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The Evaluation of Use of Electronic Resources and Services in Academic Libraries: A Study of E-metrics and Related Methods for Measurement and Assessment

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The Evaluation of Use of Electronic Resources and Services in Academic Libraries: A Study of E-metrics and Related Methods for Measurement and Assessment

By Dr. Kanu A. Nagra

Abstract: This paper presents a review of literature for the evaluation of use of electronic resources and services in Academic libraries. E-metrics and similar methods for evaluation are discussed in detail. The paper highlights how some libraries approached e-metrics to start useful evaluations and dealt with technicalities to achieve better decision making for e-collection, services and infrastructure for their library users. The evaluation of use of e-resources and services is discussed in five parts explaining application of e-metrics, different methods to capture usage data in different settings, types of data requirement by libraries, complexities and technicalities involved in measurement of usage statistics and why such evaluation is significant for libraries. A model is designed and highlighted and recommendations are given to initiate an evaluation and assessment plan which will lead to evidenced based and better decision making concerning electronic resources and services.

1.0. Introduction and Statement of the Problem:

Libraries in the present digital era are significantly different and have a greatly increased range of services and resources in the fast changing environment of emerging technologies than in the past. The library has become a 365 days a year 24 hours a day access point to information services where users can access services and resources on their terms whenever and wherever they want. It often happens that users do not go to the library physically but virtually get access to library services and resources anywhere they want through proxy servers or with the help of authenticated login.

The high costs of E-resources and networked services are significant for libraries. As a result, it is necessary for libraries to carefully measure and evaluate the use of these digital services and resources in and outside of the library. In addition, they may need to present these new types of usage data for grants & donations, collection development, in-house decision making and communication.

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The measurement of usage of electronic networked resources brings with it problems in the collection of data. These numbers are within reach with e-metrics but there are a variety of complexities involved in analysis and in selecting a measurement tool /method. Librarians may need to devote significant time to plan and collect e-metrics and analyze them but the long-term gains are substantial.

E-metrics may be defined as any effort to measure electronic and networked resources.

E-metrics data often have the following issues affecting data evaluation.

1. Meta searching problems
2. Inconsistent datasets and definitions
3. Different time out settings
4. Different platforms
5. Double-clicks
6. Duplicate searches by the same users
7. Automatic full text display
8. Zero hit searches
9. Multiple full text formats
10. Search strings from other sources (sfx)
11. Vendor or local technical problems
12. Public PCs with multiple users
13. Software with different user interfaces
14. Different type of reception/receivers to access such services etc

Libraries have a number of e-metrics at their disposal, but librarians still have to grapple with the problem of deciding which ones to use and of how to implement them. (Bertot, McClure, and Davis 2004, 30) E-metrics data can come from vendor supplied statistics, web server logs, scripts in OPAC links, proxy server logs and EJMS (Electronic Journal Management System) providers. The trend is however that Libraries are increasingly dependent on external providers of academic and scholarly information for statistical data to evaluate their electronic resources.

2.0. Methodology:

The review of the literature in the field is used to study and research e-metrics and related methods under reference.

3.0. Evaluation of the use of Electronic Resources & Services in Libraries:

There follows a discussion of the evaluation of the use of electronic resources & services and of the technicalities involved in the process.

3.1. E-metrics and its Applications in Libraries: Some Efforts

In the year 1999-2000, The Association of Research Libraries (ARL) took the initiative to establish the E-metrics working group under the auspices of the “new measures initiative” to focus on issues related to

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measurement and assessment for electronic resources and services. ARL sponsored a major study to develop a standard approach for measurement and statistics for electronic resources. A group of 24 ARL libraries participated in three different phases of this study.

The ARL (ARL2002, 485) defines the scope of data collection and data elements that contribute to the measurement of digital collection and services. E-metrics is one of ARL's new measurement initiatives which fall into two broad areas: patron-accessible electronic resources (databases, e-journals and e-books) and services that support access to those resources (technical infrastructure, virtual reference, digitization projects). Each measure is defined in terms of rationale, unit of measurement, data source, frequency, process and related issues. These definitions are essential for accuracy and consistency. The complete set of measures consists of five parts which are project background, vendor statistics field test report, E-Metrics Instructional Module, Data Collection Manual, Linkage to Library and Institutional outcomes and analysis of accreditation standards for higher education. The study provides complete guidelines to start reviewing library practice, to train staff to collect statistics and assess outcomes to justify budget allocations for resources, and for staffing and infrastructure. In addition, accurate statistics have the potential to support libraries in their negotiations with vendors for fair pricing based on actual needs and use.

