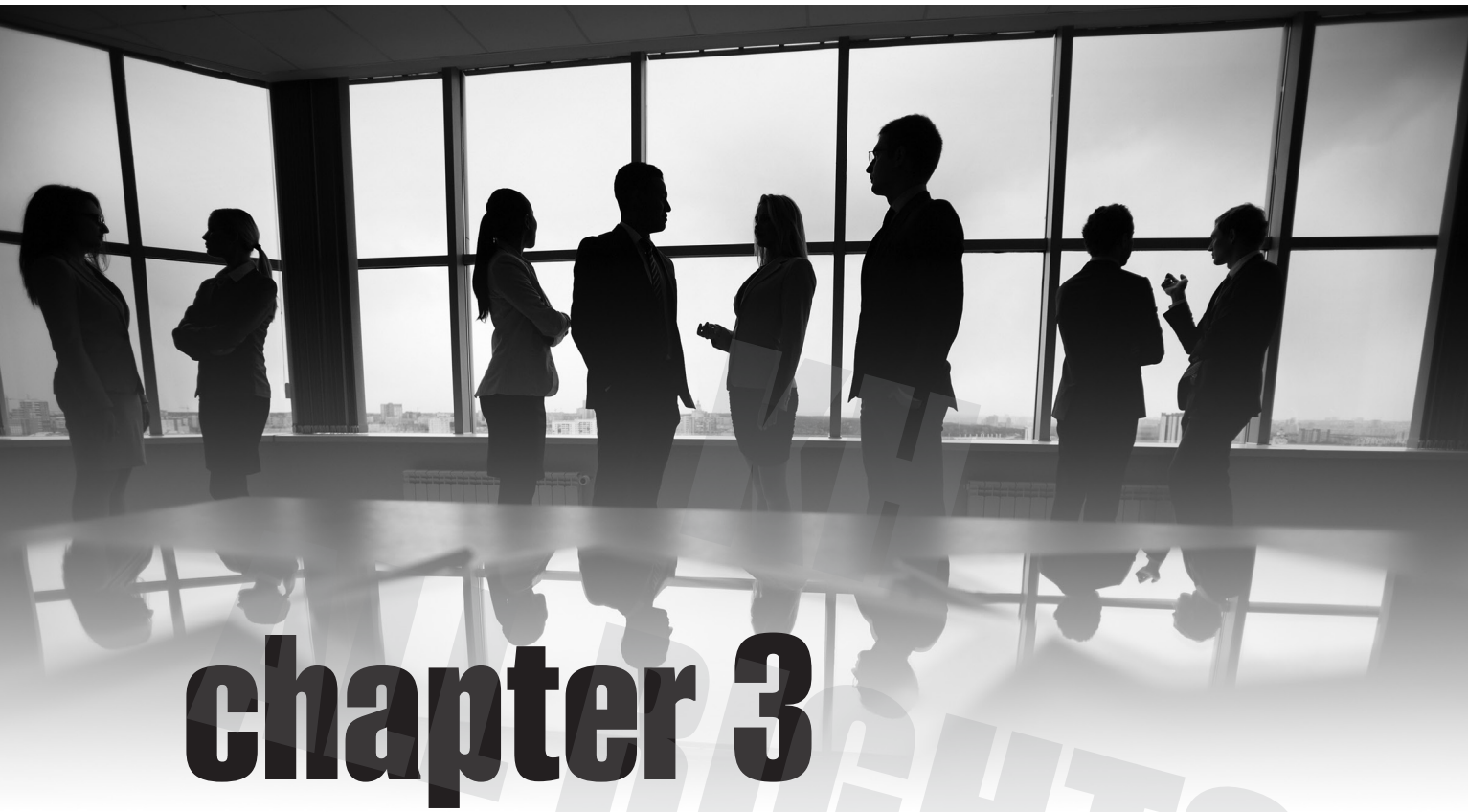

chapter 3

Analysis Phase

LEARNING OBJECTIVES

1. Identify the kinds of needs that must be considered in developing training activities and how to go about determining those needs for an organization.
2. Explain the importance of data collection and the benefits and drawbacks of specific data collection methods.
3. Describe strategies for gaining information from clients and presenting results of your analysis to clients.

In the previous chapter, we started a discussion about the nature of learning and the various theories related to learning. We are now going to start moving through the traditional process training and development professionals use to create training programs. The focus in this chapter is going to be

on the first stage of creating a training program, analysis. However, before we jump into analysis, we need to discuss the concept of instructional systems design (ISD).

Instructional Systems Design

According to William Rothwell and H. C. Kazanas, instructional design involves:

> analyzing human performance problems systematically, identifying the root causes of those problems, considering various solutions to address the root causes, and implementing the solutions in ways designed to minimize the unintended consequences of corrective action. Instructional design usually encompasses not just the preparation of work-related instruction but also the selection of such management solutions to human performance problems as the preparation and use of job aids, the redesign of organizational structure and reporting relationships, the redesign of jobs and tasks, the refocusing of employee selection methods, the reengineering of job-related and task-related feedback methods, and the design and implementation of employee reward programs.[1]

As you can see from this explanation, instructional design encompasses a wide range of issues that must be considered in the preparation of training programs. Over the years a number of groups have created systematic ways of handling the instructional design process. The one most commonly discussed in the T&D field is **instructional systems design** (ISD), the practice of using consistent and reliable procedures while creating instructional experiences. In 1975 a group of researchers at Florida State University working on behalf of the U.S. Department of Defense created one of the most commonly used models for handling instructional design. [2] The group of researchers helped to create what they dubbed the Systems Approach to Training (SAT) model, which became the foundation for the field of ISD. In the early 1980s, the SAT was updated for more general training purposes and the ADDIE Model was born.

The ADDIE Model (Figure 3.1) stands for Analysis, Design, Develop, Implement, and Evaluate. The major purpose of this book is to walk you through the ADDIE Model in an attempt to help you understand all of the important facets of the training process. Now that we've briefly explored the concept of instructional systems design, we can start focusing on the first letter in the ADDIE Model, analysis.

