FROM SERVICE TO SURVEY: THE UNISON DIGITAL REFERENCE KEY PERFORMANCE INDICATORS PROJECT

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ABSTRACT

This paper discusses the Digital Key Performance Indicators project and examines the issues which arose as a consequence.

The move from traditional reference services to information desks, electronic services and virtual chat has provided the opportunity to assess the wide range of tasks performed by reference librarians. While individual institutions capture their reference statistics, there are no standardised definitions or data collected, making it difficult to benchmark. The University Librarians in the State of New South Wales (UNISON) commissioned this project to investigate measures for Digital Reference Services. The previous work by CAVAL[1] (ASK model) and CAUL Literature Review[2] was used as the basis for this project. UNISON Reference & Information Services Interest Group (RISIG) conducted the Unison Digital Reference Key Performance Indicators Project between Oct 2004 and November 2005. The goal of the project was to develop 3 key performance indicators for digital reference services. The outcome included 3 Critical Success Factors and 12 Performance Indicators where the criteria for the corresponding measures were that they be both useful and useable.

Reference Service is a difficult area to measure due to its complexity and diversity. Reference evaluation involves not only the service itself, but also factors such as clients' needs and preferences, clients' information literacy ability, resource availability, library's goals and stakeholder's expectations. Major difficulties the project encountered include:

- Definitions of reference categories
- Interpretation of data
- Standardized data collection

Digital Reference is a growing part of the reference service provided in Academic Libraries, it is critical that the time, resources (staff and electronic) and use be measured in a way that ensures effectiveness, responds to client needs and allows comparison.

Initially viewed with scepticism by many within the Library sector, the collection and use of statistics is now an integral part of managing libraries. They are generally seen as an essential element of strategic planning and

[1] CAVAL Reference Interest Group. Working Party on Performance Measures for Reference Services (1998). Final report. Prepared by Rosemary Cotter, David Cunnington, Eva Fisch & Barbara Paton. Bundoora, Vic: CAVAL Limited
[2] University of Newcastle Education Services. (2004). *Performance Indicators for Digital Research and Information Services: A Literature Review*. Newcastle

operational assessment and development, as well as providing the basis for benchmark activities. Supported by qualitative information they can inform decision making, as well as promotional and marketing activities, and be used to communicate the value of library resources and services to stakeholders. Statistics viewed in isolation however do not always reflect what is actually happening. For example, usage statistics do not reflect the quality of a given service, the effectiveness of promotional activities or the value potential clients and stakeholders may place on it. To evaluate the effectiveness of a service or resource it is necessary to use a number of measures which combine to act as performance indicators linking outcomes to goals and objectives.

Measurement of traditional library services is now well established but Barton (2004: 138) notes that "proven approaches to the assessment of the digital library are still new". Work has been done in the area of electronic resources (Barton, 2004; Mundt, 2004) however little has been done in developing performance indicators for the different forms of digital reference.

It is this move, from traditional reference services to electronic-based reference services, that has provided the opportunity to assess the wide range of tasks performed by reference librarians. While individual institutions capture their reference statistics, in Australia there is no standardised approach to this area of data collection and no standardised definitions, making it difficult to benchmark. The Council of Australian University Librarians (CAUL) annually collects a range of data from its member libraries. In several areas the data groups are highly developed providing a considerable amount of information about certain activities. The reference data however is a single figure. There is no breakdown and therefore no analysis or history which can be used to determine trends, use and importance of any form of reference. The 11 University Librarians in the State of New South Wales (UNISON) commissioned the current project to investigate measures for digital reference services. The previous work by Cotter et al (1998) developing performance indicators for reference services and the creation of the ASK model, and the CAUL Literature Review (Newcastle Education Services, 2004) were used as the basis for this project. The UNISON Reference & Information Services Interest Group (RISIG) conducted the Unison Digital Reference Key Performance Indicators Project which began in October 2004.

