt a little better, and his last words actually turned out to be “I think I could eat one of Bellamy’s veal pies”.

I think this is therefore a suitable point for our first toast, which after the excellent meal we have just enjoyed should be to “the Chef and Catering staff of the Carnegie Museums”.

I think everyone is aware of the reasons why the Northumbria Conference is taking place in Pittsburgh, and it is possible to make compelling comparisons between Newcastle and Pittsburgh. Both are cities with great industrial pasts linked to coal and steel; both are river cities, and those who know both have commented this week on the similarities in the bridges. My personal view is that the connections are best summed up in that each is “a drinking town with a football problem”.

I have certainly been very grateful for the opportunity to visit this city, and some of the memories associated will remain for a long time. The river cruise especially was a serene and peaceful interlude, and the view of the City from Mount Washington after taking the Incline in the evening was wonderful. Indeed, it might be said that for this conference “it was wonderful to find America”.

Some of you will recognise the quote from Mark Twain, and of course know that the full quotation is “It was wonderful to find America, but it would have been more wonderful to miss it”. A librarian giving an after dinner speech will of course refer to the reference works at his or her disposal, and I have to say that British quotation dictionaries do seem to provide a one-sided view of America and Americans. So in partial revenge for Boston I offer Oscar Wilde, when asked about Columbus’ discovery: “Of course America had often been discovered before, but it had always been hushed up”. The irascible Samuel Johnson said: “I am willing to love all mankind, except an American”. More recently Somerset Maugham suggested that Americans labour under four delusions; firstly that there is no class-consciousness in the country; secondly that American coffee is good; thirdly that Americans are business-like; and fourthly that Americans are highly-sexed and that the redheads are more highly sexed than others. On no account conduct any fieldwork on this in the bar after dinner, please. I can of course offer these quotes because as one of your previous Presidents said ‘the overwhelming majority of
Americans are possessed of two great qualities; a sense of humour and a sense of proportion”. I know that you will keep my attempts at humour in proportion. I have a very high regard for this country, and this city has made us very welcome during the past week, and so I give you as a second toast “Pittsburgh and the USA”.

One hundred and fifty-three years ago yesterday, a thirteen-year-old boy arrived in New York on a boat from Scotland. Soon after, he settled in Pittsburgh, started work, and subsequently built one of the greatest industrial empires in the world at that time. I refer of course to the man behind me, Andrew Carnegie. Carnegie built this Museum, the extraordinary Hall we are in, and the Library we visited before dinner. He understood the importance of access to education and knowledge for all, and in acts of unequalled philanthropy funded the building of more than 2,500 libraries worldwide. My first experience of libraries was in the Carnegie Library in Harrogate in North Yorkshire, England, when I was six or seven years old. One of the things we have been pondering this week is the question of measuring outcomes, and the links between cause and effect. It is tempting to wonder whether the generosity of that man started the chain of events that led to me standing here before his likeness.

In our continuing quest for understanding what is important about libraries, and how we can measure the benefits, we have been helped this year by a number of sponsors, and it is, I think, fitting in this location to recognise and thank them for their generosity also.

They are: the founders of this event, the School of Information Studies of the University of Northumbria at Newcastle; the Association of Research Libraries, whose staff have worked so hard this week; our local hosts the Oakland Library Consortium, comprising the University of Pittsburgh Libraries, Carnegie Mellon University Libraries, and the Carnegie Libraries of Pittsburgh; the National Commission on Library and Information Studies (NCLIS); the University of Arizona Library; the Arizona State University Library; the Sterling C Evans Library of the Texas A & M University; and the Health Sciences Library Consortium (HSLC).

And so, toasts three and four should jointly be to “Andrew Carnegie and the Sponsors of this Conference”.

My colleague at Cranfield University, Anne Partridge, recently gave an address to the British Library Association Conference, which contained a view of what librarians would be like in 2150. “In 2150, half of the librarians will be nice old ladies who enjoy reading and volunteering and the other half would be robots”. “Librarians will be half human, half machine. They’ll be plugged directly into the Internet and be able to answer any question … they’ll be excellent storytellers and will be able to mimic any voice … they’ll have to be plugged into the electricity at night … so that they’re charged up and ready to go for the next day”. Needless to say these views came from children, but they are not much less naïve than some of the projections for the profession we hear from grown-ups, which are often more lacking in social and psychological insight. At least the children realise that the technology will not reduce the need for a human dimension.