Analysis Beginnings

The analysis phase is a critical part of instructional design. Its value, however, is not always apparent to clients, who may come to the table with requests for specific training solutions. Anderson (2010)

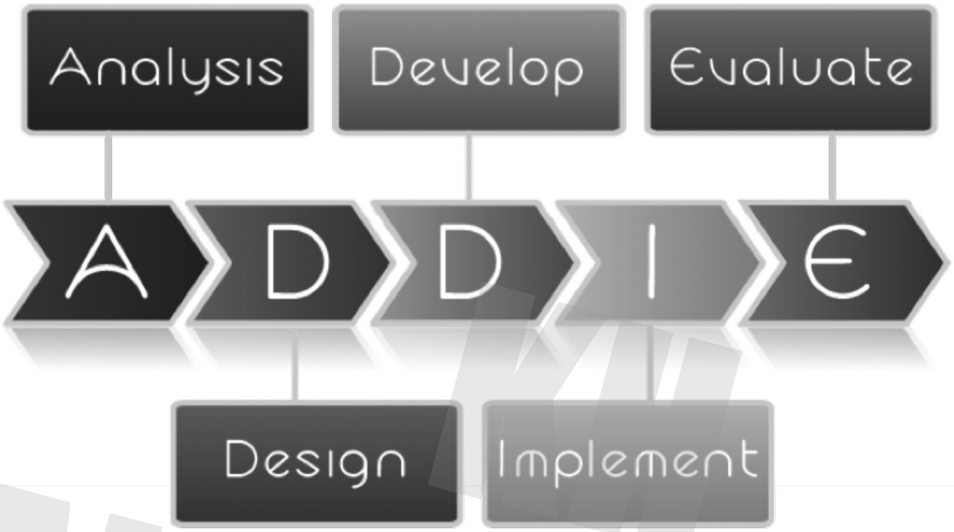

FIGURE 3.1 ADDIE Model

identifies four reasons why needs analysis is imperative.[3] First, clients often believe they know the causes of organizational problems but misdefine or misdiagnose them. Thus, it is important to gather evidence to determine whether the putative causes are the real ones. Second, clients often ask for solutions that do not address the true problem. Part of this might be that the clients have misidentified the problem, but clients may also have an interest in a particular solution because it's trendy or they have seen it used effectively in other organizations even if this solution isn't what's best for their specific needs. Third, time and money used for needs analysis lead to interventions that are designed to correct the real problems, and clients' time and money are thus recouped more effectively than if interventions are inappropriate for the client's specific needs. Finally, analysis yields clear value-added results for clients. Analysis enables an organization to know exactly how far it is falling short of expectations, so post-training results can be used to show clearly the degree of improvement in performance.

Four Stages of Needs Assessment

The first element of analysis is to identify the needs of all parties involved in the training process. Without knowing what the actual needs of the organization are, it is unlikely that effective training or other interventions can be developed for performance improvement. The sections below (seen in Figure 3.2) briefly describe four critical needs, including business needs, performance needs, learning needs, and learner needs, before moving on to additional steps in the analysis process.

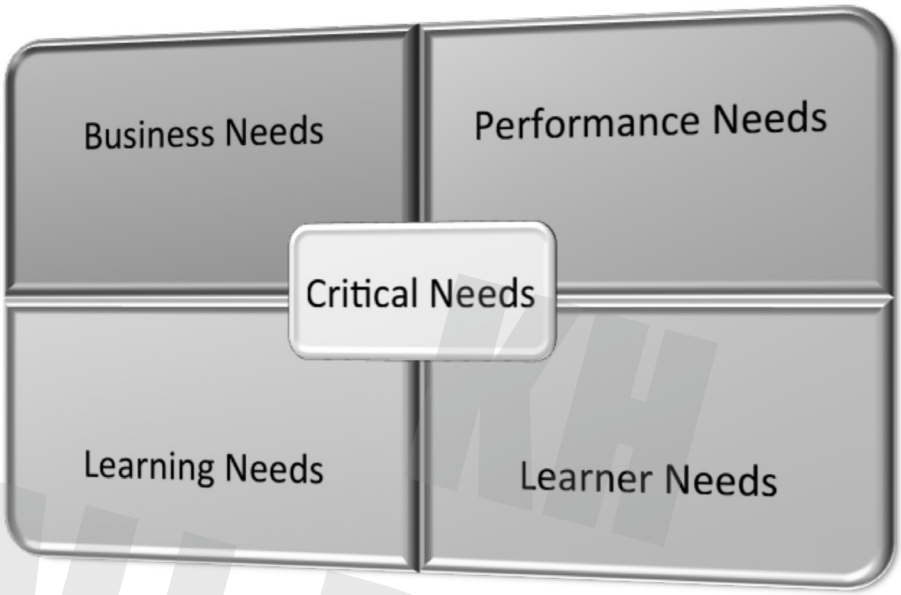

FIGURE 3.2 Critical Needs to Be Assessed

Business Needs

Business needs are sometimes overlooked when designing training programs but they are the most fundamental set of needs that must be considered. Business needs are the goals that the organization needs to attain to be successful; in fact, organizational viability might be threatened if they are not. Business needs span the entirety of an organization's function, potentially including externally focused goals such as increasing market share or meeting particular sales targets and internally focused goals such as retaining and developing talent or becoming more efficient in business processes. Quantitative goals and benchmarking are often associated with business needs, providing a useful starting point for needs assessment as one asks: how close is the organization to achieving those goals? What obstacles are preventing the organization from attaining them?

When identifying business needs, it may be tempting to conclude that this is a simple task and that the business needs presently stated in the organizational strategic plans or other documents are those being actively pursued by the organization. However, business needs may change over time and even senior leadership may disagree on how to interpret existing statements of organizational goals. Moreover, some business goals might not be in the best interest of the organization. It is incumbent on the training professional not only to identify business needs, but also to make sure that senior leadership has a shared understanding of those needs and that those needs are consistent with where the organization wants to move in the future.

