# Validity of Output Measures

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Libraries and library administration are in the process of changing, of evolving into management by goals and objectives. Statistical output measurements are needed to evaluate whether the stated objectives have been reached. But are statistical output measures valid? This is the first question to consider. Definitions for the terms used in this article are at the end of the article (Appendix I).

This article examines literature concerning evaluation and measurement in general, in libraries, and finally specifics related to the Muncie Public Library.

## GENERAL

Evaluation and measurement is a process and as such needs to be planned. Certain questions need to be asked and answered before data collection and analysis can begin.

What are the branch's or library system's goals and objectives?

What data is needed to measure the various program outcomes? Is any additional data needed?

Why should a branch or library system evaluate?

What is the purpose of the evaluation or which office or board will use it? Will the information obtained likely be used?

Who will do the various tasks?

Are the measurements related to the evaluation?

Will the cost of the evaluation be proportionate to the benefits realized to the library?

Some of these questions may already be partially answered because the task is already underway or it is needed in order to answer other questions.

All of the questions can be summed-up in one overall question: What does the library want to evaluate or measure? This implies a reason for that evaluation or measurement. Evaluation measurement (data) itself has no meaning; meaning comes with what is done with it after it is completed.

There are a number of reasons to go through the process of evaluation and measurement:

Provides accurate information to make specific decisions about a program.

Required by a funding source, state or local government, or some other group.

Provides a basis for comparison as to quality. Provides a method of showing accountability.

Provides a basis for conclusions about overall types of programs suitable for the organization. Helps detect possible trends.

Provides documentation for various groups (both pro and con) about the organization. Infuses staff and clients with a desire to speak out on the organization's behalf.

Provides a response to controversy. Produces defensible results.

Reinforces conclusions. Identifies unintended and undesired results- -points out strong and weak areas.

Source of material to present to news media that directly affects the public.

Provides documentation as to whether intended goals and objectives were met.

In order to make an evaluation, measurement or data is needed. There are four sources from which this data is available: observation, records, program staff, and program participants. No one source is the only one to use. All of the sources can provide output about a program. Each has its own limitations that need to be taken into consideration.

When dealing with people in general the following needs to be kept in mind:

The assumption that those who are silent are satisfied is highly speculative and overlooks the possibility that many people feel that their views are not wanted or would not make a difference if expressed, that some simply cannot or do not

know how to make their views known, and that still others are reluctant for personal or political reason to speak out. (1)

When dealing with program participants, such issues as privacy, confidentiality, functional illiteracy also need to be considered. Consideration also must be given to what is being measured. With what level of effect on program participants are we concerned? The three levels of effect are awareness of services existence, gaining of useful information, and influencing changes in behavior.

Data are not a substitute for managerial judgement but must be analyzed with other information to be useful in planning, policy, and program decisions. Not all objectives can be measured.

When planning an evaluation, the essential items to remember are to provide the best information under the circumstances and the information must be reliable and valid. In other words, the measurement should measure what it says it will and the data gathered applies to what is being measured. These two words are not interchangeable but go hand in hand in any discussion about evaluation and measurement.

Validity can be viewed as both internal and external. Internal validity of an evaluation plan ". . . is its capability through derived data to make definitive statements about whether or not the program produced the observed outcome." (2) External validity refers to the ability of an evaluation plan ". . . to all inferences or generalizations about effects beyond the specific groups and contexts being tested." (3) Data may be applicable to either but its presentation depends on the audience to whom it is directed.

Whether the measurements and ultimately the evaluation is credible depends on several factors: the evaluator's credentials, what the audience will accept, and the methods used. People tend not to accept information if it has alternative interpretations or they do not understand it. When presenting evaluations the following must also be considered:

> the general public tends to place more faith in opinions and anecdotes than do researchers—at least usually. If you plan to collect a large amount of hard data, you will have to educate people about what it means. (4)

Data gathered for evaluation purposes may be considered either hard or soft data. Hard data is considered ". . . relevant, reliable, and valid." (5) Soft data is ". . . anecdotal evidence or testimonials about the program." (6) When preparing an evaluation both forms of data should be included, as soft data ". . . enlivens the report and often gets across the program results that cannot be expressed as numbers." (7)

Decisions about what data to gather are based on the local situation. Each branch or library is unique because goals and objectives can be different.

When analyzing an evaluation several considerations must be kept in mind:

> Did the program produce the results? (Were there any activities in the community that contributed to the results?)

> What is the ranking in importance of the objectives? (Concentration should be on those of the highest priority.)

> Were we measuring the outcome, the process, or both the outcome and the process?

> What other information came to light as a result of the evaluation?