Andrew Carnegie said “Let flood or fire destroy my plant from the face of the earth, but if I retain my organisation, I would be whole again in six months”. We face challenges from new technology, which may remove the need for some of our plant, but Pittsburgh did not disappear because technology moved on, and coal, steel and transportation economics changed.

Libraries, like cities, as Ranganathan said, are growing organisms. The real challenge for us in the future is not to be obsessed or overpowered by either technology change, or a belated recognition amongst others that information and knowledge are important, but to concentrate on growing our organisms by understanding our markets, their changing requirements, the value that we can add, and the impact that this has on our clients. All those things which we perhaps recognised this week that we are not yet very good at measuring.

But tonight let us be as positive and confident as Andrew Carnegie was about the role of libraries to a healthy society, as we drink to “the Future of Libraries”.

I think it is worthwhile at this Fourth Conference to recognise the success of this venture, and to identify publicly those things that are good about this particular event. I would suggest that there are four attributes, which together make this conference unique. Firstly the proportion of attendees who are also presenting is very high, which creates a fertile atmosphere for debate and exchange; and secondly the mix of practitioners, researchers, teachers and consultants is unusual for a library conference and guarantees both realism and rigour. Thirdly, the truly international attendance enriches the event. I have spent time in this speech talking about Britain and America; it is also important to recognise and honour the full breadth and scope of our participants and their services. Fourthly and finally, and again perhaps unusually for our profession, male and female numbers approach equality.

Thinking about this last factor leads me to wondering about male and female influences in library performance measurement. I recently went to a show in Britain called ‘Defending the Caveman’. This is delivered by an Australian comedian, Mark Little, and the underlying theory is based very loosely on books such as ‘Men are from Mars, Women are from Venus’. Little contends that men are basically hunters, and women gatherers, as a result of prehistoric cave experience. Both roles should receive their due honour but, as he points out, this results in different behaviours between the sexes which are often better understood by recourse to this theory.

It did strike me that some of this could usefully be applied to library performance measurement and its history. In the past, librarianship was male-dominated
at the higher levels. The results match the theory in a predictable way. Earliest library performance measures were based on size and how many times you did things. Male influences still tend to dominate at the political level. We seek the single hunting weapon that will win the argument with powerful stakeholders. In the UK Higher Education library sector, we have defined the quiver of six arrows of quantitative management statistics that will convince the funders that we are doing everything right. This week we have seen LibQual+ tending towards being the single spear that will pin down customer satisfaction.

In contrast, in this Conference over the last eight years, we have had a succession of women keynote speakers who have eloquently expressed the need to gather more, especially in terms of the detail of performance measurement. In the first conference Nancy Van House reminded us that we should gather many elements to weave the story of how good our libraries are, and ‘not to mistake the finger for the moon’. Female symbolism indeed. This week we have missed Roswitha Poll’s advice to gather more detail and publish more worked examples. And of course we have heard from Rowena Cullen more than once about the weaknesses of a single approach, the need to gather more to ensure validity, and to consider a range of dimensions when constructing performance measurement systems.

This may be no more than a bit of fun, but I am confident of much future debate in these events from both sides, so I give you “This Conference and Performance Measurement”.

The final toast is to “All of You”. One of the events that occur at the Conference when it is in Northumbria is some lively entertainment by a local folk singer and storyteller. Some of you move on to Boston for IFLA. Boston, like Pittsburgh, celebrates its different neighbourhoods and its ethnic diversity. It seems therefore appropriate to conclude with the words of an Irish folk song, sung by those who departed from the other side of the Atlantic to come to this one, and subsequently incorporated into local tradition. This is from the “Parting Glass”:

’Of all the comrades that e’er I had, They are sorry for my going away, And all the sweethearts that e’er I knew, They would wish me one more day to stay, But since it falls into my lot, That I should go and you should not I’ll gently rise and softly call Goodnight and joy be to you all’.
ENDING MATERIALS

List of Conference Delegates
List of Delegates

*Denotes Conference Speaker

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<td>Marion Bannister</td>
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<td>Linda Baumell*</td>
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<td>Pam Craughue</td>
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<td>Clare Creaser*</td>
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<td>Rowena Cullen*</td>
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<td>Denise Davis*</td>
<td>National Commission on Libraries and Information Science</td>
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<td>Carol George*</td>
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<td>Steve Hiller*</td>
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<td>Marius Koenen</td>
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<td>Erika Linkie</td>
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<td>USA</td>
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<td>Judy Leather*</td>
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<td>Ron MacKinnon</td>
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<td>RAsh Miller*</td>
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<td>Marilyn Myers*</td>
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