



Why Statistics for Public Managers and Policy Analysts?

CHAPTER OBJECTIVES

After reading this chapter, you should be able to

- Appreciate the importance of using data in public management and policy analysis
- Identify levels of competency and proficiency in data analysis
- Describe strategies for increasing proficiency in data analysis
- Understand the importance of ethical principles in data analysis

ROLE OF DATA IN PUBLIC MANAGEMENT

Why research? Why statistics? The ethos of public management is to “go out and make a difference,” not to sit behind a desk and crunch numbers. Public managers often join agencies because they seek to serve and help their communities and country. Not surprisingly, some managers are puzzled by the suggestion of engaging in research and statistics: research appears boring in comparison with developing and implementing new programs, and statistics seems, well, impossibly challenging with little payoff in sight.

In fact, analytical techniques involving research and statistics are increasingly in demand. Many decisions that public and nonprofit managers

make involve data and analysis, one way or another. Consider the following common *uses of analysis and data*.

First, data and objective analysis often are used to *describe and analyze problems*, such as the magnitude of environmental disasters (for example, oil spills), the extent of social and public health problems (such as homelessness or the AIDS epidemic), the extent of lawlessness, the level of economic prosperity or stagnation, or the impact of weather-related problems such as brought on by hurricanes and snowstorms. For example, it matters whether the illiteracy rate among 12-year-olds is 3 percent or 30 percent, or somewhere in between. By describing the extent of these problems and their underlying causes accurately, managers are able to better formulate effective strategies for dealing with them. Policy analysis often begins by describing the extent and characteristics of problems and the factors associated with them.

Second, data are used to *describe policies and programs*. What are programs and policies expected to achieve? How many services are programs expected to provide? What are some milestones of achievement? How much will a program cost? These questions involve quantifiable answers, such as the number of national guardsmen brought in to assist with search and rescue efforts after a major hurricane, or the number of evacuees for whom officials expect to provide refuge. Analysis helps think about policies and programs in detailed ways, linking resources to efforts to outputs and final outcomes, and a need exists to attach numbers to these elements, such as the level of resources committed to literacy programs and their results, and so on. Policies and programs can be described in quite detailed ways, involving distinct program activities, the duration and geographic scope of activities, and staffing levels and area program budget data.

Third, policies and programs produce much routine, administrative data that are used to *monitor progress and prevent fraud*. For example, hospitals produce a large amount of data about patient visits, who attended them, their diagnoses, billing codes, and so on. Regulatory programs produce data about inspections and compliance. In many states, gaming devices (such as slot machines) are monitored electronically to ensure that taxes are collected and that they are not tampered with. Administrative data assist in monitoring policies and programs, and managers are expected to be familiar with these data, and provide careful tracking of them.

Fourth, analysis is used to guide and *improve program operations*. Data can be brought to bear on problems that help managers choose among competing strategies. Some examples are the “big data” uses by large city policy departments, and increasingly broader “Citistat” programs that track a broad number of services to citizens. But examples are found at all levels, including in departments that lack expensive data systems. A modest amount of data and a spreadsheet can be sufficient for a “what-if” analysis that assesses the cost-effectiveness of alternative courses of action. In addition, systematic surveys provide valid and objective assessments of citizen and client needs, priorities, and perceptions of programs and services that are also used to improve programs.

Fifth, data are used to *evaluate outcomes*. Legislatures and citizens want to know what return they are getting from their tax dollars. Did programs and policies achieve their aims? Did they produce any unexpected results? Most grant applications require public managers to be accountable for program outcomes. Public managers must demonstrate that their programs are producing effective outcomes and that they are doing so in cost-effective ways. This demand for outcome evaluation and monitoring far exceeds any requirement of proper funds management; it requires a comprehensive framework. Analysis can also be used to determine the impact of different conditions on program effectiveness, leading to suggestions for improving programs.

Getting Started

How are these uses of data and analysis present in your field?

