MANAGING WITH

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MANAGING WITH DATA

Using ACRL*Metrics* and PLA*metrics*

PETER HERNON | ROBERT E. DUGAN | JOSEPH R. MATTHEWS

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PREFACE

THE ASSOCIATION OF COLLEGE and Research Libraries (ACRL) offers ACRL*Metrics*, an online data service providing access to ACRL and National Center for Education Statistics (NCES), U.S. Department of Education, academic library statistics; and the Public Library Association (PLA) has PLA*metrics*, an online data service for the Public Library Data Service (PLDS), which captures voluntarily submitted, annual data on staffing, operating finances, output metrics, interlibrary loaning, and technology provisions from a number of public libraries throughout the United States and Canada. With the availability of both data services, library managers can identify and track trends as well as raise management-related questions that they can use a data service to address. They can also compare their library to a set of peer libraries and to best practices. The purpose of *Managing with Data: Using ACRL*Metrics and *PLA*metrics is to provide a roadmap for using these important data services so that readers gain a foundation upon which they can build. To reinforce this purpose, a companion web portal enables readers to work with actual data variables and selected data as they answer the questions included in chapter exercises (see the accompanying text box, "Companion Website on the next page"). Because the data services described in this work require some orientation, managers in academic and public libraries, and the staff they oversee, will benefit from the guidance offered.

We realize that a number of library managers have not taken a statistics course, and some of them may feel uncomfortable dealing with large sets of numbers. This guide, it is our hope, removes any anxiety as we walk readers through the data services, showing them how to perform simple and complex manipulations as well as offering different choices for displaying findings graphically.

Readers wanting a complementary work that elaborates on the concepts discussed in the chapters and additional exercises should consult our *Getting Started with Evaluation* (ALA, 2014). To engage in formal evaluation or assessment research and explore problems that the data sets cannot address, readers might review *Engaging in Evaluation and Assessment Research*, written by Peter Hernon, Robert E. Dugan, and Danuta Nitecki (Libraries Unlimited, 2011).

Data help library managers demonstrate program and service efficiency and effectiveness, as well as show what and how much they can accomplish, perhaps within a cost management framework. The goal might be to address the value of the library to its community and stakeholders. Like it or not, data are linked to accountability, and accountability is more than the financial return on investment. Accountability documents the library's role and value to the broader organization/institution and to society. As this book illustrates, academic and public libraries can use metrics and strategic planning to promote accountability. Expressed differently, we all recognize that change is constant. We also need a context for

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dealing with change management (a vision and a strategic plan); an awareness of stakeholder expectations; an ability to meet those expectations, in part, by using evidence; and knowledge about the most effective ways to present that evidence in a meaningful way. This book also encourages library managers to keep asking what data or evidence do they need, what the data mean, and where do they find the data. Complicating matters, so much data are available, and the amount (and types) continues to increase. However, the two data services offer excellent starting points.

COMPANION WEBSITE

Both ACRL and PLA have kindly agreed to provide access to a *complimentary* subset of ACRL*Metrics* and PLA*metrics* to the readers of this book. This subset of data represents those libraries that have consistently provided data in annual surveys over a span of years. To gain access to these data, visit the website, ManagingwithDataandMetrics.org.

You will be asked to indicate which data service, ACRL*Metrics* or PLA*metrics*, you are interested in. Next, provide brief registration information about yourself, and answer a simple question (which you will be able to do with this book in hand). You will be provided with a user name and password, which will permit you to log in. Once you have logged in, you will be able to work through the various exercises found in the book as well as explore the database of library statistics and performance metrics for your own purposes.

In addition to providing access to the ACRL*Metrics* or the PLA*metrics* datasets that you can use to follow the exercises provided in the book, the accompanying portal will let you prepare any number of tables, charts, and graphs for your library that will be of value in helping answer a variety of questions. The portal enables us to share a variety of information with you including:

- **Presentation materials.** Copies of the PowerPoint slides that we will use when making presentations about the book.
- **Workshop schedule.** We will be presenting a number of workshops in the coming months that you may find of interest. The schedule for these workshops will be kept updated here.
- **Extra exercises.** We will post a number of additional exercises (and the answers) based on questions and issues that arise during a workshop.
- **Errata.** If we notice any errors in the book, we will alert you about them here.
- **Q&A.** Should you have any questions, please do not hesitate to contact us (for e-mail addresses see below). We will share the questions (stripping away the identity of those involved) and answers for all to see.