Performance Needs

Performance needs focus on the behaviors that employees need to engage in so that business needs can be achieved. If, for example, reducing customer complaints by 10% is a business goal, what are the specific employee behaviors that are likely to reduce customer complaints? Identifying both business needs and potential obstacles to achieving those needs are important steps before identifying performance needs. Trainers must understand the root causes of organizational problems rather than simply understanding where the organization wants to go, so that performance needs can be accurately identified. If an organization or trainer simply says "We want to reduce customer complaints, so our employees need to be trained to be more effective on the telephone," without looking at the root causes of customer complaints, training on telephone behavior will be ineffective if the complaints are due to unclear assembly instructions with products, unkept promises made by sales staff, or delays in shipping. Identifying the gap between performance behaviors that need to be enacted to achieve business goals and actual behaviors that are presently being performed allows a trainer to identify learning needs.

Learning Needs

Learning needs focus on the knowledge, skills, and attitudes that need to be mastered in order to meet performance needs. Learning needs flow directly from business and performance needs by focusing on the gap between performance needs and what individuals in the organization are doing at present. By identifying both where gaps exist and the causes of such gaps, the training professional can better understand specific types of training that may be needed. Even more importantly, understanding the causes of performance gaps can also point out where training is unlikely to be an effective remedy. If performance gaps are caused by lack of trust, lack of motivation, inability to access necessary equipment, or flawed awareness of business needs, then training is likely to be of little help.

Learner Needs

Learner needs include elements of both the workplace environment and personal capacity that influence learners' ability to enact desired behaviors. These needs can focus on how satisfied learners are with the training they receive, but these needs are also sometimes beyond the scope of training itself, as noted in the section on learning needs above. Some learner needs are tangible, such as access to computing or other equipment required to enact behaviors. As discussed in later chapters, particularly when discussing assessment of training and learning transfer, support from management and peers is a critical learner need that must be fulfilled if training is to be effective.

Individual learner capacities are also important to the learning process. Existing skills and behaviors can be readily assessed to determine the extent of the gap between current knowledge

and skills and what the organization needs. If the gap is small, training might focus on the specific behaviors associated with performance needs. If the gap is large, training might first need to identify intermediate behaviors to be mastered before behaviors associated with performance needs can be developed. Additionally, individual learners have different levels of motivation and interest in participating in training and learning new processes, skills, or knowledge. These differences also constitute learner needs, as training might be approached differently for individuals who are constantly seeking more challenging work environments or for highly motivated groups as contrasted with individuals and groups who may be less motivated, either because of personal factors or because of issues within the work environment such as chronic turnover or lack of recognition.

Needs Assessment Process

Understanding the four types of needs above are central to the analysis phase of training development, so the needs assessment process focuses on how to go about collecting information to identify those needs accurately so that the foundation for training design is solid.

Conduct External and Organizational Scan

Factors both inside and outside of the organization can influence both the need for training and how training activities might best be designed. External influences on the organization might include market conditions, including competition and demand for products, changes in workforce availability or preparedness, as well as governmental or other types of regulation. Many organizations that were major competitors in their industries just a few decades ago have gone out of existence or decreased in stature because they did not adapt to new products or ways of doing business while their competitors did. As some products are replaced by others (e.g., the markets for photo developing services and video rental stores have virtually evaporated over the past decade), organizations need to be even more aware of current shifts in the external competitive environment and work to forecast future trends accurately in order to survive.

Beyond the specific competitive environment, the general economic climate impacts interest rates, availability of investment funds, and customer willingness to purchase products; these factors can influence the degree to which an organization can elect to change or must change in order to maintain its viability. Relationships with external organizations, including suppliers, consumers, local partners, and others, can also have an impact on the business needs of the organization and what perceived needs are present.

Equally important as a scan of the external environment is an **organizational scan**. Issues within the organization and its culture such as existing business processes and behavioral expectations for organization members need to be identified. In the 1990s, the now-defunct Saturn car company aired commercials promoting the idea that all of their employees were empowered to ensure the quality of the automobiles they produced and showed employees stopping the auto as-

sembly line when they spotted a problem. Saturn was making the point that it was an organization that promoted employee initiative and joint responsibility for the products being produced; organizational culture questions such as these are an important part of an internal organizational scan. Concerns such as frequent staff turnover might contribute to a number of difficulties, including many organizational members who are new to their positions and who may not understand their role and responsibilities, task overload because the workload of exiting staff is simply added to those who remain, or difficulty in developing the necessary trust and relationships across the organization to move forward on business needs.

A critical component of an internal scan is to identify not just symptoms, but also root causes of gaps between performance needs and actual performance. Training professionals need to ask probing questions about the nature of performance gaps, the conditions under which they occur, and why the gaps appear to be occurring. Multiple organizational members need to be queried, at multiple levels of the organization, so that perceptions can be checked and patterns in responses evaluated for consistency. Key questions that should be part of initial attempts to identify the root causes of performance gaps include:[4]

1. Is it a knowledge gap?
2. Do employees have clear performance expectations?
3. Do performance incentives align with goals?
4. Are there breakdowns in process?
5. Is the employee in the correct assignment?

Collect Data to Identify Business Needs

In some organizations, business needs may seem relatively easy to identify. Organizational strategic plans often include very tangible goals to be achieved over the course of the coming year or in the longer term. Existing documents such as mission and vision statements can also provide insight into possible business needs and form the basis of questions to ask senior executives about related business needs. It is important, however, to make sure that these documents are up to date and that there is agreement among senior leadership both about whether these goals are still important to the organization and what each of these goals means.