The goal of the project was to develop 3 key performance indicators for digital reference services and to provide an overview of digital reference services in academic libraries in New South Wales. The performance indicators were intended to standardise measures and provide a basis for the comparison of digital reference services across UNISON libraries with the potential of rolling them out to all Australian university libraries. The ASK model (Cotter et al, 1998) key performance indicators were used as the basis for the UNISON digital reference indicators. (See Appendix 1)

RISIG established a steering committee with representatives from University of New South Wales, University of Newcastle, University of Sydney, University of Technology, Sydney and University of Wollongong. The group defined the key concepts (see Appendix 2) and reviewed the current literature whilst assessing its relevance to the project. It was agreed that to be considered, performance indicators and measures had to be:

- valid, reliable and relevant
- seen as not adding unreasonably to workloads with clear relevance and benefits to staff, management and the organisation
- appropriate to the Digital Reference environment, and
- relevant to current and emerging technologies.

Taking into account the literature review three performance indicators were selected from the ASK model (Cotter et al, 1998). The model divided the indicators into three dimensions: Attributes, Support and Knowledge. Within each dimension there were four key performance indicators. It was agreed to select one performance indicator from each dimension. These were:

- ATTRIBUTES: *Analytical skills* – the ability to analyse the information needs of a range of users and provide solutions that meet the resource constraints of the situation (Cotter et al, 1998 p2)
- SUPPORT: *Staffing the reference service* – the level, quality and consistency of staffing that is provided to meet the information demands of the teaching, research and learning objectives of the institution. Development of staff skills through training, teamwork and continuing education (Cotter et al, 1998 p3)
- KNOWLEDGE: *Matching resources to user needs* - Providing access to information resources that meet the needs of the user (Cotter et al, 1998 p4)

It was perceived that the indicators could provide:

- a measure of service quality, effectiveness, etc
- a method of monitoring technological change and identifying implications for service provision, and
- benchmarking opportunities

The committee identified data sources to measure the potential performance indicators which were assessed for validity, reliability, relevance and ease of collection and analysis. These included data from a client satisfaction survey, a questionnaire on staffing levels and staff training for digital reference services and the completion of a weekly digital reference statistical survey. The steering committee conducted a pilot study within their five libraries over a two week period in April 2005.

When the results of the trial were collated, a number of anomalies emerged including:

- Differences in institutional interpretation of data

- Differences in definitions of reference terminologies
- Variations in data collection processes.

In response, a Library Profile Sheet was developed, definitions were clarified, collection methodology refined, and the Client Satisfaction Survey introduced.

The revised survey was distributed to the 11 UNISON libraries, during a training session in June. Data was collected at all sites over a two week period from Week 6 of second session. The actual dates varied from site to site.

One of the purposes of this survey was to gain an overview of the current situation of digital reference in UNISON libraries. From the data it was noted that:

- All UNISON libraries provide email reference services.
- Eight libraries provide online chat services
- 1 library provides an online forum
- All UNISON libraries keep usage statistics
- Digital reference staff levels range from HEW 3 - 8 where the majority are HEW 5 or 6.
- Digital reference training is provided in nine UNISON libraries.
- 54% of clients identified themselves as undergraduate or postgraduate students (Several libraries were unable to provide a breakdown by client – the true figure is assumed to be higher)
- 56% of total requests are reference queries
- 65% of enquiries take less than 10 minutes of staff time to answer;
- 99% of email requests are responded to within service guarantees (ie 1 or 2 working days),
- 5% of total reference transactions are digital transactions
- 77% of clients believed they had received the information they required
- 89% were satisfied with the services they received and would use the service again.

The primary purpose of the project was to develop and assess the value of the three performance indicators and related measures identified by the steering committee. The survey process and the data analysis raised issues which impacted on the reliability of certain measures and in doing so undermined the validity of two of the performance indicators from Cotter et al's (1998) ASK model.

Attributes – *Analytical Skills*

It was found these were difficult to measure without performing a full assessment of each digital transaction resulting in an overdependence upon the perceived value the client placed on the interaction. The former was

considered time consuming and difficult to establish a consistent analysis as well as being open to interpretation. The latter whilst valid, was dependent on the results of only one question in the client survey and was felt to be insufficient.

Support – *Staffing the reference service*

Availability of service was an efficient measure. The information was readily available and not open to interpretation.

Knowledge – *Matching resources to user needs*

The measures for this performance indicator are also dependent on client perception and the collection of data is reliant on clients' goodwill to complete the survey.

