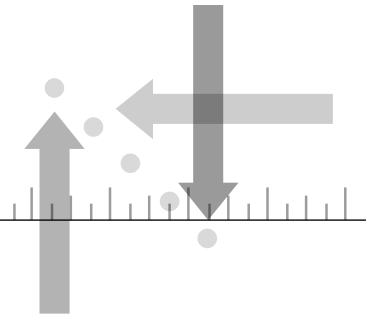# TASK ANALYSIS (HIERARCHICAL OR SEQUENTIAL, IF-THEN, AND MODEL-BASED)

Purpose

The purpose of a task analysis is to systematically describe, document, and analyze the activities, procedures, processes, and resources that are used by individuals or groups to accomplish current results.

Needs Assessment Applications

A task analysis explains the processes and inputs that are being used at this time to accomplish results. Consequently, a task analysis defines what individuals and teams both are doing and should be doing to contribute to current results. As part of a needs assessment, this vital tool can inform both the diagnosis of needs and the detection of potential remedies for improving performance.

In many ways, a task analysis process parallels the performance analysis process although the former begins with the results currently being achieved, whereas the latter begins with the desired results that should be accomplished in the future. Sometimes these starting places are one and the same. Yet, from their unique vantage points, the two processes parallel each other as they identify the tasks, processes, procedures, tools, and resources that are used to achieve results.

Your focus during a task analysis is on systematically documenting what individuals or groups are doing (or should be doing). From observable processes and behaviors to scripted procedures and organic creativity, it is important to detail current events so that they may be compared with desired events when identifying future actions.

Advantages and Disadvantages

Advantages

- A task analysis can attain a clear definition of what resources, processes, and results are related to current tasks that are (or will be) related to your program or project.

- By using a task analysis to systematically review the completion of current tasks and their results, you will ensure that your needs assessment will be better prepared to make recommendations regarding changes to current procedures and new tasks.

- A task analysis will help you to identify both what is working well and what is not working as well within the current organization.

Disadvantages

- Effective task analyses require time and resources that may not have been included in your initial planning.

- Completing a task analysis is usually more complex than completing the task itself. For complex tasks, you will likely want to use a task analysis expert.

- It can be challenging to determine (a) if and how the completion of tasks would change because of needs assessment recommendations and (b) how those changes would influence other parts of the system.

Process Overview[1]

1. Identify key positions and tasks related to the completion of results within your results framework. For example, if your results framework identifies food safety inspections conducted by the state health and agriculture agencies as an essential result for improving performance in the overall food safety system, then you would want to identify which positions and tasks within the agencies are (or would be) responsible for the successful completion of food safety inspections.

2. Select a task analysis method. Several systematic task analysis methods can be applied, each with advantages and disadvantages depending on the context. As a result, use a mix of task analysis methods during any needs assessment. Three possible methods are (a) hierarchical (sequential), (b) if–then, and (c) model-based.

a. ***Hierarchical (Sequential) Task Analysis***

(1) This kind of analysis identifies both the component steps in completing the given task and their hierarchical (or sequential) relationship to one another. When desired results are not being accomplished, use the hierarchical analysis to provide insights into the obstacles preventing success. Equally, when desired results are being accomplished, use the analysis to detail the constructive processes that lead to accomplishment of objectives.

(2) To begin, you should review, observe, and document each step taken by the performer in completing the task. Verify the appropriate sequence of steps for accomplishing results, and identify the resources (for example, supplies, computers, or other employees) used to complete the task. Routinely, processes will involve steps that cannot be observed. Talk with the individuals or teams that perform selected tasks to identify both internal and external behaviors. Most often, a hierarchical task analysis requires a combination of observation and interviews with expert performers.

(3) For example, a task analysis may identify that receptionists complete the following steps in accomplishing a performance objective for the pension office:

- Check voice mail messages.

- Take detailed and accurate notes on each voice mail message.

- Send e-mail to district pension officers along with voice mail messages.

- Copy managers on e-mail messages sent to their respective pension officers.

- Clear phone messages after e-mail messages have been sent.

(4) Depending on the level of detail required for making useful decisions, additional analysis may be done on any single step within the process to determine more detailed actions taken by the expert performer (for example, what steps are required to check voice mail messages). The level of detail required for a task analysis varies greatly from initiative to initiative. Balance (a) the desired level of detail for making improvement decisions with (b) the available time and resources.