> Was the data collected continuously or by sampling?

> What is an acceptable output? (Should be stated in the objective.) Was it realistic?

The evaluation/measurement process must be used with caution, as there is a danger of over reliance. The process should be used in conjunction with other information to make administrative and managerial decisions.

## LIBRARIES

Planning is one of the most important tasks of a library administrator. Evaluation and measurement are an integral part of the planning process. To measure a library program implies that it has a value. Measurement means that there are questions that need to be answered and decisions made. To measure just for the sake of doing so or because it has always been done is a waste of time and effort.

The value of statistics or data is ". . . in their ability to refute hypotheses. Hypotheses that are not subject to statistical checks remain just theories. Hypotheses that flunk statistical checks are likely to be discarded." (8)

Libraries need to plan ". . . in order to plot change and anticipate its speed and potential consequences." (9) The object is to control change and not be controlled by it.

The current literature on public libraries indicates a need to consider community and individuals instead of the institution. It is no longer appropriate to gauge a library against uniform national or state standards. Each library must devise its own goals and objectives based on its community and individual needs. Evaluation and measurement need to be done, at least periodically, to see whether or not the goals and objectives are being met.

The process of measurement means the collection of data. Data that are collected must be purposeful. The data must be suitable to help provide answers to stated questions. The data to collect depends on the availability of it and on the priority of the library's objectives. Not every objective will be quantifiable.

In measuring performance of library activities sometimes it becomes necessary to incorporate library statistics that were gathered for other purposes. This measurement of performance output includes all direct contact with library users, whether inside or outside the library.

No consensus was found in the literature that was examined as to what form or how often the data was to be obtained. A few sources pointed out that by collecting all the data on a given day an administrator would be able to see the total interaction of all aspects measured. Various methods were presented ranging from one day to continuously, from a single number to a ratio.

As in all institutions, the evaluation and measurement process must itself be continuously reviewed to determine whether relevant information is being obtained. The collection of data has no meaning: meaning comes with analyzing the collected data.

Upon assembling of all the data and in compiling an analysis the administrator should remember that nothing can replace informed judgement. Measurement is not an end but provides evidence to help make rationale decisions.

Certain problems with the collection of library statistics need to be kept in mind.

Mutiple and/or unclear interpretation.

No common definition of terms.

The obtaining of data interferes with other duties.

Overcounting. Overabundance of data.

Pressure from outside groups to use their measurement tools.

Inability to correctly interpret data.

The acquiring of certain data presents its own unique limitations. When dealing with circulation figures consideration must be given to the fact that not all material circulates; some are used in-house. A registered borrower may not use the library during the term when the card is valid, and a non-registered borrower may use the library.

Output measures can help in determining the adequacy of services and resources, and will eventually help to move them from an existing level to a higher one. (10)

## MUNCIE PUBLIC LIBRARY

In 1982 Muncie Public Library revised its statistical gathering to make it more readable and bring it up-to-date. The Library adopted its current goals in 1983 (Appendix II). MPL is currently revising the statistical sheets for 1986 to make use of its computer.

Currently data is assembled daily and compiled monthly and yearly. No difference is made between the monthly and yearly reports other than the length of time it illustrates.

Data currently collected is recorded by branch. Circulation figures are presented in total as well as by fiction and non-fiction for both adults and children. Figures are also presented as to type of audio-visual material or equipment circulated. An attempt is made to keep track of microfilm, picture file, and interlibrary loan users.

Reference statistics are kept as to questions asked, number of telephone calls, and number of government document questions. In 1986 an additional category, directional transactions, will be added to the statistical sheet. Written definitions will be used for both reference and directional transaction statistics.

The number of items added and discarded is also kept. These figures are presented under the headings of bookstock, purchased, gift, transfers, and withdrawn.

The number of items used in a picture file are counted but not for any of the other files. The vertical file and career file are counted as to total added or withdrawn and total on hand. At the circulation desk, count is kept as to the number of items circulated as if they were non-fiction books.

Registered borrowers are counted as to city, Ball State, corporate, non-resident, reciprocal, and total. Indication is also made as to whether these are new, renewals, or withdrawn borrowers.

A descriptive page is attached for other information, including additional statistics.

Muncie Public Library is involved in various federally-funded projects. The Library also has continued projects that were started under other funding sources. In each case due to requirements of the granting agency detailed goals and objectives were stated. Methods and tools of measurement also were indicated. After the funding and final project evaluation, the projects became part of the on-going library service. No new goals and objectives were stated; however, statistics were maintained.

Muncie Public Library also maintains statistics required by the state. Most of the figures can be obtained from the monthly and yearly statistics sheets.