We believe that using all available data will to improve the decision-making process in any library. Libraries spend a tremendous amount each year collecting and reporting a large number of performance metrics. The data compiled, in our opinion, can (or should) be used more for planning, accountability, and decision-making purposes.

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After only a time or two of exploring and using one of the databases, you will quickly realize the power and flexibility that are accessible anytime to assist you in answering important questions that your library is asking. The kind folks at Counting Opinions are available to answer any questions that you might have (a form for submitting questions may be found on the website shown in the "Companion Website" text box).

We trust that you will find the combination of reading the book, with its step-by-step instructions, and having access to a library database a stimulating experience and will lead you and your library to use the available performance indicators as one helpful tool in managing your library.

In addition, both Robert E. Dugan (robert.dugan@gmail.com) and Joseph R. Matthews (joe@joematthews.com) will respond to any e-mail questions that you might have.

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WE WISH TO THANK the Association of College and Research Libraries and the Public Library Association, American Library Association, for letting us (1) have access to both data services and (2) create a guide to enable librarians and students in master's degree programs in library and information science to experiment with the data sets in those two services. We also appreciate the support provided by Counting Opinions in producing a guide that enables more libraries and librarians to engage in evidence-based management and to develop measurable targets associated with their strategic priorities (as specified in their strategic and other plans). In particular, we want to acknowledge Carl Thompson, president of Counting Opinions, who carefully reviewed the entire manuscript to ensure the accuracy and completeness of the explanations pertaining to the use of ACRL*Metrics* and PLA*metrics*.

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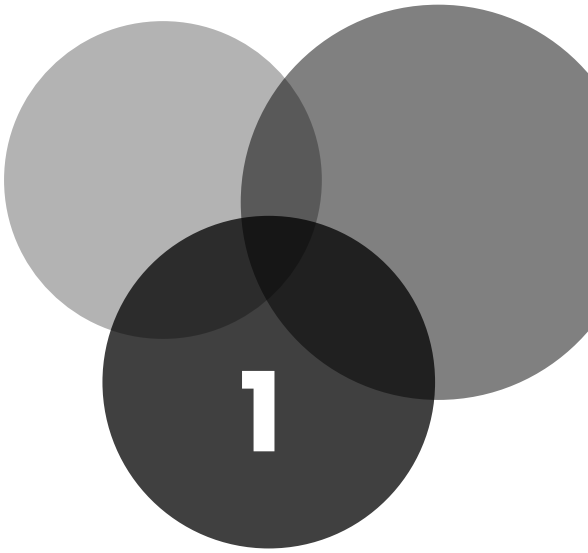

The Context for Libraries Today and Beyond

THE NATIONAL FOCUS ON accountability extends beyond adherence to the core values of the library profession, such as those associated with intellectual freedom and financial management (e.g., managing the budget ethically). More broadly, that focus involves the alignment of the library's mission (services and programs) with strategic priorities and the mission of the institution, including stakeholder expectations, to ensure organizational effectiveness, efficiency, and the provision of high-quality services and programs. In the case of academic libraries, accountability might be viewed in terms of the library's value and relevance to institutional goals, such as the accomplishment of student learning outcomes.[1] For public libraries, accountability means achieving greater effectiveness and efficiency; adhering to the mission of the organization and stakeholder expectations, including those of funding partners and the community served; and reporting progress on accomplishing stated goals, objectives, and outcomes.[2] Accountability might also be examined from the perspectives of stakeholders, such as the federal government and state and local governments, and their expectations (e.g., those related to the achievement of a set of standards or institutional goals as set forth by accreditation organizations).

Accountability is linked to evaluation and assessment, which, in turn, are connected to planning and the accomplishment of the mission. Critical to accountability is monitoring programs, services, and library use both on-site and remotely, while making decisions about ongoing programs and services, the creation of new ones, traffic flow within the library, and customer preferences for the use of space, collections, and equipment and for interacting with library staff. Some key questions are these:

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- What evidence do library managers use to demonstrate value?
- From where do they gather that evidence?
- What are the strengths and weaknesses of that evidence?
- Does the evidence apply across time and locations?
- How do library managers use and communicate that evidence?
- How is the message received?