During the initial stages of attempting to identify business needs, it is important to meet clients where they are; some are focused on actual business needs while others are focused on a specific issue of concern or training desire. Stone (2009) identifies six situations that typically drive perceived training needs: deficiencies in meeting business outcomes, deficiencies in how employees are executing a specific job task, addition of new competencies or behaviors needed to perform new or existing tasks, changes in business processes that require employees to go about their work in different ways, prospective changes in the market or business opportunities that lead to proactive attempts to prepare employees for change, and new processes driven by the need to comply with regulatory or other external requirements.[5] Determining which of these factors are driving the

request for training is important in developing appropriate follow up questions and to identify potential interventions, whether or not those interventions involve training.

Identify Possible Interventions

Possible interventions may take a number of forms. The ATD identifies six potential categories of interventions that might address performance gaps:[6]

1. Workflow structure or processes: Interventions focus on removing inefficiencies or redundancies in how people go about completing their work.
2. Resources: When lack of material resources or problems in the physical environment (e.g., lack of temperature control or ventilation) hamper performance, interventions focus on improving available resources.
3. Information resources: Interventions address deficiencies in how information is shared or the timing or quality of shared information.
4. Knowledge and skill deficits: When employees lack necessary knowledge or skills to complete tasks or have difficulty with task sequencing or improperly learned skills, interventions might address these issues.
5. Motivation: Organizational members who feel devalued, do not receive feedback or recognition, are rewarded for inappropriate behaviors, or are not committed to the organization may benefit from intervention.
6. Wellness: Interventions may target both physical capacity to perform the job and mental attentiveness that is unencumbered by stress from problems outside of work or work-related issues such as task overload.

Talking to a Client

Clients are individuals who seek out and provide the financial resources for training solutions and may be internal to an organization or external to it. Often, clients seek out training professionals to address what they perceive as the organization's training needs. As noted several times in this chapter, it is important to distinguish between what a client wants and what actions will yield the results the client seeks to achieve; these are not always the same.

It is important to recognize that clients may believe that training is needed when other factors, such as low levels of employee engagement or motivation, may be at the root of performance gaps. Even if you initially believe that training is not the answer to the specific performance gap identified, you should engage with the client to gain an understanding of his/her perceptions and why training is thought to be the answer. This insight will prove useful both as you conduct your needs analysis and as you prepare a final report that provides potential solutions to your client.

When talking with clients, it is important to understand where the client is in terms of understanding what might be needed within the organization and to work with where the client is.

For example, if a client believes that training is needed, the training professional can ask probing questions that include: What's the basic need or problem that would be addressed by training? Why is this need important to the overall organizational picture? To what degree is this an ongoing problem? Asking such questions helps you to gain a better understanding of what is really important to the client, be it reducing cost overruns, enhancing customer satisfaction, or reducing accidents. By understanding the fundamental need or goal, you can begin to identify the kinds of information you'll need to gather and what the ultimate goal of your needs analysis is.

Training vs. HPI—When Clients Don't Know What They Need

Not all failures to achieve organizational objectives can be solved by training. Lack of knowledge or skill can potentially be remedied by training, but many other sources of performance gaps, including inadequate resources (including information resources), inappropriate personnel for the task, or inefficient business processes, will likely not be solved by training. Training professionals are often called any time there is a perceived performance gap and clients may not recognize the inappropriateness of training solutions in every case.

In contrast to training, human performance improvement (HPI) focuses on performance, or results, by taking into account the full range of organizational factors that affect those results, including organizational culture, goals, environment, workflow processes, knowledge, and skills. [7] Specifically, performance is maximized when the organization, the individuals within the organization, and the processes used to perform tasks align. Many issues that senior leaders perceive as "training problems" are better suited for human performance improvement. One goal of the analysis phase is to identify not just symptoms, but root causes of performance shortfalls, going beyond only considering training as a solution to identify ways in which all elements of HPI can contribute to enhanced performance.

Collect Data to Identify Performance, Learning, and Learner Needs

The next step involved in a needs analysis involves collecting data to identify performance, learning, and learner needs. This section examines three levels of analysis, the data collection process, analyzing data, and using clear standards for evaluation.

Three Levels of Analysis

Training and development professionals generally look at analysis as three pieces of an important puzzle: organizational, employee, and task. For this reason, analyzing all three of these factors is extremely important when conducting a needs analysis.

Organizational

Organizational analysis is concerned with identifying both present and future learning needs of the organization. Information about organizational needs can be obtained from evaluating documents such as mission and vision statements and also from asking questions or listening to conversations about where the organization is headed. Major change initiatives are another source of information for organizational analysis: where does the organization see itself going in the near future and what kinds of learning needs will those changes entail?

Understanding why there is a perceived need for change, to be addressed by training or other interventions, is also an important component of organizational analysis. What kinds of organizational constraints are present? How urgent and critical are the performance areas where change is sought?

Employee

Employee analysis centers on the individual performing the task and addresses questions such as: How does the person go about performing the task? How well does the person perform various elements of the task? Employee analysis may include examination of documents such as performance appraisals and observations of task performance. Effective employee analysis can also focus particular attention on high performing employees to determine what differs in their approach to the job as compared to others who do not perform as well.

Task

Task analysis centers on identifying elements that are essential to completing specific jobs or tasks. These include specific skills or knowledge, tools or other physical resources, and proper conditions needed to complete the work. A comprehensive task analysis requires not only identifying and breaking down the behaviors and skills needed to perform the task, but also where employees' present skill sets can be improved. Task performance conditions, including when and how tasks must be performed and the quantity and quality of performance desired, are also part of task analysis.

The Data Collection Process

Understanding the variety of organizational and individual needs discussed in previous sections is a precursor to the next major stage of analysis: collecting data from organizational members to understand the full picture of misalignment between needs and reality.

Understanding Analysis

The actual analysis part of a needs analysis is usually conducted by the training project manager in conjunction with her or his client or relevant stakeholders. It's important to understand that this type of assessment must be a group effort to be effective. In the following few paragraphs, we explore the subject of assessment, generating research questions, and selecting methods for data collection.

Subject of Assessment

The training professional must fully understand the goal of data collection and assessment. You should have a strong sense of the organization's needs and which groups or individuals within the organization are directly affected by current performance gaps. Without this basic knowledge, relevant data may not be collected and the resulting analysis is unlikely to meet the organization's needs.

