CHAPTER III

Literature Survey

The effectiveness concept is a relatively recent phenomenon even in management science. It is the hallmark of modern management. It came to be applied in library management relatively recently in the late sixties, as observed by Lancaster (cf 20 below). During the last twenty years, however, there has been a spate of literature wherein attempts have been made to provide theoretical foundations to the concept as well as make it suitable for practical applications.

A brief survey of literature relating not only to library effectiveness per se, but also to the broader concepts in which effectiveness concept had its origin would be in order here. The literature on library management in general is not included here, as it would be too general to fit in the scheme of the present study. However, references to such literature have been made in other chapters wherever it was found necessary.

The manner in which the literature is surveyed is as follows: first, the bibliographies on the topic are cited. Then, contribution in the context of Indian environment is examined. Thirdly, the literature on the evaluation of information systems which, it is claimed, is the predecessor of the total library effectiveness is examined. The literature on the definition of the concept is then reviewed. This follows the review of literature on library effectiveness in general, on advantages of measurement of library effectiveness and on data collection
techniques. The literature on the criteria for measuring library effectiveness then follows. There are three criteria which some authors identify with effectiveness. For them, criterion like user studies, or cost study or collection evaluation is the most predominant factor in effectiveness discussion. The literature on each of these topics is therefore reviewed in this chapter although it could have been discussed in other chapters. A few of the references have been taken from secondary sources.

The term 'Library Effectiveness' or 'Effectiveness' first appeared in 'LISA' in the May-June issue of 1972. Surprisingly even today it is not treated as an independent subject. The searcher was directed to the term 'evaluation' in 1972 when it first appeared. It read as - Effectiveness Measurement : Administration : Librarianship .... Nh

This entry was in the context of an article by Evans et al. In the next three issues of LISA the following entry is found:

Effectiveness

See entries under

Evaluation, Performance Measurement

However, the searcher is again directed from evaluation to performance measurement. There is no entry as 'Performance Measurement' per se, but there is an entry as 'Performance Measurement-Evaluation' from which the searcher is directed to

a general entry 'Evaluation'. In the General Index for the 1972 volume, a single term 'Effectiveness' is used; and the searcher is directed to 'Evaluation'. In 1974, there are two entries:

Effectiveness see Evaluation; Performance Measurement
Effectiveness : Cost Effectiveness Analysis

See

Cost Effectiveness Analysis

From 1976 the searcher is directed from Effectiveness to Evaluation. Under Evaluation there are many sub-headings including Cost-effectiveness. But the references that are relevant to library effectiveness are entered under Evaluation-Libraries. One also finds a number of narrower terms such as Catalogue Effectiveness, User Studies, Evaluation of Equipment and Collection Evaluation. Not much literature taking a comprehensive view seems to have been published on this subject of evaluation as one can see in the following table:

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Entries</th>
<th>Entries on Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>6978</td>
<td>113</td>
</tr>
<tr>
<td>1984</td>
<td>6993</td>
<td>88</td>
</tr>
<tr>
<td>1985</td>
<td>6507</td>
<td>76</td>
</tr>
<tr>
<td>1986 (upto Oct)</td>
<td>5396</td>
<td>116</td>
</tr>
</tbody>
</table>

The literature on library evaluation proper is much less, which roughly works out to between 20% and 30% of total references on evaluation.
Murdock and Sherrod\(^2\) while reviewing the literature on library management lament the dearth of literature on the subject, let alone literature on library effectiveness. Some of the literature reviewed by them adopt the MBG concept to performance evaluation of libraries.

McGrill and Rinehart's bibliography on library technical services which is a quite comprehensive bibliography does not also have any references to the term effectiveness although relevant references are found on time and cost studies and collection evaluation. This bibliography lists references under seven heads: 1) Organising of Technical Services, 2) Acquisition of Materials, 3) Organisation of Materials, 4) Maintenance of Materials, 5) Circulation of Materials, 6) Serials and 7) Special Materials.

Lancaster presents a guide to published literature on measurement and evaluation of library services. The purpose of this survey is to report work already done and encourage students to take an evaluative approach to library activities.


The main emphasis is on techniques to evaluate the public services of a library, including reference, information retrieval, document delivery and collection.

Ottersen's bibliography on standards for evaluating libraries lists annotated references that contribute to the understanding of the standards and criteria necessary for subject evaluation and the methodology suitable for application. The main emphasis is on the collection evaluation.

Layzell Ward has developed a quite comprehensive and relevant bibliography entitled 'Performance measures'. It gives an annotated list of 220 items that are concerned with performance measurement and its application within library systems. It includes general methodological surveys, papers suggesting new measures and approaches, actual studies, and implementation of measures and methods. The references are divided in five sections:

A) Surveys of library evaluation - Discussion of criteria, methods & problems.

B) Academic libraries: Theoretical approach and practical effectiveness of performance measurement.

C) Public libraries: Theoretical approaches and practical effectiveness of performance measurement.

D) School libraries: Theoretical approaches and practical effectiveness of performance measurement.

E) Special libraries: Theoretical approaches and practical effectiveness of performance measurement.


The purpose of this bibliography is to help the library managers in evaluating the services that they provide, whether it be the initial effectiveness of a service or the change in effectiveness over time in response to management decisions.

RESEARCH UPTO 1972

Schlachter and Thomison review quite a number of studies conducted by research workers in various American Universities. Although these are not specifically termed as studies in effectiveness, they can be treated as ones belonging to the category as the nature of these research studies is same as that of an effectiveness study. This annotated bibliography covers the dissertations submitted between 1925 and 1972. A few of them directly related to library effectiveness are reviewed here.

As far back as 1936, R.A. Miller of the University of Chicago conducted a study of libraries to develop a method for obtaining library cost data for the purpose of administrative evaluation and planning. S.D. Kramer of the University of Chicago studied school libraries in relation to the various standards and to library practices elsewhere in 1938. A similar study was carried out by E.A. Jenson of the University of Missouri in 1942. The use of the library by student teachers in teacher training libraries was done in 1941 by J.K. Lancaster of Columbia.

University. He concluded that the use of the library was less
due to the fact that there were weaknesses in students' knowledge
of library resources and skills. N.M. Cross of the Stanford
University evaluated the use of school library books in relation
to the needs of the students and the philosophy of the school.
This study is dated 1943. Research to evolve criteria for the
administration of library service in Christian education in an
independent autonomous church at the local level was conducted
by J.H. Hall of the George Washington University in 1950. The
stated purpose was to develop criteria for measuring the practice
according to the standards formulated for the purpose. A.D. Covey
of the Stanford University evaluated the college libraries for
accreditation purposes. This study, carried out in 1955, revealed
that the quality of the library staff is indicated by its status
within the college. Another study of the college library was
conducted in 1957 in the University of Chicago by P.B. Knipp
to identify the role of the library of a college in implementing
the course and non-course objectives of the college. The study
concludes that the library staff should emphasise its teaching
role so as to provide a broader concept of what library can
contribute to instruction. Measurement experiment using the
standards of the American Library Association was the type of
research by R.L. Darling of the University of Michigan, carried
out in 1960.

A very interesting study of the school library use
was made by J.E. Barrillepany of the University of Iowa in 1965.
It was an experimental investigation of the effects of multiple
library sources as compared to the use of a basic text-book on
student achievement and learning activity in Junior High School Science. It was found that the students using library materials without the text achieved significantly higher scores than the class using the text.

In another study of the type—social studies achievement of pupils in schools with libraries and without libraries, D.E. Becker of Pennsylvania University (1972) concluded that it was the guidance function of the librarian that exerted significant influence on pupil achievement in gathering information, reading charts and maps.

Relationship of academic success and selected other factors to student use of library was studies by R.W. Hostrop of the University of California in 1956 to develop a library-course index for college libraries.

C.S. Anderson's study (University of Oregon) about the role of the librarian in school library is of great interest to the study of library effectiveness. (Importance of the role factor is dealt with in details in the next chapter). Anderson's study—role expectations of the high-school librarians as perceived by librarians, principals and teachers—revealed that the role defining groups of teachers, principals and librarians did not hold similar expectations for the role of the librarian.

E.P. Miller of the University of Oklahoma developed a method to determine the measures of effectiveness for feasible alternatives of change in influential aspects of library operations in his study — 'A method to determine effectiveness of special library operations'.
RESEARCH IN RECENT YEARS

In the seventies and eighties research in effectiveness has grown considerably in number in American & British Universities. This is well documented in International Dissertations Abstracts as well as Current Research.

INDIAN CONTEXT

Indian contribution to the literature on effectiveness was checked from the bibliographies as well as from the writings of S.R. Ranganathan and the work done by the IASLIC. Efforts made by Jawaharlal Nehru University Library to apply management techniques to study library problems should also be taken note of here.

Prasher has prepared an annotated bibliography of the Indian writings on library science. This is a comprehensive bibliography. Unfortunately, there is not a single reference that could be cited as one that attempts to study library effectiveness.

Pathak and Ramaiah and Kumar et al in their bibliographies of dissertations submitted for M.Lib I. Science, M.Phil and Ph.D in Indian Universities (and a few foreign, too) make note of several studies on user profiles, role of library,


and personnel management in libraries. Five dissertations submitted for Ph.D need a special mention. G.R. Sudame of the M.S. University of Baroda (1972) studied the effect of library use on academic advancement of post-graduate students in the M.S. University of Baroda. M. Baruah of Punjab University (1984) carried a study of use of university libraries in the North-Eastern Region with special reference to the universities of Assam and Meghalaya. The studies by M. Bavakutty of Kerala University (1984) and by R. Prasher of Punjab University (1985) are important studies as they deal with the organisation, working and utility of the libraries in higher education. O. Somaraju’s thesis (Andhra University, 1985) on the role of the university in supporting research is also a study coming very near to effectiveness. But none of these as well as others deal with the measurement of library effectiveness.