Data and analysis are thus omnipresent in programs and policies. They are there at every stage, from the inception of programs and policies to their very end. Of course, decisions are also based on personal observations, political consensus, anecdotal and impressionistic descriptions, and the ideologies of leaders. Yet analysis and data often are present, too, one way or another. Specifically, quantitative analysis aids in providing an objective, factual underpinning of situations and responses. Even more, analysis is more than data analysis; it is grounded in research methods that provide a rigorous way of understanding policies and programs, and about asking certain questions about them. Analysis helps examine and quantify the extent of problems, solutions, and likely impact of proposed strategies in ways that other information seldom can. At the very least, a focus on facts and objective analysis might reduce judgment errors stemming from overly impressionistic or subjective perceptions that are factually incorrect. Managers are expected to bring data and analysis to the decision-making table.

COMPETENCY AND PROFICIENCY

Competencies. Analysis requires competency and proficiency. The accrediting organization, the *Network of Schools of Public Policy, Affairs, and Administration (NASPAA)*, requires that such programs in public policy and administration provide evidence of their graduates' abilities in five "universal required competencies," and most (if nearly all) programs require statistics to help meet this. Students must have skills to participate in and contribute to the policy process; lead and manage in public governance; communicate and interact productively with a diverse and changing workforce and citizenry; analyze, synthesize, think critically, solve problems, and make decisions; and articulate and apply a public service perspective.¹ As Henry notes, "empirical data and analysis are important forms of currency in the policy process . . . and one must be aware of the potential misuse of statistical analysis,"² hence requiring

foundation in research methods and the ability to produce valid conclusions from data, generate data in valid ways, and communicate these effectively to diverse stakeholders and leaders. Statistics are obviously also involved in managing organizations, analyzing performance, workforce issues, financial management, and more, while applying a public service perspective further shapes the content (what is analyzed) and the communication of analysis. Thus, consensus exists that the statistics course contributes in many ways to meeting NASPAA accreditation standards.

Other accreditation bodies also recognize the role of quantitative skills. The relatively new *International Commission on Accreditation of Public Administration Education and Training Programs* (ICAPA) drafted its standards in cooperation with a United Nations task force. It states that curriculum components should include the “application of quantitative and qualitative techniques of analysis” in such areas as “institutional and developmental economics,” “policy and program formulation, analysis, implementation and evaluation,” and “decision-making and problem-solving.”³ The *European Association for Public Administration Accreditation* (EAPAA) follows a similar, “mission-based” accreditation approach as NASPAA, but without identifying five specific competencies. Rather, it states that programs must provide evidence that “curriculum components . . . produce professionals capable of intelligent, creative analysis and communication, and action in the public sector,” that “courses taken to fulfil the core curriculum components provide research methods,” and that the program includes “adequate training of practical skills.” Having some level of quantitative ability is surely consistent with this, too, of course.⁴

In short, the overwhelming consensus is that public managers and policy analysts need a firm grasp on analyzing data and their uses in policy and managerial processes, though programs have much leeway to define the way they bring statistics and analysis to furthering this. This capacity for leading policy and management implies the need for six *competencies for analysis*. First, managers and analysts should be *familiar with data sources* in their lines of business. They will need to know what data are available and to what uses they are commonly put. For example, are they used for monitoring? For estimating service needs? For determining program efficiency? For describing community conditions? Managers will also need to assess the validity of these data, and know the criteria by which validity is judged, including the processes and purposes for which they have been collected. Indeed, managers will need to know what sources of intelligence exist in their area, and data sources are an important and necessary part of that.

Second, managers and analysts need competencies to *gather their own data*. Simply, existing data do not always address important issues at hand. For example, they may not be adequate to determine client needs or evaluate

programs. The ability to collect new data implies familiarity with and competencies in conducting different types of research, such as archival research, or in conducting scientific population or program client surveys. Many managers value the ability of their staff to conduct these types of research. Client and citizen surveys are increasingly a staple of public management. Sometimes, data are assembled from ongoing operations or large, “big data” sets in ways that provide analysts with the datasets they need.