In *Getting Started with Evaluation*, we amplify on that evidence.[3] Suffice to say, the evidence often takes the form of the following:

- Input metrics, which are generally counts of a numeric value reflecting the budget and financial allocations to the infrastructure (collections and services, facilities, staff, and technology available for customer use); or
- Output metrics, which convey the extent of library use and tend to be counts of the kinds and volume of activity.

Library managers, however, might also compile process metrics (internal efficiencies), which focus on activities that transform resources (inputs) into the services (outputs) the library delivers. Because these metrics quantify the cost or time to perform a specific task or activity, they deal with efficiency. Finally, in some instances, library managers might measure the extent to which use of the library, its resources and services, changes customers—their knowledge, abilities, mindsets, and skills—and report the extent to which the library *truly makes a difference* in the lives of its customers and community. Such changes refer to outcomes and, more broadly, to impacts, known as impact evaluation or impact assessment. Further, determining an impact may not always be reduced simply to frequency counts and reported as a metric, a percentage (key ratio) produced from a calculation of a numerator and a denominator. The impact, in other words, might be articulated in terms of qualitative evidence.

Another way to look at metrics is that they can vary from the simple to the complex. On the simple side, a library tends to have extensive budget data showing the financial allocation to the resources (input metrics) and to use data to characterize use in the library and remotely (output metrics). Use data, in part, might come from vendor reports reflecting user activities (service use). A library might also monitor some process metrics to report on efficiencies. Moving to the complex side, managers might strive to measure outcomes, associated with or without metrics, that relate the impact of services on customers. Managers must be cautious in asserting outcomes from a mere presentation of input and output metrics that reflect the library perspective and not the perspectives of customers, communities, the broader organization and institution, and other stakeholders, including governments (see chapter 8).

EVIDENCE-BASED MANAGEMENT AND PLANNING

Evidence-based management is predicated on the assumption that managerial decisions are based on the best available evidence, which, to some stakeholders, means quantitative data. The evidence might emerge while conducting formal

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research or gathering data for favorite metrics. In principle, whenever possible, all managers should base decision making on evidence, and they should apply the evidence to planning and the setting of targets and measuring progress toward achievement of those targets. Managers should also acknowledge the limitations of data reliability (accuracy) and validity (the data gathered measure what they are supposed to, or the extent of generalizability of the evidence). Annotations should be recorded for all anomalous data.

Management Information Systems

For years, writers within and outside library and information science (LIS) have urged libraries and many other organizations to invest in a formal or informal management methodology and to use collected data for planning and decision-making purposes. One example of such an approach is the balanced scorecard, which aligns activities and actions to the mission and strategic priorities of the organization and enables managers to compare organizational performance with strategic goals. As originally conceived, the scorecard offered a performance measurement framework that adds strategic nonfinancial performance metrics to traditional financial metrics to provide managers with a balanced view of organizational performance.[4] Today, the scorecard might focus on customers and accountability for the use of public or institutional funds. Academic and public libraries in the United States, however, have infrequently used a formal scorecard and monitored progress relative to meeting strategic priorities. More frequently, libraries have experimented with a scorecard, but have not used it on an ongoing basis. One challenge of the scorecard is that libraries must continuously capture data. Those that have not done so might label the process as too time-consuming and cumbersome. They might also view the labor involved in developing and maintaining a management methodology as excessive in comparison to the benefits they derive. Further, when the goal is to compare performance among peer libraries, there might not be any readily available data to make meaningful comparisons easily. All of this, however, is changing, as the next section illustrates.

RELEVANT DATABASES

There are two major, online data services relevant to academic or public libraries. The first, ACRL*Metrics*, provides access to academic library statistics that libraries have supplied to the Association of College and Research Libraries (ACRL) and the National Center for Education Statistics (NCES), U.S. Department of Education, since 2000. There is also a subset of data from the Integrated Postsecondary Education Data System (IPEDS) specific to academic libraries. Each year, IPEDS provides data from those colleges, universities, and technical and vocational institutions that participate in the federal student financial aid programs.[5] In 2012, the NCES's survey asked responding libraries if their institutions had enacted student learning outcomes and included information literacy among those outcomes.[6] Respondents, however, merely marked *yes* or *no*.[7] The results consequently only

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provide limited insights into outcomes or impacts as they do not characterize the impact of the library on students and other groups.