*Library Science Abstracts* makes references to some articles. The titles of the articles are found quite attractive. But, with the exception of a few reviewed in the later part of this chapter, none from among the articles checked in the back volumes of Indian library science journals were found worth taking note of. Most of the articles are sketchy, quoting extensively from British and American literature without either the original contribution of their own or a critical review of the work of the cited authors.

Recently the National Social Science Documentation Centre published a bibliography of articles on the economic analysis

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of special libraries with special reference to those in
the CSIR set up. The bibliography consisting of 22 articles
and a book does not contain any references to articles related
to effectiveness although these are specialised types of
articles.

There are many clues and pointers in the writings of
S.R. Ranganathan which are aimed at the concept of library
effectiveness. His report on the university and college
libraries discusses both inputs as well as expected outputs
of the library. Bhushan Lal and R. Kaushik show how the open
system concept goes quite well with the fifth law of library
science. Kumar and Chandra show how the concept of scientific
management was initiated by Ranganathan by introducing the
concept of functional planning by analysing the universe of
library work into various isolates and then synthesizing them
into the library function. Lancaster and Mehrotra have shown
how each of these laws can be used for the evaluation of library

12. Ranganathan, S.R. Library manual for library authorities,
       librarians and honourary library workers. Bombay, 1960
       pp 415.

       (Chairman : S.R. Ranganathan) University and College

14. Bhooshan Lal and Kaushik, Ratna. "Library is a growing
       organism : an open system perspective" IN Ranganathan's
       Philosophy : assessment, impact and relevance, edited by

15. Kumar, Narendra and Chandra, Harish. "Impact of scientific
       management on Ranganathan's philosophy". IN Ibid pp 474-481.

16. Lancaster, F.W. and Mehrotra, Rashmi. "Five laws of library
       science as a guide to the evaluation". IN Perspectives in
       Library & Information Science Vol. I. edited by S.N. Agarwal
services and how each of them can guide decision on what needs to be evaluated, by what criteria and by what method. Right from its inception, IASLIC (Indian Association of Special Libraries and Information Centres) has devoted all the annual seminars and conferences to the themes that relate to management of libraries. The participation in the conferences is large and the papers are carefully selected. Some conference papers have contributed to the effectiveness concept, though again, not explicitly. Related topics like collection development, user studies, work flow are discussed. None of these deals with the effectiveness of a library as a whole.

Girja Kumar reports on the eight management studies carried out at the Jawaharlal Nehru University Library with the collaboration of the Management Services Wing, Institute of Secretarial Training and Management, Cabinet Secretariat, Government of India. These studies related to 1) Accessioning and processing of books, 2) Job descriptions of posts, 3) Layout of the library, 4) Mutilation and pilferage of books, 5) Procedure of procurement of books in the acquisition section, 6) Records management, 7) Tracing of misplaced books, and 8) Space utilization in the new library building. The efforts are really commendable and perhaps could be emulated by several other libraries, as the author advocates. They are, it is claimed, the first of their kind in Indian

library management science. Yet, as it is clear from the titles, they were conducted for making library more efficient rather than effective. Nowhere in seven chapters devoted to library management does Girja Kumar refer to library effectiveness.

EVALUATION OF INFORMATION RETRIEVAL SYSTEMS

It is surprising to note that none of the fortyone volumes of Kent & Lancour's Encyclopedia of Library and Information Science published so far makes a reference to library effectiveness. There are no entries either under library evaluation or under performance measure. Evaluation and effectiveness the encyclopaedia deals with is that of information retrieval systems. Volume eight contains an article by F.W. Lancaster on evaluation of information retrieval systems. In fact, Lancaster (1979) maintains that the widespread interest in evaluation of information retrieval systems, particularly mechanised systems, appears to have stimulated a concern for the evaluation of library service in general, another area sadly neglected before the 1960s. It would, therefore, be right to examine the literature on evaluation of information systems before going over to 'Library service in general'. In the review article in the Encyclopedia


referred to above, Lancaster argues that evaluation of information systems should answer the following three questions: How well is the system functioning?, can it be improved? and how may it best be improved? In other words, evaluation would be used to assess the efficiency of the system. The evaluation of the system effectiveness is to check to what extent it is meeting the requirements of the users. According to him the evaluation has to be done at three levels. System effectiveness is the first. The next one is cost-effectiveness, i.e. satisfying user requirements in the most efficient and economical fashion. The third and highest level is cost-benefit evaluation to determine the worth of the system, i.e. to find out whether the system justifies its existence. He suggests sixfold criteria for judging the success or failure of the search. They are: coverage, recall, precision, response time, user effort, and form of output. The number of relevant documents will indicate the coverage. Recall is indicated by the number of documents retrieved in a search. Precision is the percentage of relevant documents in the total of documents retrieved. Response time is the time taken to retrieve the relevant documents. User effort consists of the efforts needed on the part of the user to retrieve the documents. Form of the output could be only document numbers, or full bibliographical details, or abstract or hard copy of the document. With the help of recall and precision analysis, it will be possible to assess the measure of success of the system. Remedies can be undertaken to raise the success or reduce the failure. Cost-effectiveness and cost-benefit analysis can be worked out with the help of data collected on above items.
Lancaster also discusses evaluation in terms of satisfaction of the latent needs which are distinguished from expressed needs known as demands.

While discussing the historical aspect of the evaluation of information systems Lancaster refers to two bibliographies. The first by Henderson incorporates 344 abstracts of articles and studies up to the year 1966. The second by Krevitt and Griffith covers the period between 1967 and 1972. Lancaster observes that no objective evaluation of systems had been conducted before 1950. The studies of information systems were mainly related to comparison of indexing terms, search methods, operating systems like MEDLARS, SDI Systems, evaluation of on-line systems and assessment of references.

Murdock and Liston in their paper for the annual documentation and information convention (1968) prescribe 1) the cost, 2) performance, 3) benefits and 4) their inter-relationship as the factors in the evaluation of an information system.


Lancaster and Gillespie review the literature on the library services, published indexes, and some human factors. They also discuss trends at the national and international levels related to the design of a complete system as also trends in designing the individual system components.

King and Bryant draw an important distinction between macro-evaluation and micro-evaluation. Macro-evaluation tries to answer the question: "How well is the system performing?". The results of such evaluation may be purely quantitative. Micro-evaluation, on the other hand, is concerned with reasons behind the results and with the identification of ways in which the performance of the system might be improved. Macro-evaluation might reveal that a particular library is 72% successful in being able to supply documents to users at the time those documents are needed. Micro-evaluation which is analytical and diagnostic would identify the causes of the failure (e.g. the characteristics of the requests that could not be satisfied) and look for the ways in which these failures might be reduced in future.

King and Palmour assert that generally the ultimate value of any information communication system should be thought


of in terms of the usage that are made of the information and the subsequent impact on users' scientific and technical activities. The way the information affects the conduct of these activities is probably the most important function of the system. Obviously the knowledge gained from the information and the consequent user behaviour can enhance decision making, improve an experiment, result in better research findings, reduce duplication of research, save time in the research process and so on. Although this is the critical function of the user behaviour, it is rarely measured, let alone considered in many user studies.

Davis and Rush suggest evaluation of information retrieval systems by establishing separate criteria for selection, storage, document presentation, search-request formulation and processing, formulation and issuance of search responses and cost-benefit performances.

Saracevic considers the measurement of effectiveness as it relates to two types of information systems: libraries and retrieval systems. Relevance has been the central notion in the evaluation of information systems, although it is now accepted that different kinds of relevance exist. The challenge which remains is to integrate the various interpretations of effectiveness.


Swanson identifies and describes seven major evaluation methodologies: systems analysis, operations research, cost-benefit analysis, planning-programming-budgeting, value analysis/engineering, management audit and evaluation. These techniques share six performance features with some incorporating additional phases: 1) a conceptual phase in which the desired objectives and targets are defined and crystallized; 2) a criteria formulation phase in which the performance measures that constitute decision or judgement factors are identified and made specific; 3) an alternative description phase in which two or more means of achieving the objectives are established; 4) a data collection phase in which all the information needed for decision-making is acquired; 5) a data-analysis phase in which the acquired data is assembled, aggregated and compared to the criterion measures; and 6) decision-making phase in which one or more alternatives are chosen or a judgement is reached on actual or anticipated performance.

West and Butler discuss the management techniques relate to programme management, describing the three areas to be considered during programme development: 'hard' evaluation data, e.g. costs, 'soft' evaluation data, e.g. user satisfaction; and definition of local environment. The first step in implementing a system is the make or buy decision. Some general guidelines


for choosing between these options are discussed. The authors advocate using of library staff, parent organisation, user groups to evaluate automation projects. They point out that there are limitations to performance measurement exercise.

Musselman and Talavage point out that evaluation should be based on three attributes of service itself: 1) quality from the users' point of view; 2) value to organisation, and 3) effectiveness from the performance stand-point. These attributes are further divided into such factors as accessibility, applicability, technical quality, timeliness, recall-ratio and precision ratio. The two authors conclude that application of this evaluation methodology will help librarians to find out whether the library is responding to the needs of the users.

Thiagarajan presents a highly sophisticated mathematical model for measuring information effectiveness.