Ashcroft and Mcivor (Ashcroft and Mcivor 2001,378) stated that electronic journal management is not trouble-free and discussed the research project at Liverpool John Moores University. It focused on the evaluation and promotion of electronic journals in academic libraries in the UK and North America. The findings highlighted significant differences in the way e-journals are managed in different libraries and recommendations for best practices included:

1. Technical skills and competencies
2. Co-operation between key players (vendors, suppliers, publishers, librarians)
3. Working practices
4. Changes in collection management priorities and instruction for database searches to make users more aware of the library's resources and services.

Franklin and Plum (Franklin and Plum 2002, 123) examined networked electronic services usage at four academic health science libraries in Unites States. The impact of altered usage patterns and increasing expenditures by academic libraries on electronic services had invigorated interest among academic libraries to measure usage of e-resources and services. More than 9000 users participated as they accessed networked e-services in different locations and environments. The main questions in this study were:

1. What is a statistically robust methodology for examining the use of e-services.
2. How to collect demographic data for virtual and in-house users in different categories like faculty, graduate/ professional student, staff, undergraduate student etc.
3. How to determine the purposes of accessing e-services for different users,
4. How does the purpose of use differ between traditional, in-person and electronic services.
5. What information technology service should be implemented to make studies of patron usage of networked e-services useful in the decision making process.

The findings of study at four Academic libraries revealed following:

1. Remote use was larger than all other library services combined.

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2. Remote use of resources is for different purposes than in-library use. Also the users are demographically different. Funded researchers are heavy remote users and faculty /staff were not visiting the library in person as often as in the past.
3. The authors found that the distribution of usage of electronic services and print journals show a similar pattern, although it seems that researchers are depending more on electronic resources than traditional print journals.
4. Authors recommended that libraries should implement the gateways to obtain statistically valid samples for remote access and EZ proxy, Cold Fusion or Active Server pages may serve as the foundation for such a gateway. Gateways are an effective way to collect usage data anonymously.

S. Hiller (Hiller 2003, 10) reported that academic libraries in North America are increasingly depending upon statistical data, including transactional information for e-resources usage, to assist and support library management decisions. Efforts are also given to gain more direct user input through user surveys and focus groups. Libraries are also being asked by funding and accrediting bodies to demonstrate the impact of e-collections on library users by employing a series of metrics that are outcomes and data driven. There is keen interest among North American academic libraries in using qualitative and quantitative data in library management. However, there are a variety of problems like non-availability of standardized and consistent categories and many academic libraries are unsure what the data means and how to analyze and use it in library management. Different approaches are needed to provide librarians with the skills to make them numerically and statistically literate to use data in decision making.

G. W. White (White 2004, 177) explained how the business library and the college of business administration at Pennsylvania State University have formed a partnership to analyze, evaluate, make selection decisions, and provide funding for electronic resources. The collaboration methods followed to build electronic collections to support business research were very beneficial. The partnership lead to benefits of greater access to e-resources for faculty throughout the university, an improved way to ascertain and understand the needs of faculty research, and the resources that are used by various faculties, academic departments in the university. The design for incorporating e-resources planning and evaluation is also well framed.

S. Thebridge (Thebridge 2004, 72) reports on progress of the e-VALUED project and the findings of previous projects for the development of its survey. The survey instrument was designed to collect data from academic libraries and helped in evaluating electronic information services (EIS). It highlights the necessity for EIS as a key component in outcomes assessment to represent libraries in online e-collection projects.

Ashcroft and Watts (Ashcroft and Watts 2004, 284) highlighted E-books as an addition to the online electronic resources market in academic libraries. Access to e-books can be possible through variety of platforms. A research project undertaken at Liverpool John Moores University investigated the collection of e-books in 127 academic libraries in the UK. Many libraries are providing access to e-books on different platforms as electronic delivery of information is a constantly changing arena. The e-book reading devices and web based access and links are subject to continuous change in the learning environment and simultaneously there are implications for the evaluation of access to and usage of e- resources and services.