Source of Data

In order to understand fully why an organization isn't achieving its goals, multiple sources of data must be part of the analysis plan. Simply asking senior executives about their perceptions of deficiencies does not account for the experiences of those who are actually performing tasks across the organization. Similarly, focusing solely on a single unit within the organization or only on poorly performing units also provides an incomplete picture of the organization and where it stands in relation to meeting its goals.

An important element of effective data gathering is sampling. Good sampling means that the data can be trusted to represent the views and experiences of individuals and teams across the organization. Although interviewing every person within a complex organization or surveying all employees might be possible, it is not desirable in terms of time and other resource costs (including slowing down the analysis significantly) or necessary if those who are included in the data collection represent the entire organizational membership. A few general rules of sampling should be kept in mind. In general, large samples are preferable to small ones. Even time and resource intensive data gathering techniques such as interviews should not rely on conversations with, say, only five of 75 sales professionals. If the group is too large or the resources too limited to include a relatively large sample, then alternative data collections such as focus groups or surveys, which can include the voices and views of larger groups, should be considered. Random sampling, wherein each person within the organization has an equal chance of being selected for input, is preferable to simply finding volunteers or those who are convenient to interview, such as people who are sitting in a break room or whose supervisor is especially supportive of the project (Figure 3.3). Depending on the nature of the organization, stratified sampling might be preferable to random sampling. Stratified sampling makes sure that potentially small subgroups are represented within the sample and is particularly useful when information needs to be examined by subgroup or if the research questions guiding the analysis have a disproportionate impact or focus on a subset of employees.

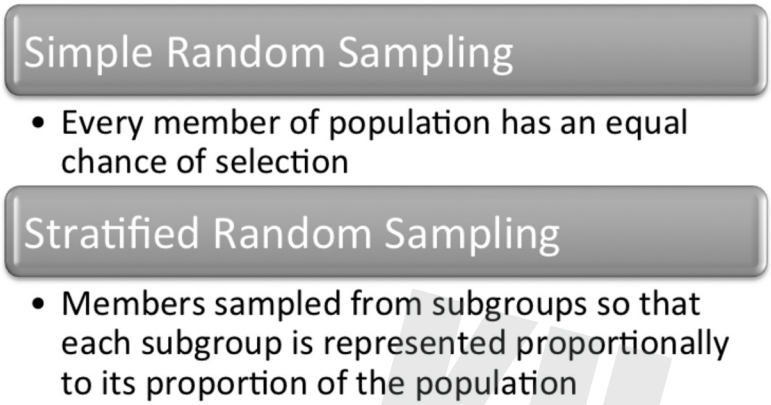

FIGURE 3.3 Types of Random Sampling

Standard of Evaluation

Data sources for assessment of the organization should include both objective and subjective sources in order to obtain the fullest picture of how performance impacts the organization (e.g., productivity, percentage of orders filled incorrectly) and the individuals within the organization (e.g., perceptions of organizational culture).

Objective data sources include those that are quantifiable. Objective information can be derived from sources such as performance data and observations. Objective data are especially useful for diagnosing the extent or frequency of a problem. For example, do accidents or quality control issues spike at particular times of the week or month? Are customer complaints general or focused on particular product lines or sales accounts?

Subjective data sources allow for inclusion of perceptions and attitudes into the analysis process. Subjective information is obtained by surveys, interviews, or focus groups, where individuals can discuss their views on the current state of the organization and barriers to reaching organizational goals. Subjective information sources also allow the training professional to get a sense of individuals' thought processes as they perform their jobs or how different people across the organization view the causes and symptoms of performance gaps.

Generate a Research Question

Before developing a plan for collecting data, you need to understand what question or questions you want to answer. Questions may be reactive or proactive.[8] Reactive questions develop in response to an identified performance gap within an organization: sales goals have not been met, complaints have increased, or accidents have injured organizational members. Proactive questions are based in

anticipated changes for an organization. For example, new technologies might be on the horizon that shift how the organization interacts with customers or develops products.

Anderson identified several key qualities of good research questions.[9] First, questions must be worth assessing from the viewpoint of the client. Conducting a thorough analysis that identifies key business needs and performance gaps can assist in making sure that the question is directly tied to organizational needs. Related to worth is clarity; using organizational language that is familiar to the client is helpful in making the question clear so that both the client and training professional know what to expect and so that organizational members can provide useful information to answer the question. Additionally, questions need to be answerable or measurable. Without this quality, no intervention will be able to provide concrete results, making it difficult, if not impossible, to evaluate the effectiveness of any interventions.

Questions guiding data collection must be thoughtful so that good quality data result. Particularly when senior leaders are skeptical about the need for analysis, it is important to generate useful information about organizational needs so that sufficient support is available for the interventions you propose.

Select Methods for Collecting Data

Although a range of methods for collecting data are available, not all methods are equally appropriate or necessary in all situations. Part of the analysis process is determining which combination of data collection methods makes most sense for the current situation.

Anderson argues that data collection methods should balance utility, feasibility, propriety, and accuracy. This means that training professionals need to consider how useful the information gathered from each collection method will be, how time and resource intensive it is to gather each type of information, to what degree it is appropriate to gather particular types of information, and how well the information collected represents the actual state of performance.

General issues to consider when deciding which types of data to collect include the nature of the organization and its members, including organizational climate, background and education of employees, and specialized skills needed to score or interpret some types of data. If an organization has a history of being highly secretive or not responding to needs expressed in employee surveys, then organizational members may be less likely to respond to surveys or may be distrustful of interview or focus group questions. The organizational, employee, and task analyses conducted before this stage are important sources of information so that you can identify data collection methods that are likely to be more or less effective.