DEFINITION

It would be useful now to see how the concept of library effectiveness has been defined in the literature. Here again the term evaluation has been used having the connotation as effectiveness in some cases. Such references have been taken up for discussion here.


Harrods's Librarian's Glossary, 5th edition

does not define the term effectiveness at all, but it defines evaluation as the process of measuring the performance of a service or a system and assessing its effectiveness in meeting the established objectives.

Lipsman says,

For a programme to be optimally effective the following criteria be taken as the standard for evaluation: 1) program objectives should be related to individual and community needs, i.e. to user requirements; 2) program planning and implementation should carry forward program objectives; 3) program output should reflect the achievement of program objectives and hence the satisfaction of user needs and requirements; and 4) program inputs (costs) should be appropriate to the level of program output.

Orr says

An evaluation of library system as a whole must be concerned with how much good a library service achieves rather than how good the library is.

For Vickery effectiveness of the system is the degree to which it achieves its stated objectives.

33. p 279


Line 37 does not define the term effectiveness specifically but his definitions of related terms would be useful in the effectiveness discussion. He defines them as follows:

**Need** - What an individual ought to have, for his work, his research, his edification, his recreation etc.

**Want** - What an individual would like to have whether or not the want is actually translated into a demand on the library.

**Demand** - What an individual asks for

**Use** - What an individual actually uses

**Requirement** - What is needed, what is wanted or what is demanded—a term that can be usefully employed to cover all the categories.

According to Rothstein as quoted by Daniel the term performance measurement is equivalent to effectiveness.

Accordingly,

Measurement is a description in quantitative terms, evaluation is the rating or assessment of effectiveness and worth. Evaluation presupposes measurement against a specific standard or yardstick or a goal.

Very useful and innovative and thought provoking analysis of the

37. Line, M.B. "Draft definitions, information and library needs, wants, demand and use". *Aalib Proc.* 26:2 (Feb 1974). 87

effects of library has been made by Merchant. He describes five categories of effectiveness: 1) Instrumental effect, e.g. fuller knowledge of the practical problem and greater competence to deal with it; 2) Prestige effect, e.g. relief of inferiority feelings by reading what increases self-approval; 3) Re-inforcement effect, e.g. reinforcement of an attitude or conversion to another attitude towards controversial issues; 4) Aesthetic affect, e.g. obtaining aesthetic experience from specimens of literary art; and 5) Respite effect, e.g. finding relief from tensions by reading whatever offers pleasant distraction. He defines effectiveness as a change in the patron, what he undergoes due to use of the library.

In the famous Hillingdon project on public library effectiveness the operational definition used and quoted by Totterdell and Bird is

the extent to which library service satisfies the needs of its community and how far it promotes itself as a means of satisfying needs.

The needs could be unexpressed, unactivated or expressed. They define the user satisfaction as the extent to which actual demands of library users at one point of time are met.

Lancaster says that a responsible measure of effectiveness at an information centre is the degree for which it is able to maximise the exposure of users to these materials that satisfy their information


needs (or the degree to which it is able to maximise the accessibility of these materials.

DeProspo and Liesener state that

Effectiveness generally refers to the ability of an institution to meet or accomplish its programme objectives whatever they happen to be. To measure or evaluate effectiveness means to determine the degree to which a programme achieves its established objectives or the positive impacts the programme was designed to accomplish. Efficiency, on the other hand, relates to the means employed to achieve these objectives.

Shalini in a slightly different context, viz. the selection of the effective journals, defines the unit of effectiveness for any journal in a given context as the relevant items obtained by scanning a journal. This brings one back to the Lancaster concept of precision ratio. It has been very appropriately used by Shalini.

In the context of reference service, Thomas et al describe appropriateness as the effectiveness characteristic. The tool that can be consulted in the manner that yields a reliable answer with least expenditure of time and effort is an effective tool according to them.

Oldman, while distinguishing effectiveness from efficiency, describes the former as

The good it is doing to provide the instant book.

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She defines the impact of the library as

Value being derived from library services by the readers.

According to Thiagarajan,46

Effectiveness in perfect sense of the term would aim to translating all the information provided to a decision maker into action if the information can move the decision maker, that is, if the information changes the action state of the decision maker, the information is effective.

For Sylvia Webb effectiveness is making the most of the library stock.

The definitions of effectiveness by various authors emphasise two points: i) satisfaction of users; ii) achievement of goals or reaching the stated objectives. Both the factors fall short of expressing the impact of library. Marchant and Thiagarajan come vary close to the concept when they refer to the change that takes place due to the library and information service. This is a highly qualitative phenomenon and very difficult to measure. But an attempt has to be made. DuMont calls it a challenge. It has to be accepted.

LIBRARY EFFECTIVENESS LITERATURE

Having examined the definitions it will now be logical to review the literature on library effectiveness. In this review the literature on public libraries is not excluded as it is expected to be relevant for discussion on the other types of libraries.

46. Thiagarajan, R. 1982 op. cit

If the term effectiveness is taken in a very broad perspective many references can be cited dating back to the beginning of this century. However this survey reviews literature from 1955 as it is from this period that conscious efforts are made to discuss effectiveness. Even during this period very scarce literature is found before the publication of Morse's work in 1968. Highly systematic studies are found to have been conducted only after 1972, when, as is stated above, LISA had to take note of the subject specifically. This survey picks up only relevant works.

Carnovsky examined the performance of the public library services in 1950 as reported in the Inquiry Report. This evaluation was done on the basis of the ALA standards. He found the quantitative measurements as unreliable for assessing the service. Carnovsky examines the challenges before the public libraries posed by other media of communication. The main challenge is that of lack of demand in addition to the organisational challenges. He advocates cooperation to form the larger systems to meet these challenges. He also advocates the need for qualitative measurement of service.

Gelfand emphasises the importance of self-evaluation. He recommends that the institution should prepare self-evaluation instrument for the


* Public Library Inquiry Report 1950 (U.S.A)
evaluator by analysing the effectiveness of the library
programmes. Evaluation by a team of outsiders would be more
meaningful if the team is supplied with the self-assessment
instrument. Carnovsky in his updated study examined the ALA
standards of 1956 which emphasised the educational and informational
functions of the library and the importance of appropriate reading
matter. He does not find the circulation count as an important
measure. Behling and Cudd describe the evaluation made by the
Ohio State University libraries with the help of a questionnaire
to find out the characteristics of library users, the way they
used the services and their opinions about them. Behling and Cudd
found that the questionnaire method was very effective for measure­
ment of library-campus relations.

The Morse Study has the credit of being the first
systematic and well conducted study of the library effectiveness.
It aims to help both librarians and systems analysts or operations
research experts in the setting up of information storage and

50. Carnovsky, L. "Evaluation of library services". Unesco

416-422.

52. Morse, P.M. Library effectiveness: a systems approach
Cambridge (Mass), 1968 pp 207.
retrieval systems. The first half of the book deals with theoretical models, the second with their application to a specific library. The emphasis is on the pattern of book use, change in it with time and the problem of evaluating the degree to which the library satisfies or fails to satisfy the seeker of information. He also discusses the estimation of circulation demand, book retirement and book duplication policies.

Moriarty reports on the survey of library research undertaken at Purdue University which studied the attitude measurement, growth measurement, cost evaluation (economics of space utilization), usages measurement and prediction and a cost study. The cost study describes the survey made of twenty library services extended to undergraduate and graduate students, faculty members and others and the relative use of the services by these groups. The costs have been allocated to the user groups on the basis of percentage of use. Orr et al conducted a major study on the objective testing and measurement of library service. His methodological tools have been applied to the evaluation of the document delivery capabilities of libraries, inter-library-loan service and basic reference service and to the preparation of inventories of library services.


Allen demonstrated that the case of use of information is very important in the communication channel in research and development terms and their relationship with problem solution and ultimately overhaul technical performance. Evans and Borko have developed a list of issues and criteria that relate to the problem of the measurement of medical library effectiveness. They review the literature on library evaluation of all types of libraries and examine the criteria or measures of evaluation mentioned therein. Taylor reports on a survey depicting the user view of the library services. A table of results, in which libraries are awarded points on the basis of extent of area, opening hours, reference books in stock, proportion of qualified staff, cost (to users) of ordering books and whether or not there is a Readers' Advice desk, is filled out by comments from researchers on their local libraries. He argues that libraries will not improve unless the public makes its wants known. King and Bryant in their article on evaluation of information service and products argue that systems components refer to specific items such as hardware, books, staff and buildings.

Each component may itself be the object of evaluation or at least an important element in evaluation decisions. Evaluation process may be used to compare two methods of implementing a particular component. We can not evaluate systems processes without also evaluating systems components since the processes are dependent upon the individual components.

While emphasising the need for objective measures, they state that the need for objective measures is clear. Without objective measures the arguments will be strongly influenced by subjective beliefs and notions of what ought to be. Resources are limited and this is the reality of the environment in which the library functions must be assessed. A large element of environment is the public served by the library. Unless effective ways to accurately measure the services provided in terms that the public can comprehend are found, the necessary resources can not be justified. Roger and Weber state that the use of statistics is a primitive method. Circulation and reference figures are ridiculous as absolute measures of use and are faulty even as comparisons from one year to the next. They would however be useful to convey the library growth, future plans, its problems and service to the community. Rose stresses the need for revised manner in which the data is currently collected, and describes five major frameworks within which quantitative data may be collected and analysed: 1) experiments; 2) models; 3) case studies; 4) comparative statistics; and 5) surveys.