Bertot, McClure, and Davis (Bertot, McClure, and Davis 2004, 30) reports that libraries are operating today in a hybrid environment. With the addition of electronic resources traditional methods of measurement are no longer reliable. Librarians and managers need reliable statistical data for all library collections and services to judge how users are utilizing collections in a modern networked environment. They also need this data to influence funders and stakeholders. This statistical data is within reach of libraries. The short term pain of preparation and collection of e-metrics leads to long term gain. Ignorance or failure to collect

and analyze this data leads to undercounting the actual use of library resources and services. There are number of e-metric methods but librarians have to decide which one has the most application to their library.

Mei-Ling Wang (Wang 2006, 1) highlighted the issue of e-journal evaluation by application of e-metrics and performance assessment. The main focus of the study is on evaluation indicators and evaluation procedures for data usage, collection, and analysis. Three case studies are discussed including the application of usage-based metrics on evaluation executed by the University of Maryland, the ARL E-metrics project, and the analysis of e-journal usage project by the University of Nevada. The findings revealed that e-metrics and performance assessment can effectively evaluate e-journal usage in centralized as well as in decentralized environments.

Bertot, Snead, Jaeger, and McClure (Bertot, Snead, Jaeger and McClure 2006, 17) investigated usability, functionality and accessibility of digital library services in terms of quality. The study was designed to evaluate techniques, tools and methodologies for the Florida Electronic Library (FEL) and other digital libraries. The findings of the study highlight the needs of diverse user populations, the extent to which information and services are appropriate to all users, the extent to which features or links of the digital library are functioning appropriately, and the extent to which the digital library is satisfying user requirements.

3.2. Different Methods of Measurement of Use of Electronic Resources and Services:

It is a challenge for librarians to measure the usage of electronic resources in different interfaces for diverse needs. The criteria defined by some accreditation associations are based on resources per student and on the actual use of resources by students use to meet their information needs. Let's discuss how some librarians and scholars approached this problem to calculating the measurement of use of e-resources for their libraries to ascertain user information needs.

The two studies done by Weber and Ridley (Weber and Ridley 1997, 202) focused on defining and measuring student borrowing of notable works in a given field and measuring the level of typical use of library volumes in terms of borrowing and browsing. They gave recommendations for design and decision making based on usage patterns and meeting students' information needs in information age realities in closer harmony with accreditation standards.

The ARL E-metrics project is a basis of assessment for many libraries. W. Shim (Shim 2001, 71) emphasized that the ARL E-metrics project is a standard approach to describe and measure networked resource use and expenditures for supporting electronic services in research and academic libraries. Whereas Miller and Schmidt (Miller and Schmidt 2002, 19) focused on reliability and data consistency provided by vendors and the challenges to collate data through different methods and interpretation. They highlighted different interfaces and methods used by libraries to measure usage of e-resources based on the statistics of internet search engines, gateways, portals, web hits, server data and other related e-metrics methods. R. Poll (Poll 2001, 307) highlighted performance indicators for the electronic services developed and tested in projects like "*Assessing the Academic Networked Environment: strategies and options: coalition for networked information*" 1996, "*International Coalition of library Consortia (ICOLC)*" 1998, "*ISO.DIS 2789:2000. Information and documentation-international library statistics*", ARL New Measures Programme, "*EQUINOX: Library performance measurement and quality management system*" and "*ISO TC 46/sc 8/wg 4: indicators for the electronic library.*" He gave recommendations to libraries to continue to use these indicators and compare methods so that a general consensus on validated indicators can be reached and emphasized working with vendors to generate usage data for e-resources in categories that libraries need so that time spent in collection of data can be reduced.

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Bertot, Dalton, McClure, and Shim (Bertot, Dalton, McClure, and Shim 2003, 27) highlighted two major efforts ARL E-metrics from USA and eVALUED from UK to develop usage indicators for e resources and services to capture and utilize network resource statistics in libraries. The eVALUED project is a tool kit of resources to assist library & information professionals of academic institutions with the evaluation of their electronic information systems (EISs). The scope of the eVALUED project includes different aspects of the evaluation of EISs including usage statistics, impact on users, resource provision, collaboration and integration, and security features etc.