Third, public managers and analysts need to be able to *analyze the data*. Without analysis, it is not possible to generate meaningful information about program efficiency and effectiveness, for assessing whether a program is on track, and for determining and identifying new client needs. Analysis requires competency in statistics. Analysis must be done in ways that shine light on important problems. It must also be done in ways that are sound, defensible, objective, and consistent with current practice. Policy analysts are often called upon to put existing data to new uses; this requires the development of creative skills and insight.

Fourth, public managers and analysts should be able to *communicate* their results. Communication requires the ability to explain complex or abstract concepts in ways that are suited to very different audiences—both those with very little understanding of statistics as well as those with deep professional skills. Results should be explained in simple ways that are easy to understand without oversimplifying. Communication also involves effective writing and presentation skills; yes, analysts must also be able to produce clear, professional-looking graphs and charts that communicate their results to a diverse public. Communication is also often used to meet additional objectives of accountability and transparency.

Fifth, analysts must be able to bring to their analysis *the theory and practice of management and policy analysis*. Understanding the specific and unique problems of public and nonprofit programs and their context informs analytical tasks to be carried out. The needs of homeless people in New York City are different from those in Louisiana, as are the priorities of stakeholders and affected publics. Analytical tasks must be infused, from the start, with a clear sense of the specific program and contextual issues; without context or purpose, analysis is a blind exercise in technique only, not connected to purpose.

Sixth, analysts must have a sound and strong sense of *ethics*. Technical skills alone are not enough to ensure soundness of analytical purpose and practice; analysis also requires a commitment to being truthful, complete, mindful, and useful. Ethics affects how analysts and managers approach matters of analysis and communication and how they view the role of research and analysis in their field. Ethics affects which questions analysts and managers ask, and how they deal with them. Ethics is a hallmark of modern professionalism and a key to public service; it is discussed in greater detail in the next section.

The aforementioned competencies are also grounded in the canons of scientific research. **Scientific research** is the careful, systematic process of inquiry that leads to the discovery or interpretation of facts, behaviors, and theories. Science sets a high standard for what is considered to be valid knowledge that is distinguished from personal and other forms of personal inquiry or informal research. The methods used for scientific research include standards and procedures for gathering, analyzing, and reporting data. As a branch of science, **statistics** is the body of systematic knowledge and practice that provides standards and procedures for correctly analyzing one's data, and for drawing conclusions from them. Research and statistics provide essential frameworks for the above. This is surely not to say that all knowledge or information used by managers meets or should meet scientific standards; public policy and management data often are incomplete, biased, or inaccurate in some way. Knowledge of science standards helps managers and analysts to better evaluate their data and results, thereby avoiding problems and providing stronger justifications. Scientific standards and methods help managers and analysts caveat their data in appropriate ways, thereby furthering acceptance, credibility, use, and impact. In short, knowledge of scientific standards and research, discussed in this book, cannot be ignored without sacrificing one's credibility.

Proficiency. Students and managers seeking to improve their competency often experience different **stages of proficiency**. Understanding these stages helps guide one's progress and development activity, and also helps in dealing with others.

Know-Nothing. Many people who are new to public and nonprofit management do not bring with them much background about data in their lines of business, or ways in which data might be used for improving program efficiency. This is not a problem but a fact. A good share of these students are reserved, skeptical, fearful, or even hostile about the uses of data and statistics. Then they will need to acknowledge these feelings and work to become aware of ways in which data are usefully and correctly applied in management and policy analysis. To get beyond this stage, they will need to obtain a good foundation in research and statistics, and succeed in finding useful examples in each of the five areas of use described earlier.

Journeyman. People in this stage have worked for a few years in their lines of business. As such, they have usually seen some applications and are clear about the utility of data and analysis. They sometimes use data for monitoring program progress. However, lacking research and statistics skills, they often do not see themselves as being qualified to develop broader applications or even to analyze data in relatively simple ways. The purpose of this course is to provide readers with the necessary foundations and skills and to encourage the development of new uses of data and analysis in their lines of business. People at this level are

often concerned about the validity and effective communication of data-based results, and these skills are also to be focused on.