Dougherty emphasises the human side of library effectiveness and argues for the participation of library staff in determining the goals to be reached. Rzasa and Baker define primary goals of the university library as 1) maximise user satisfaction and 2) minimize the time loss (opportunity costs) to the user. The criteria established for these primary goals were 1) the number of material items utilised; 2) the number of actual users; 3) the number of informational items sought; 4) the number of satisfactory informational items received; and 5) the amount of study space utilized. Mathematical formulas are constructed to enable the librarian to measure the library's achievements in terms of each of these criteria. Morse, in his later study, presents mathematical models of library operations to enable managers to estimate effectiveness measures. These describe the amount of use made of resources by a user in a visit; the distribution of book circulation in a collection; the dependence of circulation on time; and the effect of multiple copies on user satisfaction. Predictions of the consequences of breaking a central library into branch libraries and of removing


the least-used books from a collection are made, and strategies for duplication are suggested. An emphasis is on getting practical results from models. Graphic techniques supplement the mathematical formulas. Mount and Fasana describe the methods used in collecting performance data in a large academic research library. Twelve types of surveys such as user surveys, literature survey, circulation survey, staff survey were used to measure and evaluate the user services and materials in the library. DeProspo et al describe the analysis of library statistical reporting systems and their applicability as indicators of effectiveness that was used in the first phase of the Public Library Association's measurement of effectiveness of Public Library Service Study. They also describe Phase II of this project which was concerned with developing criteria which appear descriptive of effectiveness of a public library program, developing methodology for the data collection process for the selected criteria, collecting data in a small number of pilot libraries to test the feasibility of the method and establishing tentative ranges of performance for each criterion. Beasley in a the commentary on evaluation

64. Mount, E. and Fasana, P. "An approach to the measurement of use and cost of a large academic library system: a report of a study done at Columbia University Library". College & Research Libraries 33:3 (May 1972) 199-211.


of library services observes that the measurement of social service is based on values and that the service itself is aimed at nothing less than furthering a set of values. Davies 67 while discussing the implications of organisational effectiveness and corporate management emphasises the adaptability of the organisation to the needs of its community. Thereby, he, in other words, emphasises that the library for it to be effective must participate in the pursuit of objectives of the parent organisation. Thomas and Ward 68 report on the seminar organised to learn from the experience of those librarians who had already started acting as managers. The participants of this seminar narrate the experiences of implementing MBO. Commenting on the proceedings of this seminar Thomas and Ward observe that

There is a place for quantitative measures in library management and for quality, both, in the interpretation of the information collected and in the definition of objectives and the performance and provision of services.

Hamburg et al have critically described mathematical models developed since 1968 as well as the quantitative formulations of empirical findings. They have presented


a list of areas in which such attempts have been made. There are 16 major areas and 36 sub areas, all adding up to 52. The major areas are: provision of building area; seating and space utilization; maintenance; selection of documents; acquisition of documents; processing of documents; classification and cataloguing of documents, control of location and use of documents; facilitation of use of documents, maintenance and weeding of documents; aids for location of documents in other libraries; facilitation of access to other libraries; personal assistance; publications, advertisements and exhibits; library initiative; communication planning and administration. They review more than one hundred works, published as well as unpublished, that have presented these models. Philip M. Morse's study is the most important among them. In the context of the use of the information supplied by the library or information centre as a measure of effectiveness, the investigation by Caplan et al.\(^7^0\) of the use of social science information in the formulation of government policy is a conceptual as well as empirical study. It is based on 575 self reported instances of the use of social science information by 204 upper level employees of the executive branch of the federal government of U.S.A. It is a major contribution to the information use studies.

\(^{71}\) Daniel, while discussing the performance measures for school libraries, cautions the evaluator undertaking the measurement


\(^{71}\) Daniel, E.H. (1976) *cit*
exercise. He wants the evaluator to keep in mind that

i) measurement is a process and not a product; it is an
ongoing activity involving analysis, planning, implementing
and evaluating in a continuous cycle; ii) measurement
requires value judgements. Not everything of worth can be
measured. The selection of what to measure and the inter-
pretation of the results of measurement require professional
and personal value judgements; iii) measurement be done only
where it makes a difference. If there is no possibility of
correcting, changing and reinforcing a particular aspect
being measured, it probably is a waste of time to measure it;
iv) the most important resource of the librarian is time.
The choice of where and how the librarian spends his time will
affect the overall direction of the programme; v) the most
useful tool for the librarian is knowledge. The measurement
of performance of the library can be done better with the
help of the librarian's knowledge. Evans et al \(^{72}\) after
reviewing over five hundred articles, books and abstracts, have
enumerated the criteria used to measure library effectiveness.
The list is given in the next section of this chapter, but
what is important to note here is that the authors are not
satisfied with the existing measures. They have listed their
expectations from a better model. Their major expectations
are: consideration of total service programme and use of multiple

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\(^{72}\) Evans, E. et al. "Review of criteria used to measure
library effectiveness." *A reader in library management,*
criteria for evaluating service function. Jones. While discussing creative library management, criticises the Raza and Baker criteria for measuring the attainment of goals of the university library, mentioned above. Merchant's work which basically advocates participation design of work in the library discusses the library as an open system. He examines the characteristics of the open system and shows that they exist in the library as an organisation. He, however, treats effectiveness as the output which cannot be easily accepted. This is discussed in more detail in the next chapter. It is interesting to see that Merchant argues for taking note of not only the failures but users' frustrations and anger that result from interaction with the library personnel and library processes and from difficulties in locating needed materials and information. Morrison advocates a conservative approach which involves unity of command, lines of authority and communication, proper span of control, and corporate and consultative involvement. He described the library as a system with warehousing and information processing as its two levels of operation. He treats measurement as a corollary of


Responsibility. He also discusses the use of measurement in the context of planning for innovation. Oldman argues that the library deals in information and not just documents. Measures of the use of a library are therefore insufficient as measures of its value. According to her, it is necessary to examine the user's predisposition to seek information and its acquisition and use. Surace et al present a report on the evaluation survey of the library of the Rand Corporation. The objectives of this survey were, inter alia, to measure the professional staff's usage and satisfaction with each of the library's services and collection components, to measure the degree to which several different policy changes might affect the frequency of usage and the level of user satisfaction with specific services, and collection components. The instrument designed for this survey was a questionnaire. Seven point scale was used to get the data both for qualitative evaluation (level of satisfaction) as well as quantitative evaluation (use of reading material). Totterdell and Bird present the full


78. Totterdell, B. and Bird, J. (eds). 1976. op.cit
report of the Hillingdon project which aimed at measuring
the effectiveness of public library service within a
given community and to develop a methodology for measuring.
The study concluded,

The relationship between output and need proved complicated. The
individual's perception of his needs are often in conflict with the
librarian's perception, but it is the former which counts and which, if met,
makes the library effective. It was
found that the public libraries operate on a minimum level of user
satisfaction, surviving largely on good-will and low expectations. They
do not promote themselves adequately and discuss unmet needs too easily.

Lancaster argues that evaluation of effectiveness is
evaluation of user satisfaction. Such an evaluation should
determine how well an information service satisfies the needs
of its users. He observes that this type of evaluation is
frequently restricted to a consideration of how well the
service meets the demands (i.e. expressed needs) of users
and to what extent the latent (unexpressed) needs are completely
ignored. He observes that libraries and other information
centres are no simple systems. Indeed they are quite complex
from evaluator's point of view. They offer many different
services, each of which may require use of somewhat different
criteria. Oldman and Wills in one of the famous Cranfield
Institute studies, concentrate exclusively on academic libraries.

79. Lancaster, F.W. 1977 op. cit

80. Oldman, C. and Wills, G. The beneficial library: a
methodological investigation to identify ways of
measuring the benefits provided by libraries.
Several methods of evaluation are examined. They examine the interactions between library type information systems and the receiving community and highlight the differences between use-expectations of a library system and their actual experience of it. They conclude that user orientation can normally lead to more effective resource management than archival/product orientation. The study conducted by Wayne State University Library emphasises the necessity to draw distinction between efficiency and effectiveness. This study shows how the university library staff expend their energies in keeping their organisation going. The concepts, methodology and data gathering instruments used in the study are also discussed by the author. Altman emphasises the need for concrete data to evaluate services. He brings out the distinction between two studies of performance measures carried out by collecting two types of data. He prefers system-wide analysis of all performance measures to analysis of a single library unit. Chen presents the papers read at a workshop held at Simmons college which describe basic statistical methods and some of the concepts of systems approaches used in evaluating library services. Papers using quantification methods in the

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following areas are described: reference service, space utilization, journal use, document exposure (i.e., circulation and library use), book detection system and use of books in certain subject areas. Waldhart welcomes the advent of the  
results-oriented management principles being applied to library management. He discusses the factors that resisted the application of result-oriented management principles to libraries but expects that with improvement in quantitative expertise in library management these factors will be eliminated. Allred provides a basic text on measurement of library services, taking an overall review of the problems of measurement. DuMont and DuMont have written a careful and detailed analysis of development in the area of measuring library effectiveness. They have critically assessed the values and shortcomings of various schools of evaluation. Their assessment is very significant in the sense that it takes a review of what work has been done in this area and reveals their own contribution to advance the thinking in it. They first define the terms utilized to describe the library effectiveness and provide the definition of library effectiveness. Library effectiveness, according to them, is the measure of a