Lankes, Gross, and McClure (Lankes, Gross, and McClure 2003, 1) suggested two standards based on utilization and technical infrastructure. The utilization standard is for use and delivery of digital reference service and consists of both qualitative and quantitative data. The technical standard was developed based on hard tools (software, hardware, protocols and other standards enforced by programming with little or no interpretive room) and soft tools (meta data and organizational schema where aspects of human description are controlled but still open to interpretation). These standards are designed to be used together to capture statistics, measurement and costing services. The procedure is to simply embed quality standards and assessment data into software and infrastructure by linking technical and utilization standards. This approach enhances the collection and its analysis for digital reference services.

S. Kato (Kato 2004, 11) reported that vendor usage statistics vary from vendor to vendor and highlighted the activity of COUNTER and main features of the code of practice. COUNTER provides credible, compatible and consistent usage statistics of electronic resources. He also analyzed ICOLC and NISO for measurement of e-resources and provided guidelines for use.

G. W. Welch (Welch 2005, 371) studied NISO Z39.7 library standards and analyzed web site statistics of the University Library of North Carolina at Charlotte as a member of a task force team on web statistics. He recommended that usage of library generated web pages is a useful indicator to get a complete picture of the efficiency of the electronic services provided by the library. These statistics are useful in analyzing the effectiveness of the design of the library's website, leading to refinements for navigation and generating traffic, leading to better website management and decision making.

M. Kyrillidou (Kyrillidou 2005) highlights various measurement methods for e-resources and services and their significance. StatsQUAL⁺™ was developed by the Association of Research Libraries and addresses the need of libraries to demonstrate outcomes and contributions. LibQUAL⁺™ was developed with support from the US department of Education Fund for the Improvement of Post Secondary Education (FIPSE). LibQUAL⁺™ enables libraries to do systematic assessment and measurement of library service quality, over time and across institutions. It has been used in a variety of libraries including post secondary, academic, public and special libraries.

DigiQual™ is an online survey created through ARL by Texas A&M University and University of Texas for users of digital libraries to collect feedback on a library's website services, functionality and content.

MINES for Libraries™ stands for Measuring the Impact of Networked Electronic Services. It is an online transaction survey that collects data on the usage pattern of e-resources and user demographics. As libraries have linking URLs on their websites for academic portals, collaborations, consortium arrangement and related content, The MINES for Libraries™ protocol enables libraries to collect information from users in a setting where users no longer specifically enter the library in order to access resources.

Library Journal reports (LJ2007, 34) that Sushi is another development that came into being when ANSI approved NISO's new standard called Standardized Usage Statistics Harvesting Initiative (SUSHI). It works on the principle of an automated request and response model for the harvesting of electronic resources usage data utilizing a web services framework.

3.3. Difficulties and Complexities involved in Measuring Use of E-resources and Services:

There are varying practices for information delivery and use as well as measurement technicalities for capturing that use.

The Scientific Societies Lecture Theatre in London organized a seminar with speakers representing many of the interested parties – publishers, librarians (academic and corporate) and professional organizations (such as ARL and PALS). T. Hulbert (Hulbert 2001,7) presents an overview of the UKSG seminar. Some of the papers presented in this seminar are discussed in following text.

Hazel Woodward of Cranfield University presented an initiative organized by PALS (the publishers and libraries solutions groups of JISC, the PA and ALPSP). He outlined the current need for usage statistics and stated that some vendors do not provide usage data at all. Also, there are inconsistencies and variations in definitions in report delivery and formats. The findings reveal that any initiative in online usage statistics must aspire to the three Cs i.e. Credibility, Consistency and Compatibility. PALS has created a working group to develop a code of practice for vendor-based electronic journal and database usage statistics. This code of practice which complements existing initiatives from ARL, ICOLC, NCLIS and others, included guidance on following items:

1. Which data elements should be measured.
2. Data definitions.
3. Output report formats/ frequency/ granularity.
4. Combining usage data reports from a variety of sources.