Technocrat. People in this stage have acquired varying levels of technical mastery of research and statistics. Some technocrats are highly skilled, whereas others have only a modest level of ability. A common problem is that technocrats are unable to integrate and guide their analysis with the substantive concerns of programs and policies in their lines of business. They might even view themselves as statistics resource persons, rather than as managers and employees tied to specific programs and policies—the fifth competency (relating research and statistics to the theory and practice of management and policy analysis) is missing. The main challenge for technocrats is to learn how to put research and statistics in service of programs and policies. They need to put these substantive concerns on par with the technical analysis.

Sophisticated Expert. People in this stage have found the right balance between the development of policies and programs and the use of objective data and analysis to further decision making. They understand both. Because they have spent several years in their lines of business, they are familiar with the relevant existing data, they know the strengths and weaknesses of these data, they are familiar with a range of applications, and they are able to develop new applications and collect original data. They are well-rounded in the use of data. Sophisticated experts often have a positive orientation toward continuing, professional education. They may challenge themselves by writing articles for scholarly journals and making presentations at conferences.

Getting Started

At which stage of proficiency do you see yourself today?

Which competencies and uses of data and analysis would further your career?

At whatever your stage of proficiency, think of how you can benefit from increased use of data and analysis. Competencies with data and analysis are increasingly used skills in public and nonprofit organizations. Whether positions are analytical, such as in policy analysis, budgeting, or information technology, or people oriented, such as in counseling, human resources, or social services, analytical skills are in demand for analyzing data, conducting surveys, and communicating quantitative findings to a broader audience. Program managers, city managers, and elected officials, too, require a solid grasp of analytical skills, for monitoring performance, detecting fraud, and improving productivity. Almost every department needs people with analytical skills, and jobs associated with analytical skills often command a salary premium.⁵

ETHICS IN DATA ANALYSIS AND RESEARCH

The effectiveness of data and analysis in decision making depends on more than just technical competency; it also depends on the ethical integrity with

which analysis is performed and presented. When questions surface about the ethics of analysis, its credibility suffers, and people may be unwilling to give it much, if any, consideration. Specifically, there are three *areas of ethical concern*: (1) the integrity of purpose, (2) the integrity of the process of analysis and communication, and (3) the integrity of dealing with human subjects. When research and analysis are clear about these matters, and technically proficient, too, then the role of analysis in decision making and policy may be enhanced.

Scientific misconduct is generally understood as the violation of the standard norms of scholarly conduct and ethical behavior in scientific research. Though some research norms are codified by associations and employers, and others are sometimes stated explicitly in research grants and contracts, the scientific community has also reached a general understanding of what these standards are. Violations of the norms include and go beyond plagiarism and data falsification, which have been well popularized. As in any community, the failure to live up to stated and unstated norms can have harsh consequences. This section enumerates key principles and norms of research and analysis. Scientific misconduct, when considered by others as significant or severe, can cause not only one's diminished reputation, but also exclusion from participation and even expulsion and the possibility of career termination and legal action; however, showing that one's analysis meets high research ethics can increase both its credibility and quality. There is good reason, indeed, for taking the following discussion seriously.

First, managers need to be clear about the purpose of their analysis. Analysis often has *dual purposes*: (1) to further programs and policies, such as by making them more efficient or effective, and (2) to establish factual, objective truths that meet standards of scientific evidence and that hold up under scrutiny. The first purpose causes analysis to focus on matters that are relevant to the agency and its mission; analysts need to be forthright in disclosing what questions they considered, and those which they did not—no analysis can cover everything. The second purpose implies that analysts should be open to all facts, whatever they are, and ensure that all facts comply fully with standards of scientific evidence. Analysts must disclose and issue caveats for instances in which this is not the case. Ethics in analysis requires full disclosure of the purpose of the analysis, and all the biases, trade-offs, and shortfalls encountered along the way.