86. DuMont, R.R. and DuMont, P.F. 1979 op. cit
number of related factors: 1) goal achievement, measured by library's contribution to its patrons; 2) optimization of performance; 3) the degree of user satisfaction; 4) the use of human resources; and 5) the ability to survive. The conventional tools used to measure library effectiveness are critically examined. The challenge in measurement of library effectiveness is to develop tools for the measurement of uses and the functional contribution of the library in terms of impact. They have developed a model based on the systems analysis having a time horizon. It views the inputs and outputs as of today (when they are relatively fixed), in the near future (when they show some change), and in the long term perspective (when the inputs and outputs are dramatically changed). The elements of their output component consists of effective service as perceived by staff and as perceived by patrons. A simplified version of this article is presented by Rosemary DuMont 87 as also by Dumont and Dumont. Morein 88 describes the continued use of OMS assisted self-study approach for improving effectiveness of academic libraries. OMS is the Office of Management Studies.


of the Association of Research Libraries. Axford deals with the self-study in more details. This self-study is called MRAP - Management Review and Analysis Program. The significance of MRAP lies in the methodology by which it attacks the problems of improving the management of academic libraries. MRAP has two sets of internal goals defined as those involving process and their having to do with content and an overreaching public relations objective related to the library's image within the parent organisation. Beyond the internal goals the program strives to secure for the library a more favourable image within the parent organisation by understanding its willingness to change and be accountable for the use of its resources. Axford questions the premises as well as the value of the MRAP and advocates collection use studies as a means of improving the management of library service. The most important book that seriously and systematically deals with the problem of library effectiveness is Blagden's *Do we really need libraries?* The book reviews the attempts that have been made to develop a methodology by which a library's contribution to the goals laid down by the funding body can be more easily assessed. The major emphasis is on the interaction between the library and the customers that it is


aiming to serve. While emphasizing the need for measuring effectiveness, the author states that

Unless the library manager is able to demonstrate that some progress has been made in achieving the objectives that inspired the initial decision to invest in that library, the whole validity of that decision will be constantly under attack.

Blagden has reviewed the following evaluation techniques: questionnaires and interviews, observation, diaries and panels, critical incident method and operational research. (Critical incident method is one whereby all activities relating to one project are recorded and intensively studied. In addition, the incident itself can be an artificial exercise taking place in laboratory conditions where one can compare the results with a perfect solution). Blagden discusses four approaches to library performance measurement: 1) Cost-benefit analysis and pricing; 2) Time saved justificatory data (money values are assigned to the use of the libraries on the basis of the time that a library service saves the user of that service); 3) User satisfaction and the use of libraries; and 4) Reference service. He does not favour any one of the approaches. He then reviews some more studies that have been carried out in the field of evaluation. Allen's studies in communication are already referred to above. The studies conducted at the Cranfield Institute of Technology and Loughborough University of Technology which produced a five fold benefit typology that the readers expect from the library are examined. The Orr and Lancaster studies that emphasise the document delivery concept are also examined. He also examines failure analysis of Urquhart
and Schofield as well as the collection evaluation concept advocated by them. Benefit inversion approach, i.e. what would happen if the resources were allocated differently, or in other words, 'funds spent on the library would not be better spent elsewhere and that these funds are also spent in the most effective way', presented by Hawgood and Morley in their experiments in Durham University is also reviewed. Another attempt to relate returns on capital to library decisions or what is known as the "Expected Value of Perfect Information" (EVPI) concept developed by Wills and Christopher is also discussed. Blagden also reviews Hamburg study on document exposure, Wolfe and others' studies on the economics of information system as also the Wessel studies for evaluating US Army Technical Libraries. Blagden introduces two new evaluation approaches to the problem of evaluating library performance. They are the penetration and impact. Penetration is the first stage where attempt is made to determine how well the messages are getting through to the audience at whom they are aimed. Impact analysis attempts to determine whether the messages have been received, i.e. read and what outcomes resulted from the reading. He analyses the two studies carried out at Greater London Council and British Institute of Management which utilised these two concepts and concludes that despite many difficulties it is still believed that these two concepts provide a possible way forward for those who are concerned with evaluating the performance of the libraries. He, however, suggests that the
library profession must make sustained attack on the problem of developing methodology by which the performance of the library can be more effectively assessed. He further states that this has to be necessarily done by the librarians alone, if the level of resources to be allowed to libraries has to be maintained. Aversa's paper on the organisational effectiveness in libraries is a useful contribution to the literature on measuring library effectiveness. She reviews some approaches to organisational effectiveness suggested by writers on organisation theory and management. Some applications of the theories as described in the literature of library and information science are discussed. She develops two hypotheses: one, as the environment of libraries becomes more complex, the appropriateness of applying the systems models to the assessment of library effectiveness increases; two, as the resources of the libraries become scarcer the emphasis on efficiency measures rather than effectiveness measures increases. She suggests a model which synthesises some of the approaches. She suggests

One could contribute to the administration of libraries by relating the resources received from the environment to expenditures in such areas as user studies, community studies, lobbying, professional meetings and association participation and the like. Such an effort could validate or disprove the notion that a library's budget is directly related to the emphasis library

management places on identifying and dealing with outside influences. From there the field could determine how much emphasis to place on internally and externally based performance measures.

Martell identifies library effectiveness with responding to rapid changes in user demand. The library staff can respond to these changes only if quality of their working life is improved. He suggests that the work system design approach rather than the job design will improve the quality of working life of the library staff. Work system design concerns itself with a system of thought that stresses the humanizing and self-fulfilling potential of work. Moore briefly referred to the commonly held view that library standards are being overtaken and replaced by performance measurement techniques. Discussing development, use and advantages of these two concepts he suggests amalgamation of two concepts by evolving a method of expressing standards in the form of objectives, thus allowing progress to be measured and performance assessed. He does not see that these two basic concepts will be invalid as tools for measuring the library effectiveness even though sophisticated tools are evolved.

Robinson and Turner advocate application of fuzzy-set theory for management of large collections to improve effectiveness. The Fuzzy-set


theory allows for the explicit consideration of professional expertise and judgement. Cronin\(^96\) in the paper presented at the course on establishing the objectives and evaluating services held at Queen's University, Belfast, describes various techniques for use in evaluation of the effectiveness of public library services, such as reference service evaluation, failure analysis, management of stock, measurement of the intensity of the subject use, plotting seasonal variations in patterns of use, monitoring borrowing preferences of different user groups etc. Oldman\(^97\) looks at the Cranfield Institute study after the lapse of six years and observes

> There is still concern to seek objective measures of the value of library. There is a need for the research that is concerned to demonstrate impact or value and not research that simply measures acts of use.

Evans in Management Techniques for Librarians, states that it is necessary for the librarian to have sound objective standards of performance. Although it is difficult to evolve them, he warns that it is necessary that librarians must find them, otherwise others will do the job and librarians will have to accept them, although they will not be suitable ones. He reproduces, by way of example, the section on libraries in the report on 'Measuring the effectiveness of basic municipal


\(^97\) Oldman, Christine 1982 op. cit

services' prepared by International City Management Association. He points out how a couple of measures are wrong. Evans jointly with H. Borko and P. Ferguson prepared criteria for measuring library effectiveness (which is reviewed above). He holds that the result of that study is still valid. Kimzey, in the context of evaluation of a school library, argues that systematic collection of both objective as well as subjective data is necessary for realistic evaluation. She states that repeated evaluation done over a number of years will be helpful in accurate tracking of the library and its programmes as well as providing a framework for future planning. Failure of the users of the library to locate the documents is one of the major hindrances to effective service according to Redford. The failure could be in locating a book in the catalogue, or having located it in the catalogue the user may not find it on the shelves. Failure of any nature is dangerous for the librarian who endeavours to make his library effective. McClure advocates


100. Radford, N.A. "Failure in the library: a case study" Library Quarterly 53:3 (July 1983) 328-339.

the measures for special libraries belonging to the category of corporate information centres. He, however, emphasises that the measurement exercise must be an ongoing one. Lewis suggests an organisational paradigm based on the works of organisational theorists and of librarians for effective library. He states that academic libraries must adapt to new technological changes. They must be innovative in giving their organisation a new structure. Lewis has suggested a new structure that has the following five components: modified professional bureaucracy; flexible resource allocation; use of management systems; export of production functions; and the development of organisation philosophy. McClure reports the result of a pilot study to identify the issues and concerns of public service middle managers on costing and use of performance measures. The findings suggest that the librarians interviewed had little faith in the usefulness of producing cost data and using performance measures. They believed that such data rarely had any impact on decision making. They felt that in-house data lacks reliability and validity. The author suggests that it is necessary to restore the confidence of the librarians in the methodologies for improving library effectiveness. He suggests strategies at two levels: professional level and organisational level. At the professional level he


suggests that it is necessary to take specific actions to develop the products. The professional leadership should clarify the objectives of the methodology and acquire support of the leaders in the academic library community. At the organisational level, the librarians should examine their management styles so that the confidence of the middle managers can be restored. They should improve the knowledge of the middle managers.

The survey of the literature on the general library effectiveness published since 1966 after Morse's work appeared will indicate that librarians are constantly in search of a model for the measurement of effectiveness of the library. They are concerned about the non-availability of the reliable and easier-to-explain measure. Most of the literature emphasises that the need arises because of the cuts in the library budgets. Although that is a major reason, the more genuine cause would be the establishment of the role of the library itself. The potential strength of the library as a social organisation is so great that no civilized society can afford to have a weak library sector. This is why it is found that all the advanced societies, right from the ancient period to modern, have been carefully tending this organ of the society. The easiest and sure way of destroying civilisation is to destroy its libraries. It is the primary responsibility of the librarians to be watchful in this regard. This explains why there is spate of literature on the subject of library effectiveness.