The second data service, PLA*metrics*, covers the annual survey of the Public Library Data Service (PLDS) from fiscal year (FY) 2002 to FY2011 and data on public libraries available from the Institute of Museum and Library Services (IMLS) since FY2000. The PLDS includes data from more than one thousand libraries in the United States and Canada and from the IMLS data set, which represents more than nine thousand public libraries in the United States. In addition, each year the PLDS survey highlights statistics on a special service area or public library topic.[8]

Counting Opinions (SQUIRE) Ltd., a Toronto, Canada, company, provides the platform currently used to access both data services. The focus of this book is on the variables in both data services (ACRL*Metrics* and PLA*metrics*) and selected data behind those variables, and not on Counting Opinions itself. As a professional service, with agreement from ACRL and PLA, the firm has graciously provided us with access to ACRL*Metrics* and PLA*metrics*. Clearly, this unique opportunity benefits actual and potential subscribers, as well as students in master's degree programs in LIS, and enables them to associate decision making and planning with quantitative data sets.[9] As well, a user of either data service can identify preferred variables and link them to demonstrating value that different stakeholders should know.

Getting Started in Using the Data Services

Example 1.1 illustrates the steps involved in getting started with both data services, while subsequent chapters indicate how to use certain functions to perform different operations. Library managers can use the interactive features of each data service to construct a profile of inputs and outputs for their library, selected libraries, all libraries, or libraries within a particular subset, such as those representing part of the Carnegie Classifications (applies only to higher education).[10] One value of both data services is that they cover multiple years and, thus, enable users to make comparisons across time. Such trend data enable them to place a particular year or use of the library infrastructure in a larger context and to set targets to monitor long-term changes and improvements. In doing so, they can determine the extent to which their library achieves short-term goals (up to two years) while engaging in benchmarking—creating a point of reference against which they can repeatedly collect measures—and looking for relevant best practices, which refers to best management practices, meaning the processes, practices, and systems identified in different organizations that performed exceptionally well and are widely recognized as improving those organizations' performance and economic efficiency in specific areas (see chapters 6 and 7). The goal is to reduce expenditures and improve operational effectiveness and efficiency.

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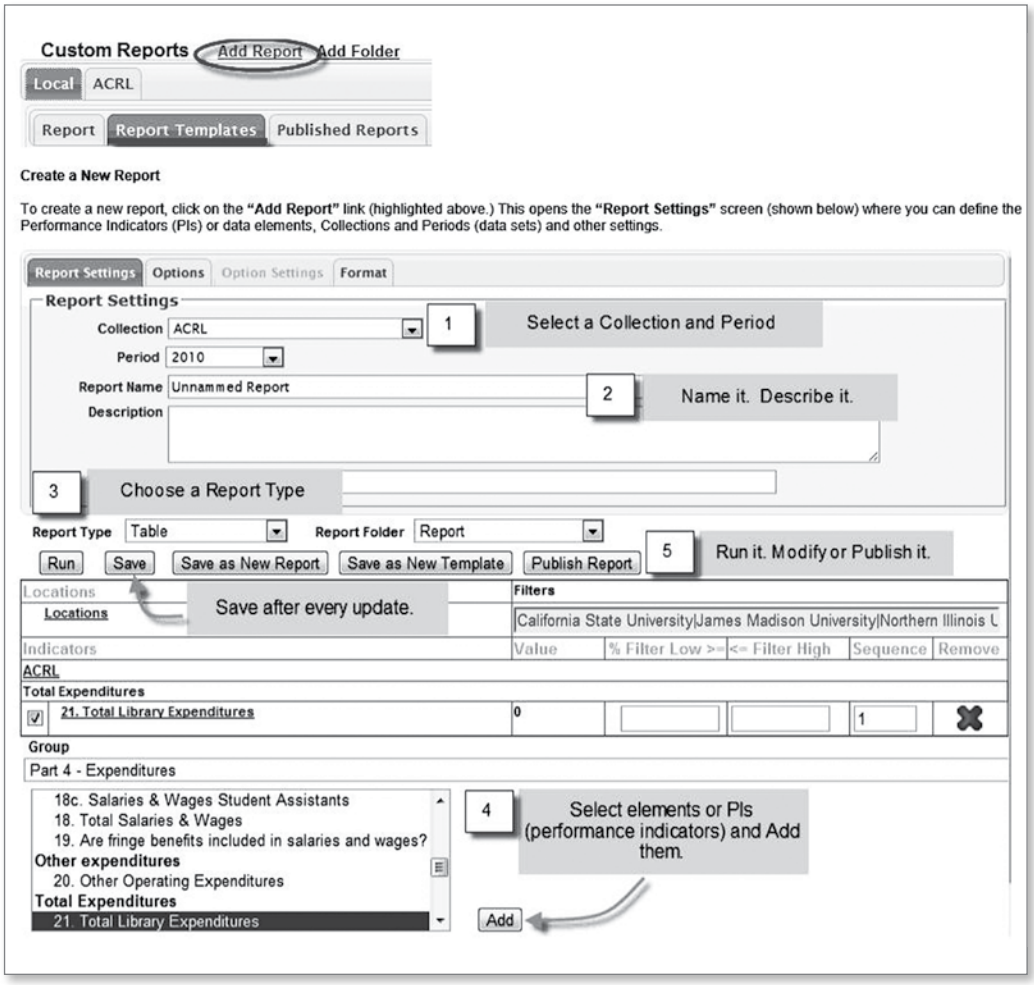
EXAMPLE 1.1 **GETTING STARTED**