(5) Create a graphic depicting the tasks and their relationships (see figure 3A.2).

b. ***If-Then Task Analysis***

(1) If–then analysis applies process logic to the determination of the important decision steps for completing a task. This analysis technique can be useful when you have multiple decision steps. For example, for the task of using a word processing software application, you might include "*If* a word in the text is underlined in red, *then* right-click on the word to identify options for revising the spelling of the word." As tasks gain in complexity, multiple decisions must typically be made by the performer. The if–then analysis becomes an effective technique for identifying and documenting decisions and behaviors that cannot be observed.

(2) In a manner similar to the hierarchical analysis technique, you can use both observations and interviews with expert performers to complete an if–then analysis. In addition, combinations of methods are commonly used to identify the constituent steps in completing many complex tasks.

(3) Continuing the example, receptionists in another pension office might identify the following steps for achieving the same performance objective:

- Step 1: Check voice mail messages when you arrive at work. If there are messages, then take detailed notes on each voice mail message.

**Figure 3A.2   Example of a Hierarchical Task Analysis Graphic**
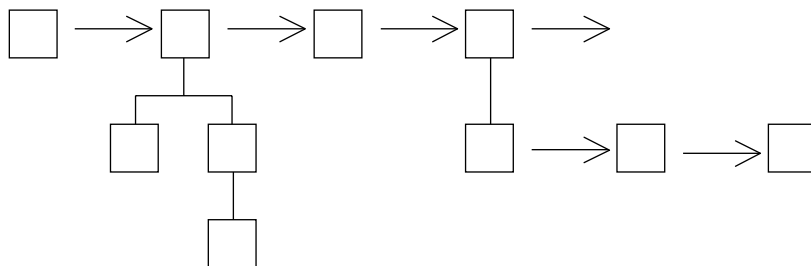
- Step 2: If the voice mail was for a pension officer, then e-mail the pension officer the contact information and message from the voice mail (and proceed to step 4).

- Step 3: If the voice mail message was for a manager, then forward the voice mail to the manager using the *8 feature of the phone.

- Step 4: Copy (or inform) the managers about e-mails going to their respective pension officers.

- Step 5: If you have completed steps 2, 3, and 4 for all voice mail messages, then delete phone messages.

(4) Create a graphic depicting the tasks and their relationships (see figure 3A.3).

c. *Model-Based Task Analysis*

(1) Use a model-based analysis when the task being reviewed is vague or difficult to define. Because many "soft skills" or professional tasks (for example, demonstrating leadership, group problem solving) are characterized by their elusive definitions and reliance on situational context, model-based analysis can provide you with essential information for describing how performance objectives get accomplished in these situations. In completing a model-based analysis, you work closely with performers to develop a model or framework for completing the task. Performance is then the result of applying the model even when there are ambiguous guidelines for performing the task.

**Figure 3A.3   Example of an If-Then Task Analysis Graphic**
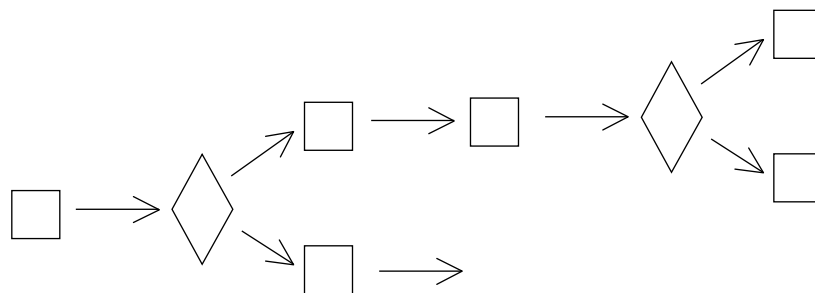
(2) For example, for the soft skills task of mentoring pension office employees, the analysis may identify the following performance model:

Describe for the employee the optional techniques that may be used to complete his or her work. In mentoring the employee, use one or more of the following techniques: (a) use examples of other current and previous employees, (b) have the employee form a mental picture of performing the work at his or her desk, (c) demonstrate successful performance of the work-related tasks, (d) have the employee practice the work steps and then provide immediate feedback to the employee, and (e) suggest additional training opportunities offered within the organization.

(3) Use interviews (or focus groups) with expert performers to define a model for a task. After a model is developed, expert performers should again review the procedures and options to ensure that the model adequately represents a framework for accomplishing desired results. The ability of a model to represent the successful completion of a task depends on the flexibility of the model. If your model-based analysis does not result in a flexible framework that can be applied in a variety of contexts, then review the task using another task analysis technique.