In the next section of this chapter, literature on advantages of measurement and on the data-collection techniques to be used for evaluation exercise is reviewed
ADVANTAGES OF MEASUREMENT

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Brockman enumerates the advantages of measurement, especially the quantitative measurement, as follows:

1) operating decision can be based on explicit analysis and quantitative data rather than on past practices and the desire to emulate other libraries;

2) the decisions based on properly collected quantitative data would be more rational than those based on intuition and experience;

3) library management would be able to
   a) internally monitor the trends in the library performance indicators;
   b) compare actual performance with planned performance in order to guide future decision-making;
   c) compare the library's performance with that of other libraries.

105 Morrison has also discussed the uses of measurement on similar lines.

DATA COLLECTION TECHNIQUES TO BE USED FOR EVALUATION

Several authors have suggested the way in which the data should be collected for the measurement exercise. They have also pointed out various techniques that should be utilised for arriving at meaningful results. The self assessment technique has been advocated by some authors indicating how the self-assessment be conducted by every library. (The literature on the self-assessment is reviewed separately in this section after reviewing other techniques.)


Hernst advocates that total information operation be considered as a system. He also advocates considering a broader evaluation process which includes a combination of surveys, measurement studies, user satisfaction studies, and measurement of specific operations. Palmer emphasises the need to have an accurate concept of what data should be measured and why. Proper interpretation of data and corporation of one set of data with another set is an important dimension of library research. He recommends that statistics should compare the last library year with this year and five years hence; data gathered should be meaningful to one's library; sampling techniques and contacts with experts who deal with the public that the library work touches upon should be tried; and national and other statistical reports should not take precedence over the statistical analysis that is relevant to the library. Altman provides a manual for the collection of data outlined in the study of the public library performance measures made by De Prospo and others for the Public Library Association, ALA. Layzell Ward presents a brief account of


some more promising methods of investigation useful for evaluating the library services. The methods described by her are: comparative statistics, collection of data by sampling method, interview method, case study method, observational technique, maintenance of diary, critical incident technique, check-list systems analysis, statistical methods and bibliometric techniques. Kidston describes the questionnaire method and highlights the precautions that have to be taken while using it. He warns that,

> Questionnaire is a much trickier instrument than is commonly supposed. It is easy to collect the data with a questionnaire, it is much more hard to collect valid and useful data.

He shows how adverbs are also interpreted differently by the respondents.

**SELF-STUDY TECHNIQUES**

Willey and Branch have elaborately dealt with the self-study method for the libraries, in the manual prepared by them for the self-assessment in Indian universities and colleges. The manual is basically based on the Report of the Education Commission set up by the Government of India in 1964 under the Chairmanship of D.C. Kothari. This manual was prepared under the auspices of the Ford Foundation. The authors felt that Indian universities and colleges were not able to carry on the teaching, research and service with full


effectiveness. There were problems in making effective use of libraries also. They have therefore provided guidelines to assist the universities and colleges to evaluate their libraries. They recommend that a planning group be formed to review the entire work of the university and college libraries on an on-going basis. The university librarian must be a full-fledged member of the planning group. For library assessment the Planning Group should watch the resources provided to the library; the organisation and administration of the library; and the use of the library by the teachers. The authors have listed a series of questions with the help of which the Planning Group can do their job effectively. They would like the Planning Group to compare the data thus collected with the recommendations and guidelines provided by the Education Commission. This is a very useful tool for collecting data for measuring the effectiveness of the library.

113 Mucci describes the experiment in video-tape self-evaluation at Orland Public Library, Florida, USA, involving five reference librarians, one reference department and two branch librarians. The advantages and limitations of the method are discussed. Johnson states that the self-assessment method is very useful in the days of cuts on the library budgets. He states that the technique of self-study

has been utilised by academic institutions as a way of planning for the future. He argues that if the parent institution is involved in a bottom up planning process, the librarians can employ self-evaluation to cope with their internal problems as well as the changing needs of their institutions. A comparison of such programmes demonstrates that self-evaluation is a proven method for academic librarians interested in management review, planning or general organisational development. Casserly reports on the self-study documents of four academic libraries prepared for regional accreditation. These reports adopt the input-output analysis and treat use of material as the output of the library. They lead to more descriptive and less quantitative measurement.

**CRITERIA FOR MEASUREMENT OF LIBRARY EFFECTIVENESS**

Various criteria for measuring the effectiveness have been recommended by different authors. The literature on these is reviewed in four groups that follow. The literature review in the first section covers mostly those articles or books that deal with more than one criterion. The next three sections, following this one, review the literature on each of the three criteria which have been identified with the library effectiveness by many authors. These three criteria are: a) library use (or particularly use of library material); b) evaluation of the

collection, and c) the cost studies. The studies reviewed in this section do refer to these but it is one of the many other criteria.

As early as 1951, Thompson reviewed the development of measures used for evaluating library services. Most of them were of a statistical nature. Reynolds and Ottersen have compiled bibliographies of the references giving the criteria for measurement. Ottersen concerns himself basically with standards and criteria necessary for subject evaluation, and the methodology suitable for application in evaluating the government libraries in U.S.A. Stecher presents a brief survey of the studies in quantification which refer to various criteria for measurement such as user satisfaction, document delivery, item-use day, exposure time or traditional measures like impression, incompleteness, irrelevancy, inadequacy at assessing interactions between various operations.

Wasserman regards the goals and the objectives of

the library as the criteria for measurement. According to him,

\textit{Measuring is really a process of relating, usually by determining a numerical relationship, to a generally recognised standard".}

Maizell discusses the standards for measuring the effectiveness of a technical library programme. He emphasises that inter-library comparisons serve as a means of highlighting the normal functions and sizes of libraries. Once the profiles of these characteristics are collected for a representative sample of these libraries each person can judge for himself whether a given institution is leading, lagging or holding close to par. In this profile, the quality of holdings, as measured by the fraction of contemporary citations, quoted by the peer group specialists (e.g. engineers, scientists, academics), that can be made available upon request is an exceedingly important component. Another criterion suggested by Maizell in the adequacy of the reference service as judged by a score on the number of questions or the problems solved successfully. Overlapping these, to some degree, is a

\textit{Performance index which registers the fraction of titles actually delivered in a reasonable amount of time in response to requests. (90% is a good record for a medium-sized modern technical library, somewhat less for larger libraries).}

Finally, a series of rather qualitative features is included which describes the degree to which library personnel participate.

in the larger organisation they serve and the degree to which library material and services have become an intrinsic part of day-to-day operations of the larger organisation.

Most important and, perhaps, the first comprehensive study on the library effectiveness is one conducted by Wessel and his co-workers (known as Wessel studies) to develop criteria for evaluating a number of United States Army Technical Libraries. Wessel in the report based on the two phases of the studies summarises the data and information collected to facilitate the development of criteria for the evaluation of the efficiency and effectiveness of Army Technical Libraries. The team first identified the mission and objectives of the Army Technical Libraries. They listed the area in which adequate standards for performance are feasible and present the criteria and management techniques useful in implementing them. The criteria suggested by them apply to four general aspects of library performance:

1) Philosophical - criterion which relates to the enunciation of the reasons for the existence of the library;


* The study was issued in three parts. Hence it is called studies.
2) Management - criterion which relates to the influence exerted on the efficiency and effectiveness of the library by management practices;

3) Services and products - criterion which relates to the outputs of the library and measures of service on product effectiveness;

4) Operations - criterion which is potentially useful as a basis for developing standards for performance evaluation of the staff's professional actions.

In the third phase of their report, they propose four techniques:

1) SCORE analysis (service, components, reliability and efficiency analysis - this technique measures the effectiveness of a service and the associated change in effectiveness due to a change in operations or costs;

2) SCOUT analysis (service, components, utility analysis) - this technique is designed to determine the optimum balance between operations which yield maximum effectiveness within budget constraints;

3) CORE analysis - a technique to derive unit cost standards for given operations which produce a given quantity of output; and

4) GAME analysis - a technique to eliminate unnecessary work or excessive delays; to arrange work in the best order; to standardise usage of proper work methods, and to develop time standards to accomplish essential events.

Houser prescribes three indices. They are peculiar to public libraries only. The first index takes basic household in which at least one member of a household is a library registrant. The second index is the percentage of households in

which the head of the household and the spouse and one child living at home are registrants. The third index is the percentage of municipal households with a total income of over $10,000 in which at least one member is a registrant. The thesis questions the validity of the area served or population served concept on which municipal public service is planned.

126. Rosenberg suggests users' perception of the value of a library service as a measurement criterion. Kemper suggests that objectives in the form of standards must serve as yardsticks against which to measure the output of the library organisation. He defines the term standards as criteria one uses to determine whether or not plans are being carried out as expected. Jones suggests objectives as the criteria for measurement. Evans et al review the literature on measures of library effectiveness and formulate six major categories of the measures they came across. The categories and measures under


129. Evans, Edward et al. (1972) op. cit.
each category are -

I. Accessibility

1. Number of services and degree of services provided to various classes of users.
2. Ratio of services requested to services available.
3. Ratio of holdings to total user population (actual and potential).

II. Cost

1. Staff size.
2. Staff skill and characteristics.
3. Unit Cost.

III. User Satisfaction

1. User satisfaction with services rendered.
2. Number of user activities in libraries.
3. Percentage of items in collection as listed in some checklist.
4. Percentage of items in collection by type of materials (books, serials, reports, etc).
5. Percentage of items in collection by type of material compared to various classes of users.
6. Quality-value of items in collection based on expert opinion.
7. Ratio of documents used to materials requested.

