

Multidomain Job Analysis: Procedures and Applications

A unique approach to the daunting task of job analysis cuts it down to size.

By ERICH P. PRIEN, IRWIN L. GOLDSTEIN,
and WILLIAM H. MACEY

Job analysis, often the crucial first step toward organizational change, happens in many different ways. And that causes problems because a lot of HRD practitioners assume that any use of any job analysis technique constitutes an acceptable job analysis. Not so. To succeed, each technique needs a firm set of rules. An approach that uses a multidomain job-analysis inventory can clarify some of these distinctions.

Job analysis has a simple purpose: to provide employers with job information they need in order to implement plans and programs or solve problems. On a very basic level, job analysts can discover this information through two approaches: unstructured and structured. To use either, analysts must go into the workplace and talk to the people who do the work.

The unstructured approach requires analysts to observe incumbents performing their jobs. Alternatively they can ask workers a simple, open-ended question such as, "What do you do?" Either way, analysts compile information that they can use to create a job description. The unstructured approach often serves as the first step of a structured job analysis.

The structured approach starts with a

standardized but untested description of the work—a task or job-skill statement. Then either an observer or the incumbent employee answers a standard question such as, "Is this content part of the job—yes or no?" The unstructured approach lets analysts know which questions to ask during the structured analysis.

Three domains

What sorts of information do these two processes reveal?

Job analysts commonly divide their data into domains, the three most important being

- task;
- knowledge, skill, and ability;
- performance behavior.

The task domain describes incumbents' job activities: clerical work, management, sales, or any other definable job family or occupation. The knowledge, skill, and ability domain covers what are commonly known as job skills. Relative skill levels explain the difference between effective and ineffective job performance. Workers either bring these skills with them when the organization hires them or they acquire them through training and development after placement on the job. The performance behavior domain describes the almost infinite number of behaviors individuals can exhibit as they work. Performance behaviors characterize levels or degrees of success in either the whole job or one of its parts. In some settings these statements are called performance standards. Figure 1 lists some examples of job

tasks, job skills, and performance behaviors.

Job analysts have to use a variety of sources to obtain job information. Incumbents represent the most common source because they probably know best what they do on the job. Depending upon the application requirements, other subject matter experts (SMEs) such as supervisors can provide valuable information.

As analysts consider various jobs and sources of job information, they may have to ask several different types of questions. The simplest question merely asks—yes or no—whether a particular task applies to the job. If the answer is yes, then the analyst might ask about its relative importance or how frequently it occurs. Thus analysts can obtain different kinds of information using different questions. A job analysis scale for importance is shown in Figure 2.

How do all these considerations come together? First you must understand that all three domains—task, skill, and performance—relate closely to one another, as Figure 3 shows. Let's suppose that an analyst determines that a certain job does include a particular task. This task is an important part of the job, so the analyst rates it a 5 on a five-point scale. This part of the analysis covers the task domain.

Obviously different workers may perform the task with varying levels of proficiency, from poorly to effectively. The analyst can rate those performance levels on a scale of 1 through 5. Evaluating pro-

Prien is a professor of industrial psychology at Memphis State University. Goldstein is a professor of industrial psychology at the University of Maryland, College Park. Macey is a Chicago-based private consultant in personnel research.

iciency takes care of the performance domain.

Enter now the most important part of the equation, the skill domain. Variations in performance effectiveness relate to variations in the job skills workers possess. Thus ineffective performance—rated 1—hypothetically corresponds to a lack of some skill, while effective performance—rated 5—corresponds to a high degree of skill possession.

Analysts, with the help of job incumbents or other SMEs, use an inference process to determine the interrelationships between the domains. To do this the analyst must

- understand the job;
- have the opportunity to observe both effective and ineffective performance;
- know which workers possess which job skills.

Equipped with this information, analysts can identify the relationship between the skills workers possess and how effectively they perform their jobs. And that's what job analysis is all about.

Multidomain job analysis

These basics understood, constructing a multidomain job-analysis inventory follows a standard procedure. The first step involves identifying the target job or job family and then describing it in general terms. The description states the domain boundaries that help focus the job analysis. Go to the highest ranking operations manager in the appropriate business area to get this information. For instance, if you need to analyze a marketing representative's job, speak to the marketing vice president. Next collect existing job descriptions, samples of work products, forms, and the like. All these items provide basic information about the target job's content.

Collect additional general information by interviewing or observing job incumbents; you should also interview supervisory personnel. At this stage you need interview only a few employees for each job title in the job family. But if jobs appear in different areas of the business—say in sales and manufacturing as well as in accounting—you will need a sampling plan to ensure investigation of all the variations. Generic titles such as administrative assistant also require sampling all departments within the organization.