Written directions are available for the following statistical areas: visits to and from the library, programming, meetings, displays, general comments, reference transactions, and directional transactions. All other directions are given to staff members verbally.

## CONCLUSION

Are statistical output measures valid? That is the question this article has attempted to address. With library administration evolving into management by goals and objectives, a clear method must be established to determine the progress of attaining the libraries written, stated goals and objectives. This means the ability to evaluate by using specified data and comparing it to specified goals and objective must be a part of an administrator's duties.

This evaluation process involves goals and objectives as related to library programs and activities. All involved must understand this point, as the statistics gathered are not meant to be used and should not be used in personnel evaluations. The literature related to this subject is most emphatic on this point.

The question that must be kept in mind is: What does Muncie Public Library want to evaluate and/or measure? This question is just another way of defining validity— ". . . degree to which a test actually measures the qualities, criteria, predictions or correlations which it is intended to measure." (11)

Muncie Public Library currently establishes written goals for the next year by branch. In the case of federal and state funded programs the library has written goals and objectives. At the present time the Library is involved in only one federally funded program and one state funded program. All other programs that have continued, after being started with federal or state funds, have not had new goals and objectives established except as they apply to the general goals set by the agency.

Although no written objectives exist data are still being collected. Indiana State Library requires certain specific statistics from libraries in the state, as does the federal government with reference to their document use. It is possible that each person involved with or seeing the collected data might have some personal objectives and the library's long-range plan committee may be able to use the data.

This is contrary to what the word "evaluation" means; which is "the process of ascertaining or judging the value or amount of an action or an outcome by careful appraisal of previously specified data in light of the particular situation and the goals and objectives previously established." (12) The key words "previously specified" as they apply to data, goals, and objectives are vital.

Previously specified implies a written plan. With the establishment of a long range planning committee, Muncie Public Library is moving in that direction. The establishment of written goals and objectives, with plans for implementation and evaluation, will bring Muncie Public Library toward providing validity for their statistical output measures. The measures will have true validity if they measure what needs to be measured and are analyzed and utilized.

APPENDIX I

DEFINITIONS

*Accountability:* A personal obligation, liability, or answerability of an official or employee to give his superior a desired report of the quantity and quality of action and decision in the performance of responsibilities, specifically delegated. (see endnote 13)

*Data:* Any or all facts, numbers, letters or symbols which are stored and referred to for purposes of gaining information. (see endnote 14)

*Data Acquisition:* In data management, the process of identifying, isolating and gathering source data to be processed in a usable form. (see endnote 15)

*Evaluation:* The process of ascertaining or judging the value or amount of an action or an outcome by careful appraisal of previously specified data in light of the particular situation and the goals and objectives previously established. (see endnote 16)

*Measurement:* The act or process of measuring something. (see endnote 17)

*Output:* Information and data produced as the result of calculations. (see endnote 18)

*Performance:* Actual accomplishments as distinguished from potential ability, capability, knowledge, skill, or aptitude. (see endnote 19)

*Program:* In public administration, a term referring to a plan, function, activity or service that is designed for the acomplishment of an objective or group of objectives. (see endnote 20)

*Program Evaluation:* An assessment of the effectiveness of a program through the application of a research design aimed at obtaining valid and verifiable information on the structure, processes, outputs, and impacts of the program. Program evaluation is an effort to help decision makers determine whether to maintain, modify, or discontinue a special program. (see endnote 21)

*Productivity:* Efficiency in producing goods or services, or the ratio between the units produced or services provided by an organization (output) and the resources consumed in producation (input) during a specified period of time. (see endnote 22)

*Quantitative:* Of, relating to, or expressible in terms of quantity. *see endnote 23)*

*Reliability:* The degree to which a test is consistent in measuring what it is designed to measure. (see endnote 24)

*Statistics:* The collection, analysis, interpretation, and presentation of masses of numerical data. (see endnote 25)

*Validity:* The degree to which a test actually measures the qualities, criteria, predictions, or correlations which it is intended to measure. (see endnote 26)

## APPENDIX II
### GOALS OF THE MUNCIE PUBLIC LIBRARY

Provide access to information in all fields of knowledge.

Supplement formal study and encourage self-education.

Furnish information for learning and improving job skills.

Foster an appreciation of the arts and development of creative abilities.

Stimulate awareness in community affairs.

Encourage enjoyment of recreational reading, viewing and listening and constructive use of leisure time through library services.

Ensure a variety of opinions is available.

Work cooperatively with other educational, civic and cultural organizations in the community.

Organize the information necessary to accomplish the above efficiently, make it accessible in the most useful format, and provide assistance in its utilization.

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