IV. Response Time

1. Speed of services.
2. Ratio of number of services offered to average response time for all services.
3. Ratio of response time (to secure document) to total time document is of value.
4. Ratio of holdings to response time.
V. Cost/Benefit Ratio

1. Ratio of services provided to total cost.
2. Ratio of total service expenditures to user (actual and/or potential)
3. Ratio of item cost to item value or utility
4. Ratio of a given service (including overhead cost)

VI. Use

1. Gross use of services (reference questions answered, bibliographies completed, etc)
2. Ratio of actual users to potential users
3. Total library use (attendance figures, circulation, etc)
4. Ratio of a given service to total number of users
5. Ratio of total use for all services to total number of services provided.
6. Percentage of materials used by type and by class of users (student, teacher, researcher, etc)
7. Ratio of documents circulated to various classes of users.
8. Ratio of documents circulated to number of users.
9. Ratio of total use to total holdings.
10. Item-use-day (a measure based on the number of items used in a twenty-four hour period)

Authors comment that,

Each method of measurement has some advantages and disadvantages. Some common faults are: 1) most of the studies concentrate on one or two services and the total service program receives less consideration; 2) importance of using multiple criteria for evaluating service functions is neglected; and 3) conservation function of the library is ignored.
Hamburg et al. suggest two ways the library output can be measured; by calculating the proportion of user demands satisfied and the average time it takes to get the document or information to the user. They deal with the document exposure in more details. They argue that utilization is a better overall measure of the performance of the library than availability, since it covers both a library's capability to initiate and promote as well as to react.

Library's real benefits are advancement of knowledge, creativity, motivation and confidence. But since these cannot be observed directly, in order to justify a library's worth, a proxy measure, document exposure, is to be resorted to. Exposure of individuals to documents of recorded human experience is the sine qua non of library activity. Under the assumption that the basic objective of the libraries is to maximise exposure to documents, direct or indirect, in the library or outside the library, in the short run or in the long run, Hamburg and others propose several measures of library performance based upon the document exposure. These are the exposure counts, item-use-days and exposure time. When any one of these measures of exposure is related to the costs or inputs, output-per-unit, input measures of performance are derived. The authors have defined and specified how to


calculate such measures and they have discussed their
conceptual advantages and disadvantages and the comparative
difficulties in their estimation. These performance-measures
which are based on the relationship between exposure benefits
and costs are particularly appropriate for libraries that have a
significantly active or promotional component of library service.
On the other hand, in certain types of special libraries, the
users are primarily sophisticated specialists who are seeking
specific materials or information. Such libraries tend to
emphasize reaction of users and may attribute very little
importance to promotion of library use. In such cases, narrower
performance-measures such as proportion of user demand satisfied
and document retrieval time may adequately reflect library
performance and may be preferable to document exposure. Chong
considers user's time and effort as an additional variable in
the document delivery test.

The ultimate criteria for evaluating a library
service are quality (how good is the service) and value (how much
service does it do), according to Orr. The desiderata for
measures are given as appropriateness, informativeness, validity,
reproductivity, comparability. Elton and Vickery provide

132. Chong, H.K. "Quantitative evaluation of library value from
the user's standpoint". IN Library management:quantifying
133. Orr, R.H. (1973) op. cit
134. Elton, M. and Vickery, B."The scope for operational research
in library and information field". Aslib Proceedings
three types of effectiveness measures: 1) performance measures - the extent to which actual services to actual users are effective; 2) impact measures - the extent to which the potential use is actualised; and 3) availability measures - the extent to which potential services are actually provided. Schofield et al regard stock failure rate as the most important measure. Marchant as stated earlier considers satisfaction and dissatisfaction of the users as the measure of effectiveness. Kantor argues that one would really like to measure the contribution a given library makes to the transmission and growth of knowledge within a given time period. Direct measurement of knowledge is not possible, and so related events which can be identified are measured by him. An aggregate measure of performance, the total contact time per potential (user), is selected and mathematically decomposed into eight parameters which are independently meaningful, measurable and manipulative. Rosenberg considers 'user satisfaction' as the primary criterion.


136. Marchant, M.P. (1976) op. cit


Reviewing various quantitative measures proposed by a host of authors, White concludes that the quantitative measures must be related to cost, user and non-user surveys to obtain a fuller picture of a library's effectiveness.

Wilson attributes slow progress of the scientific evaluation to insufficient data that can be collected from the working of the library. He emphasises the planned approach to library management to make it more effective. Planned approach only can properly resolve the inherent conflicts in library management. He sees a conflict between two objectives, viz. improving quality of collection and maximising use. There are conflicts between the needs of different types of users. He has suggested the following measures of effectiveness:

- Catalogue use - reader failure
- Reference Service - reader satisfaction
- Collection measurement
- Document delivery capability
- Range and scope of library services
- Technical services management in terms of cost
- Physical access and ease of use
- Cost performance benefits such as methods of assessing the trade-off between owning and borrowing documents.


A British Library report provides the background to the development of 'comparison technique' along with the data collected for 27 British Library Authorities. The Cheweh study was conducted to identify the important aspects of library service that the recipients perceive. It tried to develop a measurement model for evaluation of library service on the basis of this perception. The data was collected by interviewing over 200 individual library users. The interview resulted in the identification of 50 important items as criteria for judging a good library. The top ten items are: availability of books, availability of periodicals, quality reference service, good reference collection, quietness for study, integrity of catalogue, friendly service, availability of non-book material, and helpful librarian. On the basis of the findings a mathematical model as well as a model questionnaire for measuring library service have been developed. It will however be clear that this is more a measurement of efficiency than of effectiveness.

Matheson and Gretshein take national ranking as a measure of evaluation. They present the results of a comparative study undertaken to assess the reasons for the low ranking received by George Washington University Medical Center Library in the ranking


among US and Canadian libraries. They conclude that the statistics and other traditional measures of quality are inappropriate and inaccurate measures for evaluating library programmes since they measure resource allocations and not the effectiveness of these allocations.

Cronin describes the techniques for use in evaluation of the effectiveness of public library services. They are: 1) references services - analysis of character and volume of use and a assessment of the quality, accuracy and competence of the service from the user's point of view; 2) analysis of failures; 3) stock management; 4) computer-based profiling of stock use; measuring the intensity of subject-use; 5) plotting seasonal variations in patterns of use and monitoring borrowing preferences of different user groups; 6) document delivery; 7) current awareness services; 8) technical services; and 9) derived value estimation and marketing. Cronin stresses the need to see evaluation in terms of MbQ.

O'Connor proposes a new method for developing standard scores for public libraries similar to scores used in intelligence testing. Data were collected over the period 1974-1979 for all input measures and circulation from published statistical reports of 301 New Jersey Public libraries. Three output measures (per capita patron visits, reference questions and

144. Cronin, Blaise. (1982) op.cit
in-library use of materials) were based on the data from 96
New Jersey public libraries. All the data were converted into
eight ratio scores which were then converted into standard
scores where each library's position on each performance
measure is a function of the position of all other libraries.
The standard scores are finally transformed into a library
quotient which can be used to make national comparison of
public library performance.

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Rout discusses evaluation of library services
in terms of user satisfaction, cost-effectiveness, finding
out how efficiently the system is satisfying its objectives
and cost-benefit analysis, i.e. whether the expenses of
providing the services are justified by the benefits derived
from it. Rout presents the findings of the study of user
satisfaction at the Library of Sambalpur University.

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Veath reviews the manual published by the Goals,
Guidelines and Standards for Public Library Committee of the
U.S. Public Library Association entitled Output Measures for
Public Libraries: manual of standard procedures. The manual
is designed to assist all public libraries in the collection
of certain types of data in a standard manner. The author

146. Rout, R.K. "Measuring user satisfaction: a quantitative
says that the manual would be useful for a local library to
determine the level of its service. It makes possible to
adopt the nationally-framed policies to a local library
working in local conditions. The manual prepared by Zweizing
and Rodger for ALA recommends collection of twelve types of
data. They are: circulation per capita, in-library
material use per capita, library visits per capita, program
attendance per capita, reference fill rate, title fill rate,
subject and author fill rate, browser's fill rate,
registration as percentage of population, turnover rate and
document delivery. Manthey and Brown felt that these measures
are adoptable in any type of library. They, therefore, decided
to apply these measures to a hospital library. They evolved
the procedures for collecting and reporting results of the
twelve output measures contained in the manual. They, of
course, had to make some adjustments to suit the measures meant
for public libraries to a special library. It was found that,
of the twelve measures, six were applicable to the hospital
library and additional four were found to be useful to other
special libraries.

148. Zweizing, Douglas and Rodger, E.J. Output measures for
public libraries: a manual of standardized procedures.
Chicago, 1982 pp 100.

149. Manthey, T. and Brown, J.O. "Evaluating a special library
using public library output measures." Special Libraries
76:4 (Fall 1985) 282-298.
The literature on the criteria for measurement of library effectiveness shows that several criteria have been suggested but none of them could be singularly used. The multiple criteria need to be applied taking into consideration that library service is an abstract concept and decisions relating to measurement are bound to be highly subjective decisions. The criteria must be able to measure qualitative as well as quantitative aspects of library service.

In the next part of this chapter literature which emphasises each of the three criteria of use studies, cost study and collection development are reviewed.

USE STUDIES

Dick and Berelson describe a survey conducted in a branch of Chicago Public Library which was designed to deal with two sources of possible discrepancy between circulation data and actual reading; the fact that not all books circulated from a library may be read and that more people may read a circulated book than there would be a single person on whose card the book is charged. The authors conclude that circulation data of the public library underestimate the library's impact in certain respects and overestimate in others.