These dual purposes can come into conflict, forcing ethical choices and decisions. For example, what is a manager to do when careful analysis shows his or her programs to be less effective than hoped for? Should pursuit of mission cause a blind eye to facts that are contrary? Such results may indicate the need for further research or to consider future program changes. Consider another example: Should the agency intentionally ignore questions or analysis that could strengthen the arguments of those who advocate against the program or agency? Agencies cannot totally ignore their fiduciary responsibilities to society at large and thus

their broader impacts. Such counterarguments should be taken into consideration in some way, and they need to be shown in analysis. These tensions are quite common in practice, and they cannot be ignored or swept under the rug.

Second, managers need to consider the integrity of the analysis and communication process. Many of these considerations are based on the *guiding principles of scientific research*—to be honest, objective, accurate, and complete. Analysts should not hide facts, change data, falsify results, or consider only data that support a favored conclusion. For example, data may be sketchy and incomplete, and management judgment is that such information is better used than ignored. In this case, the poor quality of the information needs to be stated clearly and a caveat given. Analysts should also fully report the sources of their data, data collection methodologies, and any possible gaps and shortfalls, and they should assess the impact of such shortcomings on their findings.

It is obvious that facts and findings should not be altered or manufactured in any way. That is outright lying, and people will be justly outraged to know that they have been deceived. Data fabrication and any study falsification are very serious forms of scientific misconduct, and many scientists feel that the omission of relevant counter-conclusions is equally serious. Regrettably, each year cases of scientific misconduct and fraud make headlines. It is equally important that analysis be as meticulous and objective as possible in testing its own findings. Findings should be checked for errors and inaccuracy. Conclusions should be examined for the possibility of alternative or rival explanations. The impact of assumptions, gaps, and bias should be examined. Doing so is not only proper, but it also strengthens study findings by providing detailed knowledge about their validity and robustness. The more that is known about the data and results, the more confidence that others may have in them.

Communication in research matters, and results should be presented in straightforward and nonmisleading ways. For example, analysis should not adjust scales to give the appearance of a significant increase when the increase is in fact minor and insignificant. Such misrepresentations are considered the same as lying with statistics. Findings should be communicated in ways that are straightforward and easy to understand, for both experts and nonexperts, without oversimplification or deception. These ethical norms are not merely standards for evaluating analysis that has already been undertaken and presented. Rather, these norms provide essential guidance to analysts throughout the entire analytical process, as they decide what to analyze, how to write up their findings, and how to present them.

While these guidelines are straightforward, they may weigh heavy on analysts working for advocacy organizations and some government agencies who are being told to produce reports that, well, argue a position. At issue here are practices that include intentionally improper science, the intentional omission of evidence, facts that are represented in misleading ways, and argumentation

against facts. Where evidence-based policy is said to be pursued, the quality of the evidence is poor and suspect. Credible, leading advocacy organizations recognize the value of being truthful and objective, and often pursue analysis and research in ways that provide deeper understanding related to their policy goals and which stand the test of scientific scrutiny. The clash of ideas and policies is proper in any democracy, and it is best conducted with evidence that does not add liability by jeopardizing one's credibility.

Third, in recent years considerable attention has been given to the impact of research on the *well-being of human subjects* in research. Some key ethical principles in research involving people are that their participation should be voluntary and based on informed consent (that is, they should know what they are getting involved in), that information about them should be held confidentially, and that risks of harm to subjects should be minimized and reasonable in relationship to anticipated benefits. Concerns about the well-being of human subjects arose from various medical research experiments that intentionally misled patients and exposed them to great harm.

Some landmark examples of scientific misconduct involving humans in medicine include the Nazi war crimes during World War II, in which concentration camp prisoners were subjected to torture and poisonous injections to see how they would be affected. In the United States, the Tuskegee syphilis study (1930–1972) used as its subjects several hundred black males with untreated syphilis, without informed consent. Even after penicillin was found to be an effective antibiotic treatment in the 1940s, these black males were neither informed about nor offered treatment choices. In the Willowbrook study, 1963–1966, newly admitted children with mental handicaps were injected with hepatitis in order to track the natural history of the disease. Parents had to approve of the treatment, but approval was also necessary as a condition for admission into this overcrowded facility.