Another task force was created by PALS to focus on issues such as data processing, reporting and gateways/hosts. Each of these groups was comprised of key members from academia, primary and secondary publishers, etc.

Jerry Cowling was instrumental in starting an initiative called EAJUS (Electronic Article and Journal Usage Statistics). He pointed out that each publisher usually gathers, stores, and provides data using their own proprietary methodologies. These methodologies are ever increasing with absolutely no independent validation. He suggestion the creation of a new industry measure, a top-line usage “score” for a journal title that’s audited and published.

L. Ashcroft (Ashcroft 2001, 147) described research carried out at Liverpool John Moores University that investigated the marketing and evaluation of e-journals in academic library collections in the UK and the USA. The findings and recommendations of this research involve accurate measurement, changing user expectations, and the evaluation and promotion of e-resources.

T. Goldberg (Goldberg 2003, 4), reviewed the changes that have occurred in the measurement of e-resources from 1990-2000 through an examination of the Integrated Post Secondary Education Data Systems (IPEDS) academic library survey. This survey used methods from previous practices in libraries for collection and use of data. With the most recent change in IPEDS, librarians have been somewhat left to their own in-house methods of data interpretation to make reports. Findings reveal that many libraries developed local solutions to accounting and decision making. S. Mundt (Mundt 2004, 107), stated that statistics for the use of networked resources have become increasingly difficult to obtain, sometimes partially incomplete, and often inconsistent. Under such conditions libraries have a hard time collecting and making use of data for management decisions and planning. He provides suggestions to standardize statistical usage data for the future after careful review of systems, needs and practical, formal and technical considerations.

3.4. Types of Data for Usage of E-resources and Services from Vendors, Computing Software and Other Developments:

X. Li (Li 1999,153), reviewed the study which investigated improvements in the design of the library homepage and methods to facilitate user access. A web usage analysis was conducted at Texas University libraries through statistics generated by web tracking software. The study examined following things.

1. Geographic distribution of users.
2. Usage patterns of library webpage.
3. Peak usage times.
4. Computer environment information about type of web browsers, operating systems, screen resolutions and screen colors.

A comparison of usage statistics gathered before and after web page promotion was done to measure the effectiveness of the library marketing efforts. The findings of the study showed that key areas of the website needed redesign and modifications. J. Luther (Luther 2001,119) reported that each information vendor/publisher provides different measures and levels of statistical data and support. There are no industry standards and he raised questions and concerns for both publishers and librarians for evaluation of e-journals in US libraries. The findings of the study are as follows:

1. There is a lack of comparable data from different publishers as a result of variations in definitions applied and compilation methodologies employed.
2. There is a lack of context for understanding data available on the level of online activity.
3. The usage data is incomplete because journals are available in multiple formats and often available from several sources, such as locally in the library, directly from the publisher, or through an aggregate database of journals.
4. Marketers of e-resources generally acknowledge that the amount of time a database is available influences usage rates and that publicity and promotion make a difference in the level of use.
5. Usage is positively affected when back files are included with a current electronic subscription.
6. The user interface, including the need to register for use and the availability of links from the library's online catalog to an article's full text, affects usage.
7. There is a need for usage statistics to justify expenditures for electronic journals and alterations in existing collection development policies and procedures. J. Cowhig (Cowhig 2001, 233) proposed that publishers should work as a team to certify and publish key usage statistics relating to electronic scientific, technical and medical (STM) journals to avoid inconsistencies in measuring usage. The Electronic Article and Journal Usage Statistics (EAJUS) system's main data features are described in detail keeping in mind the different environment of libraries and its diverse user backgrounds.

J. Sumison (Sumison 2002, 29) reviewed the efforts of working group TC46/SC8 on revisions of the International standard for library statistics (ISO 2789) since 1997. New categories for database statistics were proposed. There were disagreements on which measures are most appropriate to measure usage statistics and other issues discussed. Further resolution of these matters is complicated because of the variations in the environments of libraries.