Surveys

Surveys are typically written sets of questions that are provided to potential respondents in paper or electronic form. Surveys may include both closed-ended questions, or those that have a single specific response or selection from a pre-determined set of responses, and open-ended questions, which allow

the respondent more flexibility in providing an answer. Surveys are specifically designed to obtain data from large numbers of persons relatively quickly and inexpensively. Advantages of using surveys include the ease of response for participants, ease of tallying results for those administering the survey, and the presence of quantifiable responses from the data. Disadvantages include the importance of creating clear questions that address the key issues in which you are interested. Because respondents can't typically ask for clarification of survey questions and administrators can't ask follow up questions, it is critical for questions to be thoughtfully constructed and address all relevant topics of interest. Ultimately, you need to consider the real purpose for your survey (see Figure 3.4).

Answer scale and type are also important considerations with surveys. Open-ended responses may provide richer information but also require some means of coding or grouping responses. Likert-type response scales, such as those which ask respondents for ratings on a one to five scale, also have drawbacks. If using an odd number of response choices, does a midpoint rating indicate no opinion, neutrality, or lack of relevance? It is also easy for tired or distracted respondents to provide a single response to all scale items (e.g., all are excellent or all are poor) without giving much thought to the specific questions being asked. For survey results to be valid, a large sample size is also necessary and many requests for responses to surveys go ignored. Thus, even when sending a survey to all 200 employees in an organization, you may obtain only 20 or 30 responses, which is not enough to draw generalizable conclusions about the entire group.

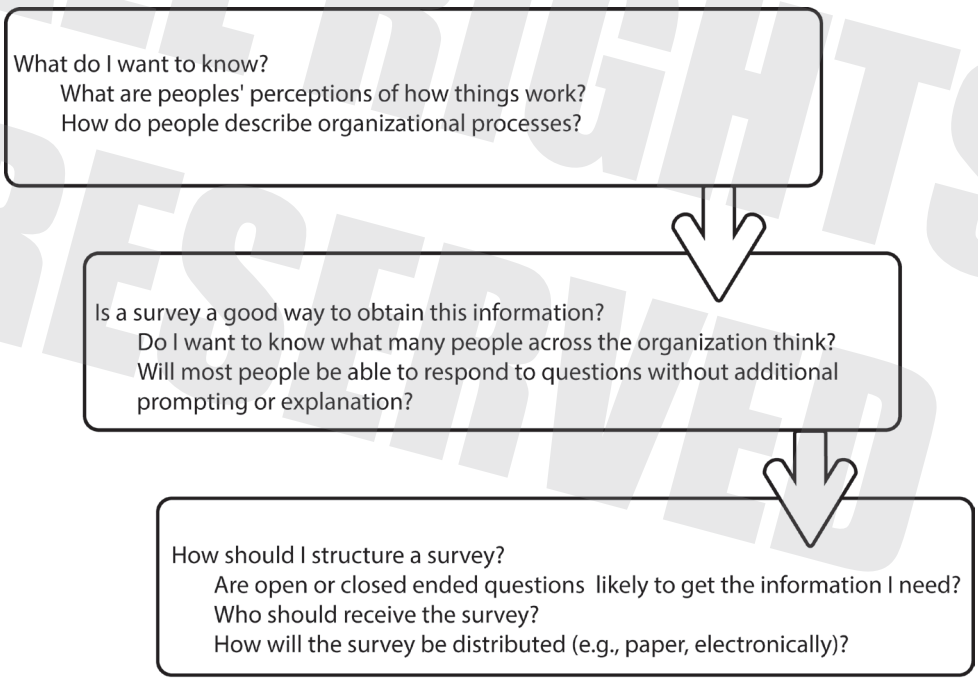

FIGURE 3.4 Questions to Ask in Designing a Survey

Interviews

Interviews are one-on-one interactions where a trainer or designee asks specific questions of a single organizational member. Interviews are particularly useful in fleshing out responses obtained from a survey or other quantitative data and are typically rich in detail. Interviews thus allow answers to questions such as: Why do people perform tasks in these ways? or What are the sources of anxiety or motivation for employees? Unfortunately, interviews are also time consuming for those who administer them and those who respond. For maximum effectiveness, interviewers should enter the interview with some number of common questions to be asked in all interviews. Samples for interviews, as with surveys, must be selected with care. If only highly motivated or highly disgruntled or novice employees are included, the resulting picture of the organization and its needs is likely to be skewed. It's also important to note with interviews that knowing that events or issues occur frequently is different from understanding the reasons why those issues occur.

Focus Groups

Focus groups take the idea of face-to-face interaction from the interview and apply it to settings where there is one facilitator or interviewer and a group of respondents. Focus groups are especially useful when trying to develop hypotheses to be tested in larger groups (e.g., when trying to find out what issues might be of greatest importance and should be addressed in a survey). Nonverbal behaviors of respondents can also be observed in a focus group, providing additional information or impetus to ask follow up questions to a training professional who is aware of these behaviors. As with interviews, focus groups can be time and resource intensive. It is generally preferable for one individual to facilitate the group's discussion of questions and topics and another, different person to record responses from the group. Another significant concern is that focus groups can be rather easily dominated by a few highly vocal members of the group, whose viewpoints may then be perceived as representing the whole group or who may take the group on tangents that are of limited usefulness.

Observations

Observations occur when a training professional or other designee watches and listens to organizational members as they perform a specific behavior or job task. Observations are a potentially good source of information for physical tasks as physical activities can be observed more readily than cognitive processes. Observations can also be used as the basis for creating flow charts or process maps so that all stages of behavioral performance are identified. Observing performance within its natural environment can also help in identifying environmental factors that help or hinder task performance, including conditions of the workspace or equipment.

One drawback to observations is that observers may not be able to determine the thought processes behind behaviors. A specific behavior might not be part of the standard process for a job task,

but an individual employee might complete steps in a different order or change the process to meet personal needs or because of a misunderstanding of the process. A second drawback is that individuals sometimes change their behaviors when they are being watched. This phenomenon, known as the Hawthorne effect, makes the data collected via observations less accurate as a representation of how people actually perform tasks.