STEP 1

Visit the website, ManagingwithDataandMetrics.org, where you will be asked to indicate which data service, ACRL*Metrics* or PLA*metrics*, you are interested in. Next, provide brief registration information about yourself, and answer a simple question (which you will be able to do with the book in hand). You will receive a user name and password, which will permit you to log in. Once you have logged in, you will be able to work through the various exercises found in the book as well as explore the database of library statistics and performance metrics for your own purposes.

STEP 2

The following screen shot enables you to see the areas critical for building a report, similar to the ones discussed in the following chapters.[11] We encourage you to re-create the tables highlighted in those chapters. (Please examine note 11 as you review the screen shot.)



STEP 3

Review, once more, numbers 3 and 5 in the preceding screen shot. The following chapters reinforce this point.

STEP 4

Proceed to chapter 2. After reading it, review the exercises and create reports for your library based on the exercises. (Please note that if you have any questions, the home page, ManagingwithDataandMetrics .org, contains a form that you can complete and submit to Counting Opinions. They will answer questions. As an alternative, you may contact one of the authors.)

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ACRL*Metrics*

Once logged onto this data service, readers can create a new report by clicking on the Add Report link, which opens the Report Settings screen (see example 1.1), where they can define the Performance Indicators (PIs) or data elements, Collections and Periods (data sets), and other settings.

Next, users can select a data set from the list of available Collections as shown in the table. Once a data set is selected, the screen refreshes with the list of available PIs for the selected Collection. To expedite the selection of specific PIs to include in the Report, users can specify a Group/Section name from the available list. They can select one or more PIs (click the PI name to highlight) and then click Add. Readers can also multi-select PIs by holding down the Control key (or Command key for Apple users) when selecting PIs. They can also add PIs from more than one data set. To do so, simply select a different Collection from the available list and then Add the PIs as appropriate.

Different types of reports might be produced, including the following:

1. **Table Report,** which "provides a summary view of the data by reporting location for a given period. The resulting report features interactive column sorting, pagination options, and feature graph icons and an Excel download."
2. **PI Report,** which "summarizes the values for the selected PI (performance indicator) and Period. The output includes the average, total, median, variances, [and] lower and upper quartiles for the selected PI(s)."

Most types of tabular reports feature graph icons to produce pop-up graphs for the selected results and downloadable Excel files, enabling readers to explore the results off-line.

PLA*metrics*

The process just outlined applies to PLA*metrics* as well. It merits mention that all reports can be published and shared with others via e-mail, text message, Twitter, or posting on a website or blog. Readers can also use the QR-Code feature to post links to reports in print materials.

Family of Variables

Through ACRL*Metrics* on this book's companion portal, the data encompass the following general variables: institutional characteristics (IPEDS data), library personnel, expenditures, hours (e.g., total public service hours per typical full-service week), collections, use (e.g., number of virtual visits, number of reference transactions, total circulation for the fiscal year, number of group presentations, and the number of participants in those groups).

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Through PLA*metrics* on the portal, managers have access to data on "general information" (e.g., population of service area), "annual counts," total income, "technology" in the libraries, "Website features provided," "paid staff (FTE)," "library collections," "reference service," "library service" (e.g., visits and interlibrary loan use), and use of electronic services, as well as assorted metrics—input, output, service level (e.g., circulation per week, visits per week, and "reference transactions per visit"), website features provided, public use of technology (e.g., circulation of video game consoles and circulation of e-book readers), and cost per output. Further, for each variable, there is a definition.