During the analysis it was noted that data supporting the performance indicator *Availability and use of service* from the Support dimension within the ASK model, had been collected as part of the overview of digital reference services in university libraries. These measures were valid and easily collected. It was decided to replace the performance indicator *Analytical skills* with the new performance indicator *Availability and use of service*.

Based on the previous work of the University of Newcastle (2004) and Cotter et al (1998), the survey findings, statistical analysis, external consultation and group discussions, the working party identified three performance indicators and related measures for digital reference services. (See Table 1 below)

Performance Indicators	Measures	Evidence	Data Source
Matching resources to user needs (Knowledge – ASK Model)	Response accuracy/Need fill rate	% of user satisfaction rate with "Clients get what they wanted".	Client Satisfaction survey (Q3.3)
	Response Integrity	% of mistake-free responses in total responses	Sample assessment
	Client satisfaction with staff	% of client satisfaction rate with "Staff are helpful".	Client Satisfaction survey (Q3.2)
	Overall client satisfaction	% of client satisfaction rate with the overall service	Client Satisfaction survey (Q3.4) Rodski Survey
Access to information services which support teaching, learning and research *Originally named* Availability and Use of Service (Support – ASK Model)	Proportion of digital reference in total reference transactions	% of digital reference transactions to total reference transactions	Statistics survey
	Promotion Effectiveness	% of all library clients aware of the service through promotional activities	Client Survey (Q2)
	Usage rate	% of users to total targeted population	Statistics survey
	Terminated transaction rate	Terminated transaction rate under %	Statistics survey
	Response Turnaround Time	% of email requests responded to within 1 working day. % of chat logins picked up within 2 minutes.	Statistics survey
	Survey Accessibility	Opening hours per week	Statistics survey
Expertise in the delivery of a high quality digital reference service *Originally named* Staffing the Reference Service (Support – ASK Model)	Skill development and training	% of rostered staff trained (Email) % of rostered staff trained (Chat) % of rostered staff trained (Other)	Staffing and Training survey
	Staff satisfaction	% of trained staff to total staff providing the service	Staff Survey

Issues/Difficulties/Outcomes – What have we learnt?

Defining Key Concepts

In the initial research for the project a major stumbling block was to find a clear and definite explanation of the term *Key Performance Indicator*. For every explanation or definition there was a variation in meaning. In some definitions terms or concepts would appear to be interchangeable, in others they were distinct entities. It was agreed to combine several interpretations for the purpose of the project. See Appendix 1)

Project Management

In hindsight communication with libraries not represented on the steering committee was insufficient. Regular updates and enabling all libraries to be more involved in decision making may have created greater interest in the project. There was also insufficient information provided to staff working on the service point. An information package or website outlining the project, explaining its purpose and potential outcomes may have created interest and greater support for the project. Lack of understanding at some libraries lead to the misapprehension that there may be hidden agendas ie the tools were being used to judge staffing, measure competencies, etc. It is also recommended that in future a project officer be appointed at each library with a full understanding of their role and responsibilities.

Staff participation and training

Ownership of the survey was very strong amongst the steering committee libraries; however this did not necessarily flow on to other libraries. In retrospect the initial group training of staff should have included a briefing covering the purpose of the project, benefits to individual libraries and the potential outcomes. More detailed training in the mechanics of the survey tools, data collection protocols and definitions of terms would also have been beneficial on both an individual and institutional level.

Development of measurement tools and analysis of results

The tools that were developed, while adequate for the purpose, ideally could be assessed for bias, relevance, etc by a statistician before further use. It is also recommended that the client satisfaction questionnaire have the flexibility to include questions specific to individual libraries.