This entire descriptive exercise provides a starting point because it helps identify the task domain.

The task domain

Using the unstructured approach to col-

Figure 1—Examples of job domains

Tasks

- Make recommendations to bank customers about investment possibilities.
- Call on prospective clients to discuss, promote, and sell bank services.
- Authorize requested noncredit personal banking transactions (such as approval of check cashing, savings withdrawals).
- Complete forms pertaining to activities of and actions taken with regard to nonmanagement employees (such as progress reports, salary increase forms, attendance records).
- Investigate and resolve customer problems with personal banking services.
- Assist customers in managing their accounts (such as interpreting monthly statements, balancing discrepancies, changing an individual account to a joint account).

Job Skills

- Ability to analyze a customer's needs and preferences for products and services.
- Knowledge of the sales and promotional features of negotiable instruments.
- Ability to follow through on specific problems and programs and maintain a continuous level of emphasis until completion.
- Ability to attend to detail concerning business operations and work activities.
- Ability to work under stressful social situations such as when receiving a complaint from an angry customer.
- Ability to explain bank policy and procedure to customers dissatisfied with banking actions without compromising bank policy.

Performance Behaviors

- Present product information in a manner that does not instill confidence in the product.
- Inform a customer that the bank does not offer a service but do not mention alternative services.
- Provide only partial information from meetings to employees who need the information in performing their jobs.
- Work past the scheduled quitting time in order to finish an important product.
- Speak in a pleasant and courteous manner when resolving customer complaints.
- Display impatience when listening to a customer's complaints concerning the bank's policies.

lect task data seems straightforward. Simply interview the job incumbents to find out what tasks they do in their jobs.

Most incumbents will organize responses sequentially according to a schedule of their job activities or thematically according to major work areas. Both types of response provide comprehensive data. Interviewing becomes more difficult, though, when incumbents provide a series of specific but unrelated tasks and statements. The lack of coherent organization may force you to impose a structure during the interview or organize the data later.

Interview until incumbents no longer provide new information. When additional

interviewing produces only redundant information the domain has been comprehensively defined.

Keep this domain definition in mind from now on, because it is *absolutely imperative* to preserve the representation of the domain during the rest of the inventory-construction process.

The next step prepares you to move into the structured approach where you will ask incumbents whether or not they perform specific tasks. A written instrument—known as a task inventory—provides the best means of administering this phase, so you must reduce the job information to standardized task statements like those shown in Figure 1.

Follow these rules when you write task statements to create a useful task inventory:

■ Start the statement with a functional verb that describes a job operation required of the employee. Identifying the job operation and selecting the verb to represent the content is a critical decision and one that requires close attention and careful thought.

■ Write specific statements. Task inventories usually reveal differences among jobs. Break overly general statements into two or more statements. Retain statements that refer to only a few jobs if they satisfy other standards. As a general rule, usefulness of job-analysis data is proportionate to the degree of specificity.

■ Make sure each item refers to a "whole" task that "makes sense." That is, keep intact a sequence of acts that a single worker invariably performs as a continuous process. Don't break up a sequence of inter-related activities leading to a single product or a single goal.

■ Use terminology and vocabulary the incumbent respondents can understand. Avoid unique or purely local slang terminology. Use common occupational terms but note that such terminology sometimes becomes obsolete rapidly. Generally the higher the reading level, the

more difficulty incumbent employees will have with job-analysis judgments. This leads to unreliable data. If in doubt, measure the reading level to ensure that the instrument is "user friendly."

The skills domain

Analyzing the skills domain using the unstructured approach can be very difficult because no one can see a skill. One can only infer, from outward results, that skill exists. If a worker can perform a task, then you can infer that the worker possesses the necessary skills. The model in Figure 3 displays the relationship between the observable domain of tasks and the unobservable domain of job skills. You can use the modeled relationship to facilitate the thinking of employees or supervisory personnel.

Using unstructured job analysis to identify and define job skills seems simple on the surface. For lower-level jobs the inference is usually fairly obvious, and the job skill frequently takes the form of a duty-based statement.

But as tasks become intangible, abstract, or complex the inferential leap becomes greater. The difficulty stems from a notion called multiple causality: in high-level tasks, success or failure can be

caused by one of several individual and distinct characteristics. Therefore you must try to identify and define the job skill that has a *probable* relation to performance of a task, job component, or whole job.

When you use the unstructured approach to identify the skills domain you can facilitate the process and stimulate production by prompting the incumbents. Ask them to

■ describe the characteristics of good and poor employees;

■ describe how good and poor employees differ;

■ describe how some employees perform the task better than others;

■ recall incidents or examples of effective and ineffective performance and discuss the reasons for each;

■ think of someone who performs the task better than anyone else and explain why;

■ name the job skill they would look for if they had to hire someone to do this one task and no others;

■ explain the kind of prior training or experience a worker needs to effectively perform the task and discuss why this is so.