Tests

For less observable tasks, or cases where specific knowledge is potentially at the root of a performance gap, **testing** is an option for collecting data. Testing involves providing a written or applied evaluation of what a person knows or can do. Its advantages include that it is objective and allows administrators to focus on specific gaps. As with observations, however, tests do not enable collection of information about why people do what they do. Test anxiety is also a concern; similarly to the Hawthorne effect in observations, some individuals do not respond well when they know they are being tested.

Performance Data

Performance data are existing or readily collectible information about how well specific tasks or processes are performed. Examples of performance data include quality control reports, injury or complaint data, inventories of scrap or damaged materials, and output quantities. Performance data can readily show where there are gaps between desired and actual performance and can help to quantify the extent of such gaps. Performance data by themselves, however, can be influenced by unknown external factors, which may provide an inaccurate sense of what actual performance gaps are. For example, quality control problems during a period of time might be the result of switching to a different supplier and lower quality materials instead of a problem with the specific task performance within the organization.

Analyze Data

After data are collected, they must be analyzed effectively so that accurate conclusions can be drawn about existing areas of deficiency and potential interventions can be designed. It is critically important that data analysis is accurate, as faulty data can lead to lack of confidence in the analysis and lack of support for the needs assessment.

Using Your Evaluation Standards

When analyzing data, the first step is to put the information in a useful form, if it is not already in useful form. Responses to closed-ended questions from surveys or observation reports can be en-

tered into a spreadsheet for ease of interpretation and analysis. Responses to open-ended questions, including those from interviews or focus groups, must be analyzed to determine recurring themes or patterns.

Data should also be placed within a larger context. If benchmark information is available from comparable organizations, best practices are identified by professional organizations or other research, or legal requirements provide guidance about performance standards, these should be included as criteria for interpreting the data.[10] Doing so not only provides a deeper understanding of the data collected but can also be used in demonstrating to clients the full extent of necessary changes.

It is also important during this phase to avoid misinterpretation of data. Several common shortcomings of data analysis are presented by Anderson:[11]

- Avoid confusing perceptions and reality, as statements are not always the same as facts.
- Be sure to consider alternative explanations or interpretations of information.
- Be careful about generalizing when sample sizes are small and the number of observations or survey responses are small, as the sample may not represent the entire organization.
- Avoid confusing the frequency with which an event or obstacle is reported and the importance of the event or obstacle.
- Be alert for unconscious bias on the part of researchers or any person involved in the data collection process.

See Chapter 10 for Statistics for WLP Professionals

Particularly if you have quantitative data from sources such as surveys, tests, or performance reports, you will likely wish to analyze the data to determine if there are differences between groups in performance and to see if there are relationships between particular environmental or other factors and performance. For example, it may be that second shift and first shift workers have different rates of output or accidents. It might also be that more quality assurance issues occur earlier in the week and, as the week progresses, fewer issues occur. Identifying such patterns in the data may suggest specific sources of problems or models of good performance that can be further investigated and shared across the organization.

Deliver Data Analysis and Feedback

Once data have been analyzed, the entire needs analysis must be summarized and presented to senior executives within the organization. By presenting the elements below, senior executives should have sufficient information, provided within the organizational context, to evaluate the proposed action plan. As you develop your report, you need to consider who your audience is and what types of information they will need to support your recommendations and to decide whether to move

ahead with them. The information in the following section can be read in conjunction with Appendix A, which is a brief introduction to project management for T&D professionals.

Executive Summary

It is typically useful to begin your data report with an **executive summary**, or a relatively short overview of the report. Executive summaries can serve at least two functions. First, they can orient readers to the main issues addressed in the report, assisting with comprehension and potentially directing them to specific sections. Second, for readers who may not be directly responsible for the areas addressed in the analysis but who need to know something about the report, an executive summary is a means of conveying the key points without reading the entire report.

Organizational Overview

An organizational overview addresses the current state of affairs within the organization, including business needs, where the organization is presently, and the scope of the current analysis. Existing employee perceptions of organizational culture, ongoing relationships with vendors or other external parties, and recent financial performance are examples of factors that influence the organization's current state of affairs.

Providing information about business needs and where the organization currently stands may help to build credibility with the client and clearly articulating the scope of the analysis will hopefully ensure that the organization and the training professional have similar expectations about what issues any proposed actions are meant to address.

Of course, a central component of the organizational overview includes the specific results of your analysis and the data you collected. Information should be provided about how you went about gathering data, the sources of information you examined, and narrative and/or visual presentations of results. Be sure to keep in mind that not all readers will be interested in a highly detailed version of your results. Understanding your target audience is important so that you know how much detail to include. If, as is likely the case, you have individuals within your target audience who want little detail and others who want very detailed information about your data analyses, it may be best to include a less-detailed presentation within the body of the report and a more detailed appendix at the end of the report that is available for those who are interested in seeing the more detailed information.

Potential solutions to organizational performance gaps should be tied to specific data from the analysis so that it's clear to clients how the solutions will address the concerns raised by the data. Both root causes and potential solutions can also be prioritized so that clients can readily assess which solutions are likely to yield the largest or most immediate benefit to the organization.

Whereas an organizational overview focuses primarily on factors related to an organization's success where the organization might exert at least some control, the next section, the business en-

vironment, focuses more on external factors that might be well beyond the control of anyone within the organization.

Business Environment

A description of the business environment, or factors outside the organization that may influence organizational performance, is also an important element of analysis. Changes in the range or types of competitors within the industry, new or existing government regulations or reporting, and the state of the general economy, which can affect the numbers and types of prospective employees available, are all examples of elements in the business environment.

External constituencies that are specific to the organization and their needs should also be part of the business environment analysis. Current and future status of donors, customer markets, and suppliers can be addressed. Trend information can be particularly powerful and persuasive in this part of the analysis, as it can provide clarity about patterns of increased costs or turnover among suppliers, potential areas for growth or decline in customer bases, or changes in the number or financial capacity of donors.