The Fussier and Simon study of the use of collection in US


Research libraries use operational research and other techniques. Davis categorizes two ways of measuring the library use: one is compilation of circulation statistics and two is analysis of reference questions. Davis explains, giving examples of each of the five methods of measuring use. They are: 1) Questionnaire; 2) Interviews; 3) Observation; 4) Diaries; and 5) Critical incident studies. Razza and Baker describe the measures based on ratios of items used, library users, questions asked and satisfactorily answered and the ratio of users coming for social or study purposes to total population. These measures were used at City of London Polytechnic and were found to be useful to get the indication of user satisfaction, according to Pritchard et al. Chen used the criterion of document demand in terms of its ability to satisfy current need for materials and to predict future demand. Chen in the edited monograph containing papers

152. Davis, D.L. "New approaches to studying library use". Drexel Library Quarterly 7:1 (Jan 1971) 4-12.

153. Razza, P.V. and Baker, N.R. 1972 op. cit


presented at a workshop, describes basic statistical methods and some of the concepts of systems approach used in studies on use of journals, use of books in general as well as use of books in certain subjects. Burns, while giving background and rationale of the use as a performance measure, observes that

Use as an activity is still the most valid measure of any item's worth to a library or information system and use remains the primary criterion for retention. It is essential, therefore, that libraries differentiate carefully in their statements of institutional goals between archival responsibilities and library/information system responsibilities.

The most important, frequently quoted use study is the University of Pittsburgh study. Kent et al. who conducted the study observe

It is necessary to have a continued tracking of the use of library material within libraries at the university level.

Some of the conclusions of the study are as follows:

a) Usage rate of 56 - 60% of books is more or less acceptable.

b) Better method of access to literature than the card catalogue be used to increase the use of the library.


c) Better acquisition policies need to be adopted to increase use.

d) Of the books added during one year:

40% are never used; 14% are used once;
8% are used twice; and 5% are used thrice.

e) Library does not have techniques for forecasting the use of books.

f) There is a portion of books that can be shared.

D'Elia designed a model to study the user behaviour in the public library. In a study conducted to test the model he found that frequency and intensity of use of the library is directly related to special library programmes. Ellis-King argues that library effectiveness in the real environment can only be determined by research into directional librarianship, i.e. it should be less concerned with library users and more with those who do not use the libraries at all. Shridhar observes that there exist artificial barriers between the users and the library. But they are significant only because there is no strong desire for information felt by the users. Motivational factors are responsible for the strong desire for information. Motivation to seek information can overcome barriers between the users and the library. Butler and Gratch outline the planning steps.


necessary to coordinate disparate staff concerns and interests to undertake a complex study and accomplish stated objectives in a specified time. Allen and Exon have conducted a user study with a view to establishing the economics of interlibrary cooperation and resource sharing. User studies have been so popular with librarians that, in a recent article, Rohde states that he came across as many as 2000 documents relating to user studies in one data base.

COST STUDIES

The beginning of the study of effectiveness was made with cost studies. One of the early dissertations, which has already been referred to, had a considerable slant to the cost aspect of the library. The study of the cost analysis of the library service conducted by two economists, Hawgood and Morley, is regarded as a valuable contribution to the literature of cost-benefit analysis of libraries.


Performance measurement through unit-cost study programmes can be the beginning step toward achieving the goal of evaluating the value of the system. Axford reports the application of such unit-cost studies in the technical service functions at a large state university and presents three major tables for labour costs in terms of minutes and dollars per volume. A longitudinal study of the costs and benefits of selected library services conducted by Oldman and Wills presents the concept of 'subjectively desired value'. Kantor's study of library effectiveness discusses, briefly, user oriented cost-benefit analysis of the performance measures suggested by him. DeProspo and Liesener emphasise mainly the cost-effective aspect while evaluating the school libraries and media centres. Dunn states that library service can contribute in the parent organisation's endeavour to make profits. She argues that a business library's most effective tool is an efficient and speedy reference service and information service. If the

169. Kantor, P.B. (1976) op. cit
management is aware and makes use of this, money invested in the library will be money well-spent.

As it has been stated earlier, the studies in cost-benefit or cost-effective analysis of library services have been closely associated with the effectiveness of the library. One, therefore, comes across a sizable number of studies in LISA on the subject. Here again, the major motivating factor is preventing the cuts in the library budgets or restoring those which have already been affected.

COLLECTION EVALUATION

A collection comprising mainly of reading materials constitutes a major factor in the evaluation of libraries. Many authors have placed emphasis on building up an appropriate collection to make the library effective. They discuss various methods of evaluation of collection. Hirsch presents four methods and recommends that combination of these four methods may be used to get a realistic picture. Four methods are: a) impressionistic (evaluation by knowledgeable persons in terms of the policies and purposes of the library); b) check-list method; c) use by the readers; and d) expenditure incurred on the collection. Clapp and Jordan argue that the

size of the book stock can give a measure of the adequacy of an academic library. They have developed formulae to identify the principal factors affecting academic needs for books and to assign suitable weights to each factor.

Specific institutions are used to illustrate the application of the formulae. Seven significant variables in determining adequate collection size are: 1) size and characteristics of student body; 2) size and research commitment of the faculty; 3) curriculum; 4) methods of instruction; 5) availability of study places; 6) proximity to other libraries; and 7) intellectual climate. Cassata and Dewey describe a project to evaluate the collection of the State University of New York at Buffalo where the subject specialists responsible for reference service and book selection within their areas examined their relevant sections of the collection for adequacy in meeting the academic programme. Stock failure is the criterion for evaluating the collection according to Line. Bonn identifies five reasonably distinct methods for evaluating library collections: 1) compiling statistics on holdings, use,
expenditures; 2) checking lists, catalogues, bibliographies; 3) obtaining opinions from regular users; 4) examining the collection directly; and 5) applying standards plus testing the library's document delivery capability and noting the relative use of several libraries by a particular group.

Golden argues for a combination of qualitative evaluation along with quantitative evaluation. Mostyn observes that the standard ways to discover whether the library collection represents adequately the interest of their readers are not accurate enough to provide the information needed to remedy inadequacies in the stock. One possible remedy is to view the use of the library resources in terms of a supply demand equality, while using statistical sampling and testing techniques as a means of setting standards and evaluating adequacy. He outlines the techniques of measurement and gives actual results of a sampling of Dewey 700s conducted at the medium-sized library. Knightly found extensive overlapping and duplication in the collections of 22 college and university libraries. But collection overlap was found to be useful in view of the readers.'


needs. Papers presented at a workshop conducted by the Library Association of Australia describe some of the methods of evaluation of collection described above. Goldhor describes an inductive method of evaluation of collection and its use. The method consists of taking a sample of titles in the library's collection and searching them in each of the several reviewing journals, book selection tools, and retrospective bibliographies. Those that are found in all are accepted as desirable, not found are accepted as books of low quality or undesirable; and those that are found in any one are borderline in quality. Mosher describes the evaluation of collection carried out in Alaska Project where collection characteristics were analysed through direct shelf analysis in the process of preparing coordinated and comparable collection development policies for purposes of statewide resource sharing and cooperative collection development planning. The following criteria were used to evaluate the


the books in each of the ten Dewey classes.

1. **Number of volumes**: Count of shelf-list approximation based on 10 volumes per foot of shelf occupancy.

2. **Chronological coverage**: Are older and newer materials consistently represented? Should they be?

3. **Language coverage**: How extensive is appropriate or significant foreign language coverage of the subject in the collection?

4. **Principal authors**: Are the standard, chief, or more important authorities and authors included?

5. **Principal works**: Are the classic, standard, essential and important works in the collection?

6. **Primary sources**: Are critically edited original texts and documents included? How extensively?

7. **Criticism/commentary/interpretation**: How complete is secondary monographic or critical treatment?

8. **Complete sets**: Are sets and series well represented in the collection? Are they complete?

9. **Periodical coverage**: How extensive is periodical coverage of the subject? Are the chief titles included?

10. **Appropriate formats**: Are all appropriate or needed formats (such as films, documents, slides, maps) represented?

11. **Circulation data**: Circulation records may need to be checked to add to assessments above. In addition, circulation or use data may be helpful in assigning future collecting intensity indicators at one to three levels.

The criteria used here are very similar to the ones used in the present thesis while evaluating core, peripheral and alien collection. Magrill attempts to evaluate the collection by the

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the type of the library. According to her, there is often a dissimilarity in the approach to evaluation in different types of libraries, the approach may even vary among the libraries of the same type. These variations are due to the diversity of motivation for undertaking collection evaluation and to different benefits from such a process. She enumerates the following types: public library, school libraries and media centres, large academic libraries, small and medium sized academic libraries, special libraries in academic settings and special libraries in non-academic settings (Government Professional etc). Collection evaluation techniques receive varying amount of emphasis from one type of library to another. Techniques of evaluation discussed by her are 1) collection and manipulation of statistics on characteristics of the collection; 2) checking from standard lists; 3) asking experts; 4) analysing circulation and citation data; and 5) surveying users on their successes, failures, expectations etc.

This survey of literature on library effectiveness indicates librarians' deep interest in this formidable subject. Beginning with the cost-benefit studies through Cranfield Institute study and its subsequent review, substantial progress has been made towards a more realistic view of the total library effectiveness. Significant stage is the distinction that has been clearly brought out between efficiency and effectiveness by authors like E.R. DeProspe, Christine Oldman. It is clear that efficient library is a precondition for effective library. In short, effectiveness presupposes efficiency. In the present work
the approach is the same in pursuance of which an effectiveness model has been developed and is presented in the next chapter.