With data collected from these unstructured discussions, you can begin developing job-skill statements for the structured portion of the analysis.

The best job-skill statements represent specific scorable units or feasible units of measure for the skill domain. This is important because job-skill statements usually form the basis for content-oriented procedures. For instance, during training-program development an array or subset of job-skill statements might constitute course content or learning points. Even though the style for writing job-skill statements closely resembles that of task statements, keep in mind the following additional points:

■ Avoid simply restating a task or duty statement by attaching the word "skill" or "ability." These duty-based statements usually pertain only to low-level jobs. For higher-level jobs duty-based statements can't provide enough information to develop content material.

■ Make each statement represent a unique job skill. Don't combine separate and different types of job skills into composite statements. As a general rule if you suspect that separate facets exist, write two separate statements.

■ Ensure that job-skill statements describe a component of individual variance. The degree of possession or proficiency is a measurement, so avoid using terms like "familiarity," "mastery," or "recall."

Figure 2—Task importance judgements

In this operation, you are to rate the importance of the different tasks as to their significance for your job. Consider each task statement in terms of whether it is something that you do in your current job. For each task statement proceed in two steps: First, consider whether a task statement is not part of the position, does not apply, or is not true. If so, you should rate the task a "0." Second, if the task statement is part of the job, then decide how important a part it represents.

To evaluate a task statement's importance you should consider the frequency with which you engage in the activity described by the task statement, the importance of that activity for achieving the goals of your position, and the activity's impact on the work of others or on broader organization goals.

Use the following scale to make your judgements:

- 0 Definitely not a part of the job; does not apply.
- 1 The task has minor importance on criticality relative to other tasks performed by individuals in this job. Considering all tasks, it would have the lowest priority of importance.
- 2 The task is fairly important relative to other tasks, but it does not have the priority of importance of most other tasks.
- 3 The task is moderately important for full job performance relative to other tasks and has about average priority among all tasks performed.
- 4 The task is very important to full job performance. It has a higher degree of importance or priority than most other tasks or activities.
- 5 The task is one of the few most essential tasks or activities performed and is one of the most critical aspects of the job.