Financial Analysis

Part of your needs assessment report should focus on the financial elements associated with implementing proposed solutions and those associated with taking no action. An important element of a financial analysis is to specify how much it costs the organization to continue with the current state of affairs. For example, if 12% of customers are returning merchandise because it is defective, the cost of the current performance gap includes direct costs associated with processing, shipping, and handling the defective merchandise and its replacements; the costs of personnel time to perform all of the tasks above; and costs associated with loss of repeat business from frustrated customers. Cost information may be available within the organization or potentially from industry benchmarks for the typical cost of particular job tasks. Analyzing the cost of retaining the status quo can be powerful incentive for organizational leaders to work toward eliminating or lessening unnecessary costs.

Of course, costs of implementing proposed solutions must also be included in a financial analysis. Beyond the costs associated with developing and delivering training materials or other solutions, personnel costs associated with attending training, monitoring progress, and assessing success must also be part of the equation. If a solution requires six months to implement, the costs of maintaining the status quo, described above, will also continue for another six months.

Finally, a financial analysis should address measurable gains that will accrue from implementation of proposed actions. Continuing the example above, if customer returns are reduced to 2%, what is the resulting cost savings? This part of the analysis includes providing realistic expectations for what is achievable from the suggested solutions. It may be impossible to move to 0% returned

items, but your analysis should provide information about whether 3% or 5% is a reasonable target. It may also be the case that customer returns might be reducible to 7% in the first year but are projected to drop to 3% in the second. Whatever the projected scenarios are, they need to be supported by the analysis data and included in the financial analysis of implementing the proposed solutions.

Action Plan

The action plan focuses on specific recommendations for moving the organization from its present state to desired levels of goal attainment. It should include specific activities to be completed, an explanation of how those actions link to goals, desired performance benchmarks, methods of assessing success, and a timeline for completion. As noted above, a detailed budget that outlines the cost of activities undertaken should also be included. Responsible parties for each part of the action plan, from design to follow up and data analysis, also need to be outlined in this section.

Specificity in all elements of the action plan is critical so that the client has a complete picture of what will be needed to achieve the desired outcomes and to mitigate misunderstandings about the scope of the project or the results that are possible. Including responsible parties for each part of the action plan also aids in ensuring follow up and reminds the client that support and feedback for behavioral changes are essential if the proposed solutions are to yield the desired results.

Transition to Design

Once the client decides to move forward with some or all of the recommendations within the action plan, the focus shifts to design. At this point, a formal agreement on goals to be achieved, scope of activities to be completed, indicators and methods of measuring success, a list of tangible training products, and a timetable for project completion and follow up should be developed.

Summary

A thorough needs analysis is essential to effective training and organizational development processes. Although clients may not always initially see the benefits of such analysis or may incorrectly identify the organization's needs, conducting a complete analysis helps you develop a plan of action that is likely to be successful in meeting the organization's needs and in persuading organizational leaders that proposed solutions will indeed be successful.

Chapter Takeaways

- Needs analysis addresses business, performance, learning, and learner needs and requires input from multiple organizational members across the organization.
- Data collection methods all have benefits and drawbacks, so the most effective analysis will tailor the needs to specific organizational questions and typically include multiple information sources and methods.
- Not all performance gaps are the result of poor or non-existent training, so it is important to identify root causes of performance gaps before moving forward to propose or implement potential solutions.

Chapter 3 Exercises

Discussion Questions

1. Reviewing the list of benefits and drawbacks of specific data collection methods (survey, interview, focus group, performance assessment, tests), identify organizational characteristics or elements of organizational context that would make using particular methods highly desirable or undesirable.

2. Discuss which of the ATD categories of interventions to address performance gaps discussed in this chapter might be most readily addressed within organizations and which ones are likely to be more difficult to address.

Exercises

1. You have an initial meeting with a potential client and she says "Our employees need to do a better job at working efficiently." Develop a list of questions you might ask to gain a clearer sense of the performance needs within the organization. Share your list with a partner who has completed this exercise and discuss why the questions on your list would be helpful in gaining the information you need.

2. With 2–3 classmates, discuss specific strategies for presenting analysis results that a client may not want to hear for each of the situations below:
   - The client has identified poor performance among line workers as the cause of productivity problems but your analysis suggests the problem lies with ineffective management in the department and the manager is a relative of the client.
   - You have identified new technologies that have changed the competitive environment,

and which have been adopted by competitors, as a significant reason why business needs are not being met but your client has repeatedly stated that investing in new technologies is not a priority for the company.

Key Terms

Business needs Goals or objectives that the organization wishes to achieve.

Employee analysis Identifying how and how proficiently people perform behaviors necessary to meet organizational needs.

Executive summary A brief summary of the main topics and conclusions contained in a report.

Focus group Data collection method where a group of people are directly asked questions with a goal of gaining information about the group's collective experiences.

Instructional systems design (ISD) The practice of using consistent and reliable procedures while creating instructional experiences.

Interview Data collection method where a single person is directly asked questions with a goal of gaining detailed information about the experiences of a single person.

Learner needs Individual factors that impact learners' ability to enact necessary performance behaviors.

Learning needs The gap between behaviors that need to occur for business needs to be met and the specific behaviors that organizational members are currently enacting.

Objective data sources Sources of information that can be quantified.

Observation Data collection method where a researcher or other observer watches and records information about task performance in real time.

Organizational analysis Identifying an organization's present and future learning needs.

Organizational scan Identifying issues within the organizational culture, including business processes and behavioral expectations, that contribute to effective or ineffective performance.

Performance data Data sources that provide information about aggregate or individual performance patterns over time.

Performance needs Specific behaviors that organizational members need to enact so that business needs can be met.

Subjective data sources Sources of information that cannot be quantified.

Survey Data collection method that provides written questions to a large number of respondents with a goal of aggregating the responses received.

Task analysis Identifying the behaviors or elements necessary to complete a task effectively.

Test Performance assessment that evaluates an individual's knowledge or skill by simulation, written or oral responses, or other means.

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