J. Eaton (Eaton 2002, 44), describes the problems of online usage statistics from the perspective of the infrastructure needed to deploy a performance indicator project at the London Business School (LBS)

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library. The author noted a persistent lack of agreement over how to describe and record usage and come up with a way of measuring the statistical usage of electronic services across a varied resource portfolio. The need for agreed upon standards to establish satisfactory measures of comparability is highlighted and simultaneously it is mentioned that with such diversity of librarians' electronic resources portfolio total compliance is a long way off.

Shim and McClure (Shim and McClure 2002, 499), reported the results from the ARL E-metrics study to investigate issues associated with usage statistics provided by different database vendors. The series activities and field testing of usage statistics from eight major database vendors to evaluate the degree to which the reports are useful for library decision making are described. The findings of study were as follows:

1. Library staff has little knowledge about vendor statistics and limited training in manipulation and analysis of data.
2. The evaluation and manipulation of data for usage statistics require special training and knowledge.
3. Most Libraries had no management information system for organizing, analyzing and reporting such data.
4. In general, libraries were not prepared to commit the necessary resources, staff time, training and effort to evaluation.
5. Both the Library community and vendors have much to learn about how best to define, collect, report, analyze and validate such statistics.
6. Libraries do not have a culture of evaluation that supports the assessment effort needed to use vendor based statistics successfully.
7. Specific ways to coordinate and encourage cooperation have yet to be developed for various international efforts.
8. Different types of libraries, e.g. academic, public, special, have unique dataset requirements and librarians need to work on them.
9. Both vendors and librarians need to realize that development, testing, refinement and standardization of vendor based statistics is an ongoing process.

Vendor statistics are easy to obtain. However, the standardization of key usage statistics and reporting format is critical. The validation of reported statistics also remains a critical issue.

Roe and Spencer (Roe and Spencer 2005, 124) described a research project at Newcastle University library that has been benchmarking e-resources using COUNTER-compliant usage data. As virtual access to libraries is common these days so the new tools are needed to determine the cost/benefit ratios of library resources and services. The highlight of study the is e-metrics for libraries and its potential to provide managers with more robust, empirical evidence to perform strategic planning and decision making more effectively.

H. H. Yeh (Yeh 2006, 453) studied the controversies derived from generating e-resource statistics by way of literature review to recognize the solutions proposed by libraries. The study highlights capabilities and limitations of COUNTER to provide librarians a reliable tool to report statistics and referable criteria for publishers for selecting log files.

United Kingdom Serial Group (UKSG, 2007) conducted a study on serial usage and use factors in libraries with the objective of obtaining an initial assessment as to the feasibility of developing and implementing journal Usage Factors (UFs). The survey was conducted in two Phases. Phase 1 was a series of in-depth

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telephone interviews with a total of 29 authors/editors, librarians and publishers. Phase 2 was a web-based survey in which about 1400 authors and 155 librarians participated.

The feedback obtained helped determine that UFs are meaningful and have the ability to highlight the worth and quality of online journals as well as provide ways to implement them. The feedback also provided related topics to be explored if it is decided to continue the project further. The large number of responses to the web survey shows the high level of interest in journal quality measures and the Usage Factor concept. Based on results it is clear that it is feasible to develop journal usage factors as there is support from large numbers respondents for its implementation. The conclusions and recommendations of study were as follows:

1. The COUNTER usage statistics are not yet seen as a solid enough foundation on which to build a new global measure such as Usage Factors, but results show nevertheless continued interest in UF.
2. A majority of publishers are supportive of the UF concept and willing to participate in the calculation and publication of UFs, and are prepared to see their journals ranked according to UF.
3. There is a diversity of opinion for calculating UF and specifically how to define terms such as “total usage”, “specified usage period”, and “total number of articles published online”.
4. Tests with real usage data will be required to refine the definitions for terms related to UF.
5. There isn't a significant difference between authors in different disciplines on the validity of journal impact factors as a measure of quality.
6. UF was reported as a highly ranked factor by librarians for evaluation of journals and decision making.
7. The publishers are unwilling to provide their usage data to a third party for consolidation and for calculation of UF. The majority appear to be willing to calculate UFs for their own journals collection after careful audit. This is generally perceived as an extension of the work already being done for COUNTER. While it may have implications for systems, these are not seen as being problematic.
8. COUNTER is on the whole trusted by librarians and publishers and is seen as having a role in the development and maintenance of UFs, possibly in partnership with another industry organization.
9. There are some structural problems for online usage data that would have to be addressed before UFs are judged to be credible. Notable among these is the perception that online usage data is much more easily manipulated compared to citation data.