The analysis of the data was very basic and only limited comparisons were possible. It was also complicated by problems relating to the availability of the same data across all libraries and by issues relating to characteristics of individual services eg opening hours. A more comprehensive analysis of the material by a statistician may have been beneficial. However the current data and analysis does

have the potential to provide sufficient information to support decisions for future development regarding emerging technologies and trends

Digital reference software

The 11 UNISON libraries do not use a standard product for either their email or chat reference services. In terms of providing a service to clients this is not a problem however it created difficulties with data collection and functionality. What was feasible in one software package could not necessarily be replicated in another. Consequently:

- Difficulties arose with the standardised data collection forms. Some software did not allow for demographic information (eg type of user – UG, PG, academic, etc) or used different time periods for time taken to complete a transaction. This impacted on the overview of digital reference in NSW academic libraries and reduces the potential to benchmark.
- Some libraries were required to manually collect some of the same data which was automatically available to other libraries through their software's reporting modules, creating an inequitable workload.
- Whilst the functionality of some software allowed for document attachments (ie Survey forms), others did not, creating potential privacy issues.

Issues resulting from survey results

Many libraries were able to download some or all of their data automatically as part of their software's reporting modules for the *Digital Reference - Weekly* form. Others had to collect the data manually which was time consuming and potentially inaccurate. Difficulties also arose in interpreting data where it was not available in the same form as required by the survey.

There were also problems with definition overlap. Each library over the years has developed its own distinct definitions for the different types of reference transactions. Some libraries isolate circulation enquiries (eg fines, etc) and do not include them in their overall tallies, others do. For the purposes of the project it was agreed that the status quo be maintained. If benchmarking is to become a reality there must be standardised collection forms, collection methodologies and standardised definitions regarding:

- what is being collected (ie should email requests to individual staff or enquiries which arise for example from consultations with Faculty Librarians be included), and
- what category a specific transaction should be included in (eg how is a referral defined and should email circulation enquiries be included)

Based on feedback and concerns raised, the survey instructions could also be revised.

Legal issues

Privacy issues were identified for some libraries in regard to the *Client Satisfaction Survey*. An external legal consultant advised that "emailing people after the transaction with a survey is indeed a breach of privacy". The client is using the service for information purposes not to fill out a survey. Different solutions for email and chat services were developed by individual libraries to enable use of the survey but the solutions were not necessarily efficient.

Lack of comparable statistical data and other historical data

CAUL collects library data for all university libraries in Australia amongst which is data on "Reference transactions", which it defines as:

> "An information contact that involves the knowledge, use, recommendations, interpretation, or instruction in the use of one or more information sources by a member of Library staff. Information sources include (a) printed and non printed material (b) electronic databases (c) the library's own catalogues and other holdings records (d) other libraries and institutions through communication or referral and (e) persons both inside and outside the Library. When a staff member uses information gained from previous use of information services to answer a question, count as another reference transaction even if the source is not consulted again. Exclude simple directional questions. If a contact includes both reference and directional services count as a reference transaction. Duration is not an element in determining whether a transaction is a reference transaction". (CAUL, 2006)

There is no breakdown, hence no analysis or history that can be used to determine trends, use and importance of the different types of reference including digital reference. Expanding the categories could be useful in supporting benchmarking activities.

At an institutional level, while individual libraries do capture their electronic reference statistics, as noted above:

- There are no standardised definitions, statistics forms or collection methodologies making it difficult to measure and benchmark.
- There are no standardised client satisfaction surveys, and no measures of staff accuracy or the effectiveness of training methods. Most UNISON libraries use the Rodski survey to measure client perceptions of the library services. However a question on digital reference services was only included in the survey in 2006.

OUTCOMES

1. The goal of the project was to identify 3 key performance indicators from each of the ASK Model dimensions, ie Attributes, Support and Knowledge. The performance indicators related to Support and Knowledge were adaptable to the digital reference environment. The possible tools needed to measure Attributes were considered subjective, open to interpretation and therefore having questionable validity and reliability. However as noted, statistics already collected as part of the library profile survey could be used to support measures relating to the Support performance indicators, *Availability and Use of Service*. It was agreed to retain the original performance indicators from the Support *(Staffing the reference service)* and Knowledge (*Matching resources to user needs*) dimensions and include the second Support performance indicator, *Availability and Use of Service.* Both Support Performance indicators were renamed for the purpose of the project. *Availability and Use of Service* became *Access to information services which support teaching, learning and research* and *Staffing the reference service* became *Expertise in the delivery of a high quality digital reference service.* (See Table 1)

2. The Library profiles *(UNISON Library Profile and Digital reference Survey 2005* in UNISON Reference & Information Services Interest Group, 2006 Appendix 6.2.5*)* provided an effective overview of the individual library's digital reference services, including their client profile, related guidelines, the statistics collected and how they are used. This established both a context for the survey instruments and an overview of digital reference services in New South Wales university libraries and is potentially useful for benchmarking activities.