Regrettably, these cases do not stand alone. Instances of deceit and coercion, whether subtle or blatant, led to the development of the ethical principles described earlier. There are many other examples of research misconduct, too. For example, in one case, public health workers lost a confidential file of known AIDS patients that was later sold in a local nightclub. Most human subjects research is now overseen by institutional review boards (IRBs) to ensure that risks to subjects are reasonable and that possible harm is identified and minimized. These boards are committees at universities and other research institutions composed of scientists who evaluate the protocols of proposed research. The point is that we confront ethical issues in research pretty much every time we do research, and we need to learn from past errors. For example, what ethical issues are involved in the push to have the U.S. Food and Drug Administration approve some drugs early, before they have been fully tested? The notions of research not causing unnecessary harm and being upfront with

participants are now fully established ethical principles. If analysis involves access to confidential data, then steps must be taken to ensure that these data are protected. The impact of research on human subjects must be considered and steps undertaken to minimize and address harmful impacts. Managers also need to be mindful of the negative impacts that their analysis can have. The interest of affected parties should be considered, for example, by ensuring that conclusions are accurate and fair. Table 1.1 provides an overview of important ethical principles.⁶

Table 1.1 ————— Ethics in Research and Analysis

Be honest:

1. Do not hide facts, change data, falsify results, or use only data that support your conclusion.
2. Present results in straightforward and nonmisleading ways. For example, do not adjust scales to give the appearance of a significant increase when the increase is minor or insignificant. Also, do not suggest a level of precision that is not present.

Be complete:

3. Report all data and results that relate to a conclusion, not just those that support it.
4. Identify caveats and alternative explanations that may qualify your findings, even if no data exist to evaluate these caveats or alternative explanations.
5. Report the sources of your data, data collection methodologies, possible gaps and shortfalls, and impact on findings.
6. Be thorough, meticulous, and objective in your analysis, conclusions, and communications.

Be useful:

7. Try to produce information that can help your employer, other stakeholders, and the public interest.
8. Communicate information and results in ways that nonexperts can readily understand.

Be mindful:

9. Information is power; be aware of possible negative consequences. Address possible negative consequences of your analysis by considering further analysis, by considering the interests of affected parties, and by identifying relevant caveats in findings.
10. Respect the interests of human subjects whose data are being analyzed. They may have rights to privacy and “hold harmless” clauses. Obey research protocols.

SUMMARY

Analysis and data are commonly used by public and nonprofit managers to support decisions. Analysis is useful because it helps provide an objective, factual underpinning to situations and programs and helps quantify the extent of problems and solutions. Analysis grounded in research methods provides a rigorous way of understanding policies and programs, and about asking certain questions about them. At the very least, a focus on facts and objective analysis can help reduce judgment errors that stem from impressionistic or subjective perceptions. Analysis and data often are used to describe problems, programs, and policies; to assist in monitoring programs and in making decisions that might make them more effective or efficient; and to evaluate outcomes.

The effective use of analysis and data requires competency in the following areas: knowing existing data sources, their applications, and their limitations; having an ability to gather one's own data; having an ability to analyze data; being able to communicate findings; being able to guide analysis by the specific, substantive program and policy interests; and being aware of ethics practices. Managers who seek to increase their competency often experience different stages of proficiency: "know-nothing," journeyman, technocrat, and the sophisticated expert.

The effectiveness of data and analysis in decision making depends on more than just technical competency; it also depends on the ethical integrity with which research is performed. Areas of ethical concern involve the integrity of the research purpose, the integrity of its analysis and communication, and the integrity of dealing with human subjects. Analysis in public and nonprofit organizations often serves dual purposes, namely, to promote programs and policies and to establish factual, objective truths that meet standards of scientific evidence. Analysis should be forthcoming about the purposes that it serves and about the ways in which these purposes have affected.