DATA REPORTS

Through either of the data services, library managers and students in LIS programs can produce an array of pre-configured summary reports in online formats and ready-to-run or customizable report templates, or both. As well, PLA*metrics* subscribers can create various custom reports based on data definitions provided in both services for participating libraries for a particular year or set of multiple years. Using either data service, managers might, for instance, create a cross-tab table comparing libraries on a particular variable (e.g., percentage of professional staff to total staff), or drill down to produce a comparative chart. They can also export data to an Excel or Microsoft Word file and create special reports.[12] This guide, as well as the reports' instructions, also illustrates other ways to view and report data.

GOING BEYOND JUST LIBRARY METRICS

This guide, as already noted, focuses on the input and output metrics found in ACRL*Metrics* and PLA*metrics* that managers can use to characterize a library or compare a library to a set of its so-called peers. ACRL*Metrics*, however, offers other ways to view libraries and their contributions to the parent institution or organization. The IPEDS data set, for instance, covers institutional characteristics, including, among others, the cost of tuition, enrollment, student financial aid, degrees and certificates conferred, and student persistence. Among the data elements are

- First-year retention rates collected since 2003;
- Transfer-out rate, which reports the total number of students who transferred to another institution;
- Graduation rate, which is interpreted as an indicator of institutional productivity;
- Fall enrollment, which is the traditional metric for showing the extent of student access to higher education; and
- Total entering class, which refers to the number of incoming students (those enrolling for the first time in a postsecondary institution and those transferring from another institution). By using this variable, institutional researchers can calculate the graduation rate cohort as a proportion of the total entering student body.

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Such data elements enable libraries to view metrics from a broader perspective—that of the institution or broader organization (see chapter 8). They might also include metrics that relate the customer perspective (e.g., from Counting Opinions' LibSat) as well as that of other stakeholders, such as program and regional accreditation organizations.[13] For example, a number of state legislatures and governors, as well as private foundations (e.g., Lumina Foundation), define educational success in terms of graduation rates and the employment of graduates with high-paying jobs in the state. At the national level, President Barack Obama and members of Congress increasingly emphasize the affordability of a degree and wider availability of a college education to the American public, perhaps through community colleges.[14] Such metrics are known as *student metrics*; technically, they are output metrics, but ones applicable to the institution and to making comparisons among institutions.

Student metrics have not displaced *student learning outcomes*, which are transparent statements of the knowledge, skills, attitudes, competencies, and habits of mind that students are expected to acquire at an institution of higher education. Those learning goals might relate, for instance, to critical thinking, problem solving, global citizenry, quantitative reasoning, or information literacy. Academic programs and institutions might even be expected to develop outcomes that stakeholders can use to make comparisons about student growth across programs and institutions and to document changes in a particular institution over time.[15] Student learning outcomes, however, are often not reduced to a set of metrics. (Chapter 8 tries to link student metrics and student learning metrics to the data services and supplementary surveys that might be linked to ACRL*Metrics*.)

RELEVANT STUDIES

Some research studies view the academic library in a larger setting—that of the institution. Institutions of higher education are asking their libraries and other university departments to demonstrate their relevance and value. Studies that have investigated the impact of library use on the retention (persistence) and academic success—graduation—of undergraduate students, however, might be based on some questionable assumptions:

- They might assume all students need and use the library. In fact, use varies from low to high, and, without doubt, a number of undergraduates do not use the library, either physically or virtually.
- They might focus on grade point average (GPA), but do not factor in grade inflation. One controversial study argues that it is better to focus on the *signaling* power of grades for employment (landing prestigious jobs and higher salaries).[16] Clearly, this study relates GPA to student outcomes and accountability as articulated by state legislatures and governors; many educators, however, question the value of factoring in GPA.
- Regarding metrics based on library visits, students enter the library building for many reasons, some of which are to gain access to group study facilities, cafés, social spaces, and student services.

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- The metrics used all focus on library use and do not address such issues as student satisfaction and the extent to which library variables make an *impact* at the institutional level. They also ignore student learning outcomes and the library's role as a partner in some of these outcomes.
- The data are solely based on self-reporting or self-perceptions as opposed to actual student performance or use.[17]

It would seem that future studies might add variables covering student satisfaction with the institution and the library, as well as additional data from IPEDS. Further, ACRL*Metrics* offers many variables that might be added to a regression model and an explanation of library value at the institutional level.