3. The *Staffing and Staff Training Program for Digital Reference Services* form (UNISON Reference and Information Services Interest Group, 2006 Appendix 2.1.8) was easy to complete, providing valid information and can be used in its current format for benchmarking.

RECOMMENDATIONS

It is recommended that the project continue under the following conditions:

1. The three performance indicators *Matching resources to user needs, Access to information services which support teaching, learning and research* and *Expertise in the delivery of a high quality digital reference service* be used.
2. Standardised collections forms, definitions of reference categories and data collection methodologies be established and used in all UNISON libraries.
3. A statistician be employed as part of the project to:

- assess and where necessary redevelop measurement tools and instructions
- complete a comprehensive analysis of the data

4. A project manager be identified at each site to take responsibility for communication, data collection and library-based training.
5. An information package or webpage be developed outlining the project, detailing its purpose, benefits and potential outcomes.
6. More detailed training be provided for participating libraries covering the purpose, value and benefits of the project, as well as the mechanics of the measurement tools eg definitions, collection protocols and use of the survey forms.
7. On completion, the performance indicators and measures be rolled out across all CAUL libraries and be used to promote benchmarking.

Appendix 1

Key Performance Indicators (ASK Model)

(Cotter et al, 1998)

ASK Performance Dimension and Indicator	ASK Model Definition	Performance Measure
ATTRIBUTES Analytical skills	Ability to analyse the information needs of a range of users and provide solutions that meet the resource constraints of the situation	User satisfaction survey
SUPPORT Staffing the reference service	Level, quality and consistency of staffing that is provided to meet the information demands of the teaching, research and learning objectives of the institution. Development of staff skills through training, teamwork and continuing education	Training of staff for digital reference services
KNOWLEDGE Matching resources to user needs	Providing access to information resources that meet the needs of the user	Completion of weekly digital reference statistical survey

Appendix 2

Definitions of Key Concepts

For the purpose of the project, the following definitions were used:

Reference

> In a university library environment, reference is the combination of all the functions performed by reference and subject librarians to meet the information needs of clients. It covers three types of activities: reference services, reference collection development, and information literacy (user education) program. It takes a variety of forms such as information desk, including answering reference questions, instructing clients in the selection and use of appropriate tools and techniques for finding information, conducting searches on behalf of the client, directing them to the location of library resources, assisting in the evaluation of information, referring clients to resources outside the library when appropriate, conducting user training classes, developing and managing knowledge base, subject guidelines, and other reference resources. It can be conducted in person, via telephone or electronically. (Reitz, 2005).

Digital Reference

> Digital reference is the delivery of 'point of need' reference services using electronic information technologies. It may consist of synchronous or asynchronous electronic reference interactions, such as chat, co-browsing, voice over IP, SMS and email between clients seeking information and reference librarians. Clients ask questions electronically and are answered electronically by reference librarians, regardless of geographic location.

Reference Transaction

> "A Reference Transaction is an information contact that involves the knowledge, use, commendation, interpretation, or instruction in the use of one or more information sources by a member of the library staff. Information sources include printed and non-printed materials, machine-readable databases (including assistance with computer searching), catalogs and other holdings records, and, through communication or referral, other libraries and institutions, and persons both inside and outside the library. Include information and referral services." (NISO Z39.7-2004, 2004)

Key Performance Indicators

Based on the three definitions of Key Performance Indicators by Peter Young (2001), Edmund Heery and Mike Noon (2001), and Reh, F.J (2005), the definition of Key Performance Indicators for this project is defined as:

> Key performance indicators represent a particular value or characteristic that is measured to assess whether an organisation's goals are being achieved. They reflect the critical success factors and stakeholder needs and expectations of the organisation. For performance indicators and their measures to be effective, the organisation's goals need to be specific, measurable, agreed, realistic and time-based.

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