KEY TERMS

Areas of ethical concern (p. 11)	and Training Programs
Competencies for analysis (p. 7)	(ICAPA) (p. 7)
Dual purposes (of analysis) (p. 11)	Network of Schools of Public Policy,
European Association for Public	Affairs, and Administration
Administration Accreditation	(NASPAA) (p. 6)
(EAPAA) (p. 7)	Scientific misconduct (p. 11)
Guiding principles of scientific	Scientific research (p. 9)
research (p. 12)	Stages of proficiency (p. 9)
International Commission	Statistics (p. 9)
on Accreditation of Public	Uses of analysis and data (p. 5)
Administration Education	Well-being of human subjects (p. 13)

Notes

1. See <https://naspaaaccreditation.files.wordpress.com/2015/02/naspaa-accreditation-standards.pdf> (Standard 5.1). See also <http://accreditation.naspaa.org/> for general information about NASPAA.
2. Adam Douglas Henry, "The Challenge of Statistics Education in Master of Public Administration Programs: A Review of Two Popular Textbooks," *Journal of Public Administration Research and Theory* 24 (2104): 235–43.
3. United Nations Department of Economic and Social Affairs and International Association of Schools and Institutes of Administration, Task Force on Standards of Excellence for Public Administration Education and Training. (May 2008). *Standards of Excellence for Public Administration Education and Training*. Retrieved from <http://www.ias-iisa.org/iasia/wp-content/uploads/Standards-of-Excellence-English.pdf>.
4. <http://www.eapaa.eu/wp-content/uploads/2015/04/EAPAASE-GuidelinesVersion7Jan2013.pdf>. Having said this, programs in Europe are thought to emphasize less quantitative and managerial ability in favor of greater critical analysis and policy writing.
5. To learn more about salaries in public and nonprofit administration, take a thorough look at salaries at the Bureau of Labor Statistics "Occupational Employment Statistics" website, www.bls.gov/oes/current/oesrci.htm. For government, scroll down and select sector 99. For nonprofits, select NAICS 712100, museums, or select NAICS 813300, social advocacy organizations, and then the subgroup community and social service occupations. For an interesting look at careers, visit www.naspaa.org/students/careers/careers.asp. This site also offers salary information.
6. Table 1.1 deals with *ethics in research* and data analysis, but it is also useful to consider codes of professional conduct generally. Most professional organizations have such codes, such as the American Society for Public Administration (www.aspanet.org) and the International City/County Management Association (www.icma.org).



Research Methods

This section examines research methods and their application to public and nonprofit management and policy analysis. **Research methodology** is the science of methods for investigating phenomena, and research methods are used in virtually every social science discipline. Research methods offer managers and analysts an approach and language for understanding their world, for relating seemingly disparate phenomena. It helps with developing specific skills related to the competencies described in Chapter 1, such as evaluating program or policy outcomes, or conducting a client needs or employee satisfaction survey, for example. The chapters in this section provide an in-depth examination of the research methods that managers and analysts use to gather, analyze, and communicate facts and findings in their lines of work.

In this brief introduction, we offer a few important distinctions that shape a useful perspective to what follows. First, research methods are not unique to public administration or policy analysis, and problems to which they are put give rise to specific applications. Here, we examine important problems that managers and analysts commonly face: (1) assessing conditions or problems in policy domains and communities, (2) evaluating the past performance of programs and policies, (3) managing and monitoring the present performance of programs and policies, and (4) forecasting future programs, policies, and community

conditions. Different fields have different contexts that shape the application of research methods (for example, surveys of communities are very different from those used in business or psychology).

Second, research begins with asking questions, and it is common to distinguish between basic and applied research that have different purposes and, hence, questions. The purpose of **basic research** is to develop new knowledge about phenomena such as problems, events, programs, or policies, and their relationships. Here are some basic research questions in public and nonprofit management: What is the nature of tax avoidance? Why do people care about the environment? In what ways do citizens volunteer their time, and what causes them to do so? What are the activities and outcomes of some programs or policies, such as to increase home ownership? And why do some people have an aversion to statistics? These questions clarify the nature and relationships among phenomena by asking, generally, “What is this, what causes it, and/or what consequences does it have?” Many academic research projects are of this nature, and the question can be asked with regard to past, present, or future events.