Further research is needed for defining, developing measuring methods, testing, and implementation of UF.

3.5. Significance and Importance of E-metrics for Libraries:

L. Ashcroft (Ashcroft 2000, 466) described the evaluation and promotion of electronic journals and discussed the findings of the Liverpool study of electronic journals in academic libraries in the UK. He traces the growth of electronic journals and their impact on the role of information professionals. He also reports that there is scope for improvement in areas of evaluation and promotion. Library providers can speed up the work of determining relevant statistics by providing a good cross section of needs. The focus is on the relationship between the information professional and the library provider, if they can establish common ground, then ultimately users' stand to benefit and there will be a win-win situation.

Shepherd and Davis (Shepherd and Davis 2002, 659), report that the use of online information resources continues to increase and is having a tremendous effect throughout the information value chain. While librarians and publishers currently have systems for measuring the impact and use of collections, confidence

in the statistics need to be created so that librarians and other customers can make informed purchasing decisions.

Thebridge and Dalton (Thebridge and Dalton 2003, 93), highlight that there is supporting literature available based on both US and UK projects. Librarians would like a manageable and understandable system which assists them in proving the value of library service to their institutional directors/chairs. This was the perception of projects done internationally as well as from data collected in the eVALUED project in UK in order to show how the academic sector is moving towards developing workable methods for assessing and evaluating e-resources and services.

Covi and Cragin (Covi and Cragin 2004, 312), state that libraries are changing continuously and so are their systems, technologies, collections and usage patterns. Some unanticipated results based on these changes are also emerging. This has both immediate and long-term implications for library stakeholders. A system needs to be designed or followed to do the systematic evaluation of the effects of new technologies and related concepts such as bundled electronic resources. This research concludes that evaluating both use and non-use of electronic collections will supplement acquisitions and service measures for decision making and short and long-range planning in libraries.

4.0 The Design for an Evaluation and Assessment Study for Libraries:

Libraries need a clear, solid and reliable plan to evaluate electronic resources and services as discussed in five evaluation categories in section 3 of this paper. The assessment and planning guidelines are recommended and are available as outcomes of different projects like ARL, eVALUED, PAL, NISO and more. The following evaluation and assessment outline model is designed keeping in mind the literature studied to manage e-metrics for better and evidence based decision making for libraries.

4.1 Evaluation of Usage of E-Resources and Services through Standardized Techniques or Software:

The different methods should be analyzed carefully for evaluation of your library's E-resources and services keeping in mind the present and emerging technologies to identify common areas. The decision to what kinds of categories should be included in any method or software designed for evaluation of resources should be made by the library in collaboration with vendors. Because of the inconsistency in reports from different vendors, methods, and environment/platform needs, it is highly desired that software or techniques designed should be smart enough to include and simultaneously differentiate viewing information concerning content and usage levels of databases. The software or method for evaluation must therefore be able to generate reports that perform different functions. For example a librarian could create content evaluation spreadsheets, high traffic links or areas, use of journal titles through a particular database, comparisons by common categories like sessions, searches run, turnaways and items retrieved etc. The Coordinator librarian and other staff who deal with statistical reports must have training sessions for retrieving and working with statistical reports. There should be a well defined method to quantitatively evaluate the cost effectiveness of individual journal titles, databases, e-books and services besides defined qualitative perceptions. The quantitative method may include:

1. User population of area/ subject
2. Available Infrastructure and additions
3. Online and Information services
4. Total Cost and cost per use
5. Amount of money/ budget amount available
6. Subscription time

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7. Peak Usage Periods
8. Average frequency of usage
9. Breakdown of different groups actually using the resource etc

The qualitative methods should also be well defined and documented to evaluate cost effectiveness. It may include parameters like:

1. Formal/informal requests for information, information sessions and infrastructure
2. Reference desk queries and Chat reference queries
3. Faculty recommendations
4. Distribution and collection of user surveys and feedback forms from the user population to know their search strategies and general topics of interest etc.