Figure 3—Model of the relationship among the job content domains

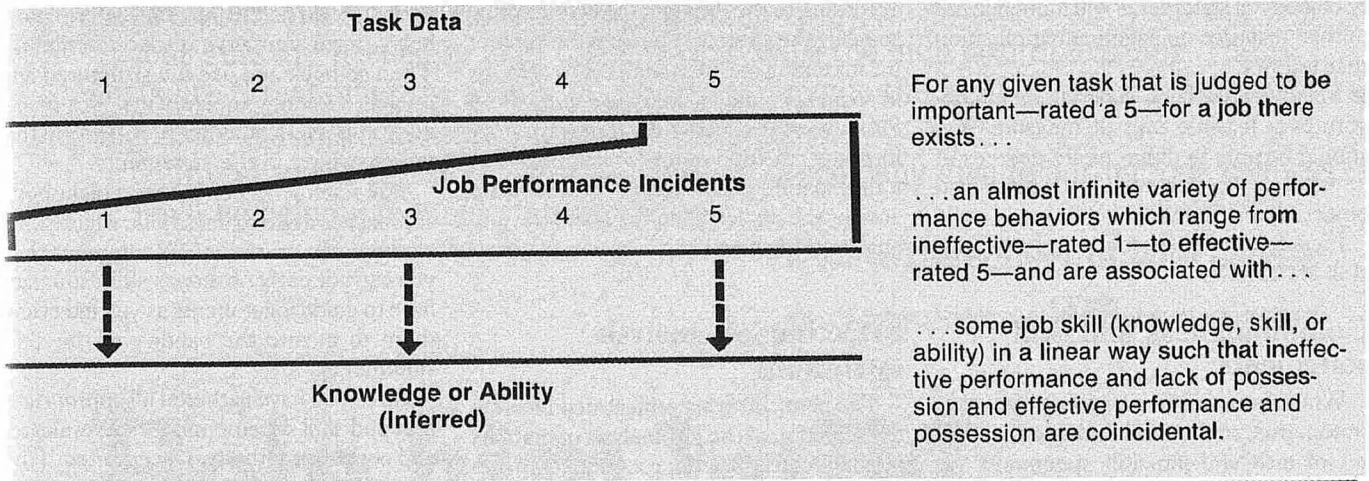


Table 1—Job analysis operations

Purpose	Tasks	Knowledge, skills, and abilities	Notes
1. Define job domain and dimensionality	frequency	importance	-use survey for multiple jobs with incumbents -single jobs use panel of SMEs but use thematic classification or retranslation
2. Job description/job profile	importance or frequency x importance	importance	-basic data for job understanding -use data for job clusters
3. Performance evaluation	frequency	—	-use data for structure to establish dimensionality for job relatedness of performance behavior domain
4. Performance counseling/coaching	importance frequency x criticality	importance	-proficiency and degree of possession from supervisor/observer -importance as reconciled by incumbent and supervisor
	proficiency and importance	degree of possession and importance	
5. Promotion/succession	frequency x importance and normative proficiency required	importance and normative degree of possession required	-frequency x importance and importance are for target job from incumbent -normative—required are from target job from organization panel
For decisions	difference between absolute proficiency possessed/required	difference between absolute possession/required	derived through statistical analysis of data referenced to absolute scale

■ Write statements that represent operationally defined job-skill content. Don't use trait or construct references for the content description. The level of specificity of job-skill statements will influence the human resource management application that follows.

■ Make sure each job-skill statement constitutes a feasible unit of measure. You should be able to differentiate degrees of job-skill possession with just one or two objective test items.

Figure 1 shows some examples of job-skill statements.

Combining task and skill statements

When you finish compiling the skill statements, review and evaluate the total set of task and job-skill statements for redundancy and deficiency. You can make this step easier by analyzing the statements thematically and setting up a series of categories. These might include all typing tasks, bookkeeping tasks, and so on.

Now review these subsets, eliminate redundancies, and rewrite to accommodate minor variations. During the

The final job-analysis inventory, then, consists of a comprehensive set of task and job-skill statements. You can arrange the tasks and job skills in two ways: by subsets according to the thematic categories or by spiraling the content. Spiraling the content means taking one item from each category, in sequence, until all items are used. Both formats work acceptably. The inventory form may include space for responses, or it may feature reusable copy with separate answer sheets designed to collect the job-analysis judgments.

Selecting job-analysis operations

The next and most critical step involves the selection of the job analysis operations needed to produce the required job information. A variety of questions can apply, but most job-information displays need only a few.

Task- and job-skill-oriented job analyses most often consider *importance*. This job-analysis operation, represented by a rating scale, appears in Figure 2 as an example. Table 1 shows a listing of other job-analysis

The next step involves developing task statements using both the unstructured and structured approaches. In the unstructured approach you simply ask workers what they do on the job. This information helps form tentative task statements. Then go back and use the structured approach, asking incumbents yes-or-no questions about whether they perform the tasks covered in the statements.

Skill statements come next. Follow both approaches again to determine which skills workers use on the job. Remember that you can't directly observe a skill. You may have to guide incumbents as you interview them to ensure the validity of the skill statements.

Once you have gathered all appropriate task and skill statements, review, evaluate, and consolidate the two inventories. This combined listing should give you an accurate representation of the job in question.

Finally, select a job-analysis operation. Measuring the job's importance is the most common operation.

Following these steps will help you organize your job-analysis project, but following them blindly won't automatically produce a sound job analysis. You must take special care to perform each of the steps properly, for deficiencies at any point will compromise the quality of the final product.

Analyzing the skills domain using the unstructured approach can be very difficult because no one can see a skill

review you will probably notice some gaps. If you do, go back and conduct additional interviews.

As you review and combine the statements, remember these two important standards:

■ Preserve task- or job-skill-domain representation throughout the reviewing and editing process. The final set of task or job-skill statements must sufficiently represent the domain as originally defined. In rewriting, aggregating, synthesizing, or adapting the specificity, take great care to prevent the possibility of creating voids in domain representation.

■ Make sure representation of the task- and job-skill-content domains corresponds to the level of specificity required by the human resource management application. Adhering to this standard means understanding the application requirements. Fairly general task and job-skill statements can suffice for recruitment job descriptions and general communication purposes. Developing content for training programs, on the other hand, requires greater specificity.

operations and their uses. Other valid operations include how difficult it is to acquire the required skills and how difficult it is to acquire proficiency. Several of these operations may be used to collect job information.

Obtaining the desired job information marks the final step in administering the job-analysis inventory. This is a routine administrative activity, but handling returns for statistical analysis can become quite laborious. A variety of general computer programs can process the data and produce the job information displays.

Summary

Job analysis can seem difficult because it is such a broad effort. The key to success lies in cutting it down to size, and a multidomain approach helps you do just that. Five main steps will guide your work.

First identify and describe the target job or job family by researching job descriptions, work products, job forms, and the like. Watch incumbents perform the job, and don't forget to interview supervisory personnel.