The purpose of **applied research** is used to solve practical problems. Examples of applied research questions include the following: What can governments do to reduce citizen apathy? How can governments increase the use of certain programs? What can be done to minimize the impact of turnover among political appointees on program quality? What can be done to increase students’ interest in statistics? These questions clearly have practical matters in mind. They often ask, “How can this be done or improved?” While policy leaders are often motivated by applied questions, managers and analysts often encounter both basic and applied questions in their work. Indeed, finding out how something can be improved implies knowing something about it, and both basic and applied research can give insight into factors shaping phenomena, though applied research is more likely to focus more on factors of interest to policy makers. Both kinds of questions are important to managers and analysts, and learning to ask them in ways that are answerable is a useful purpose of this course.

Third, managers and analysts must choose among a broad range of research methods to answer their questions. Research methods often are classified as being either quantitative or qualitative in nature. **Quantitative research methods** involve the collection of data that can be analyzed using statistical methods. Such data typically are collected through surveys and administrative records, and they produce numbers used to describe (that is, to measure) the extent of societal problems (such as teenage violence or homelessness, for example), to monitor program operations, to determine program efficiency and effectiveness and to analyze by how much they can be improved, and to evaluate the impact of programs.

Qualitative research methods refer to the collection and analysis of words, symbols, or artifacts that are largely nonstatistical in nature. Such data often are

collected through interviews, focus groups, and direct observation. Typically the purpose of qualitative research is to identify and describe new phenomena. Qualitative research provides a detailed, rich understanding of what is going on and why it matters to stakeholders, often in their own words. Though words and symbols can be counted, the point is to provide a detailed and contextualized understanding that provides new insight. It is also used to describe programs and policies, including processes through which programs and policies affect outcomes, and can include suggestions for improving programs.

Both quantitative and qualitative methods are indispensable in addressing questions of basic and applied research. Quantitative research requires solid knowledge of existing phenomena and how they are related to each other. Simply, before we measure something, we need to be certain that we know what we are measuring and that we are measuring the right thing. However, qualitative research does not provide much quantifiable information about problems and phenomena, nor can it offer conclusive, statistical proof about the impacts of programs and policies. Hence, research in public management and policy analysis typically uses both quantitative and qualitative research methods. Simply, both have their place and are needed.

Managers and analysts need a working familiarity with a range of basic and applied, quantitative and qualitative research methods, and the chapters in this section provide a diversity of purposes and methods. Chapter 2 introduces basic concepts of research and applies these concepts to program evaluation. Managers and analysts are often called upon to demonstrate the outcomes of public and nonprofit programs and policies. Program evaluation is an important approach to accountability. Program evaluation demonstrates the use of both basic and applied research, and the need for both qualitative and quantitative research methods. The chapter introduces experimental and quasi-experimental designs for evaluating programs and gives examples.

Chapter 3 addresses the problems of conceptualization and measurement. Many concepts in public policy and administration are highly abstract, such as democracy, apathy, safety, self-sufficiency, environmental consciousness, economic well-being, and so on. The chapter discusses the problem of conceptualization, measurement validity, and the importance of measurement scales and levels.

Chapter 4 describes additional research methods for public managers and analysts. It deals with research on problems that involve the present (monitoring) and the future (forecasting). Specifically, it discusses performance measurement, which is increasingly used for program monitoring and to provide accountability. The chapter also applies criteria of validity, developed in Chapter 3, to the measures of performance measurement.

Chapter 5 looks at data collection methods. An important competency for analysts and managers is familiarity with the data sources in their lines of work.

This chapter discusses uses and challenges of secondary data, administrative data, and survey data. It provides guidelines for conducting surveys, including sampling strategies and methods, and also notes the roles of qualitative data, such as interviews and focus groups that are useful for assessing community conditions—the starting point for program and policy formulation.

Lastly, the workbook that accompanies this textbook includes many additional examples of the research methods and data collection strategies discussed in this chapter. Because public and nonprofit management draws on a multitude of fields, and public managers must work with professionals in different fields, analogous terms and concepts are clearly identified throughout the book. This book includes footnotes that serve a variety of purposes, such as providing additional clarification and examples that readers may find useful.

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