Model for Evaluation of Use of Electronic Resources and Services

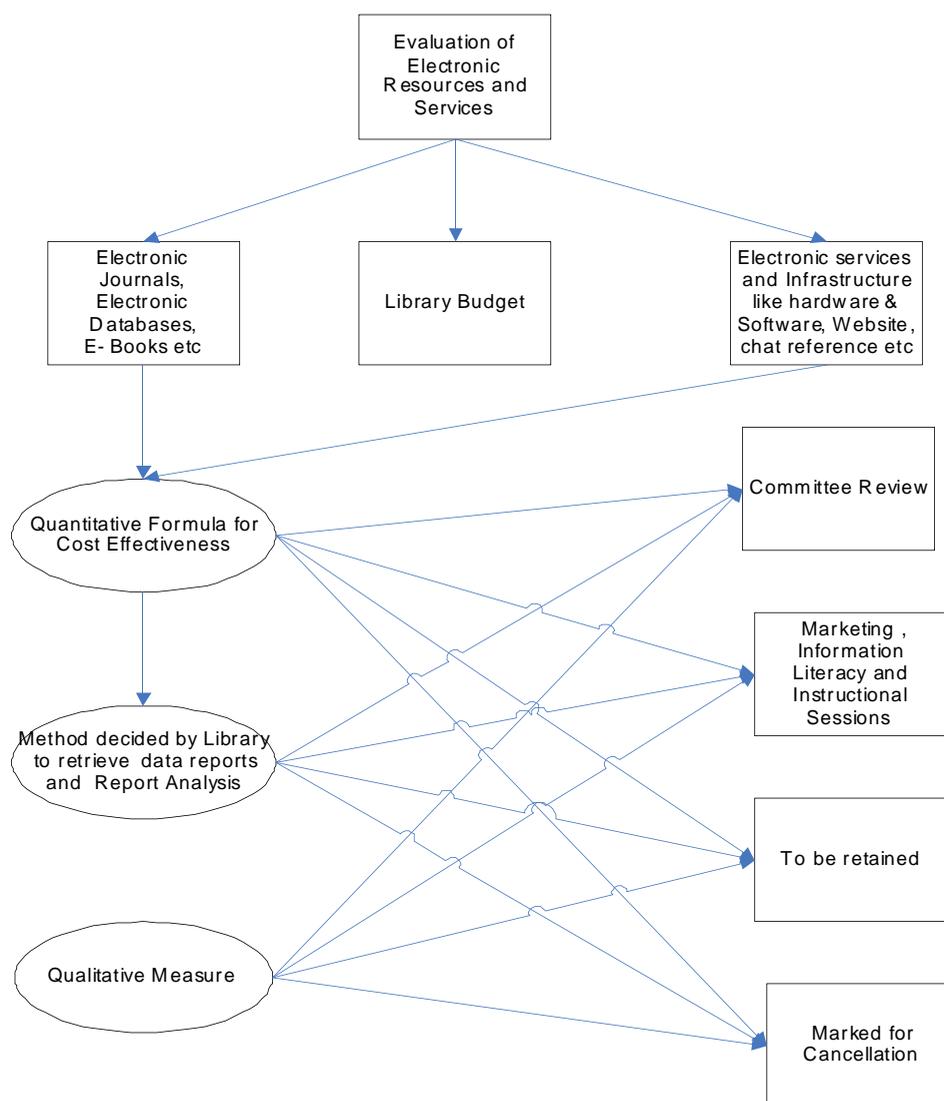


Figure 4.1

Model for Evaluation of Use of Electronic Resources

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Using above methods a library can evaluate cost effectiveness and decide whether to continue subscription/renting of resources or place it under one of several categories like “under committee review”, “highly recommended for marketing or for information sessions in collaboration with the faculty of that department”, “to retain” or “to mark cancellation”. Figure 4.1 “Model for Evaluation of Use of Electronic Resources and Services” represents systematic suggested procedure to follow for evaluation and decision making process which any type of library can utilize after adjusting it for local variations.

The implementation of clearly designed evaluation and assessment plan will definitely help and add up in evidence based and better decision making process concerning electronic resources and services to better serve users with efficient library services and achieving success in fulfilling library goals and missions.

Notes

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