Using a different data set, Sharon A. Weiner focused on the ARL Membership Index, which has subsequently been replaced by the Library Investment Index, previously named Expenditures-Focused Index, and which is "less affected by changes in the collections variables."[18] Weiner examined the Index in terms of the number of reference transactions, the number of instructional presentations, and the number of attendees at group presentations, and included the following independent variables: the total professional/support staff, total library expenditures, total full-time graduate/professional student enrollment, total full-time faculty whose major regular assignment is instruction, and total full-time undergraduate/unclassified student enrollment. She created a variable for undergraduate students by subtracting the full-time graduate/professional student enrollment from the full-time student enrollment. Thus, the revised figure includes unclassified students. The Index, she found, is a reasonable predictor of some aspects of library value, as defined in terms of the variables included in that index.[19] Using the new Index, Weiner's study merits replication, but might also address satisfaction and IPEDS institutional data.

Using data collected by ARL, ACRL, and the NCES, Elizabeth M. Mezick found a significant positive effect between library expenditures and the number of library staff, and student persistence.[20] Again, the list of variables examined in future studies might address student satisfaction with the library and the institution, and IPEDS data.

Using NCES data, John J. Regazzi profiled spending, staffing, and use in academic libraries from 2008 to 2010 and compared the data to those of the previous decade. As widely recognized, the economic recession and its aftermath have led to retrenchment in academic library budgets and expenditures.[21] In many cases, retrenchment has persisted since 2010 and, to place his study in a broader context, additional research might draw on IPEDS data and report the financial decline that many small and middle-sized libraries have encountered in an institutional context: Is there a similar constriction of the budget at the institutional level?

Turning to the United Kingdom, Graham Stone and Bryony Ramsden compared e-resources use, library borrowing statistics, and library gate counts for the degrees awarded to 33,074 undergraduate students in eight universities. Relying on focus group interviews and quantitative data collection, the researchers found "a statistically significant relationship between student attainment and two of the indicators—e-resources use and book borrowing statistics—and that this relationship has been shown to be true across all eight partners in the project."[22]

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And, finally, Danuta A. Nitecki and Eileen Ables created a "library value wheel," which covers satisfaction, productivity, student learning, the return on investment, social engagement, and work reward. The wheel can be viewed from the following perspectives: the library and its staff, faculty, students, administrators, and donors. The investigators tested the wheel with some faculty members who are library users and identified different reasons for their use. Nitecki and Ables concluded that "[l]ibrary value is not seen in faculty achievements but in contributing to their ability to achieve. It is not in student grades but in enhancing students' capacity to learn. It is not in scholarship, but in . . . [indulging their] curiosity."[23] Their findings question the value of focusing on grades or grade point average, and Nitecki and Ables call for research to investigate other stakeholders and to revise the model as required. As well, further research needs to figure out meaningful ways to show how libraries contribute to student outcomes and student learning outcomes at the institutional, and perhaps program, level.

In summary, the data from either data service might be used to monitor budget expenditures and use for a particular library as well as make comparisons among a set of peer libraries and all libraries (national overview). As the preceding examples illustrate, the data might also be used when investigators compare data elements and draw conclusions about issues of student retention, graduation rate, and the role of the library in an institutional context. At the same time, it is important to supplement so-called library input and output data with data representing customer satisfaction and student learning outcomes. Public libraries can substitute impact evaluation for student learning outcomes (see chapter 8), thereby adding a new component to value as being more than the return on investment.

CAUTIONS

In using nationally produced data services, it is important to read about the data-collection process and any related reliability and validity issues, as well as to review the response rate question by question. When managers engage in trend analysis, they should review the definitions of the data elements they want to use and ensure that definitions have not changed over time (at least for the years of interest to them) and that there are available explanations for outliers (anomalous data). Further, as the preceding section, "Relevant Studies," underscores, input and output data only tell a portion of the story. What data should supplement them, and how do they help to round out that story? At the same time, as new variables emerge and so much more input and output data become available, library managers can add new data elements to their managerial review. Those elements might document changes over time, within and beyond a single library, and be useful for demonstrating institutional relevance and value.

CONCLUDING THOUGHTS

Since the 1970s, there have been numerous efforts to identify performance metrics that are most useful for academic and public libraries. With the widespread avail-

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