(4) When possible, create a graphic depicting the tasks and their relationships (see figure 3A.4).

3. To collect information in a task analysis, use a combination of interviews, observations, intensive observations, focus groups, surveys, document reviews, data reviews, and other techniques.

4. After the initial task analysis is completed and as a useful step, have the participants in the analysis review your findings to provide clarifications and corrections when appropriate. Depending on the complexity of your tasks, several rounds of revisions may be required.

5. Write a summary report of the findings from the task analysis.

6. Remember that the task analysis is an essential ingredient to a needs assessment and should be used as a point of comparison with other assessment data (for example, surveys, interviews, focus groups) to inform your decisions.

Figure 3A.4   Example of a Model-Based Task Analysis Graphic
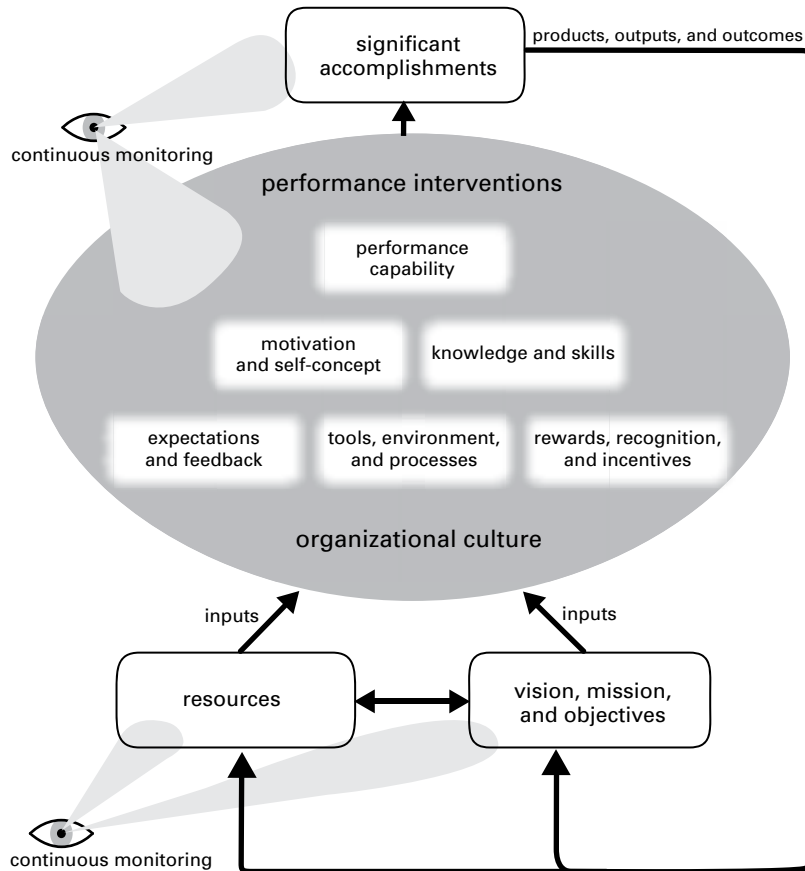
Source: The example is the performance pyramid model found in Wedman (2010). Reused with permission. Also available at http://needsassessment.missouri.edu.

Tips for Success

- Strive to be very systematic in your analysis.

- Communicate openly with those participating in your analysis to assure them that the results of the analysis will be used only for improving results and not for placing blame.

- Remember that actions speak louder than words; it is better to observe individuals performing a task than to simply ask them what they do.

Note

1. Based in part on http://www.nwlink.com/~donclark/hrd/tasks.html and Watkins (2007).

References and Resources

Jonassen, David H., Wallace H. Hannum, and Martin Tessmer. 1989. *Handbook of Task Analysis Procedures*. Westport, CT: Praeger Publishers.

Watkins, Ryan. 2007. *Performance by Design: The Systematic Selection, Design, and Development of Performance Technologies That Produce Useful Results*. Amherst, MA: HRD Press, and Silver Spring, MD: International Society for Performance Improvement.

Wedman, John F. 2010. "Performance Pyramid Model." In *Handbook of Improving Performance in the Workplace*. Vol. 2: *Selecting and Implementing Performance Interventions*, edited by Ryan Watkins and Doug Leigh. San Francisco: Wiley/Pfeiffer, and Silver Spring, MD: International Society for Performance Improvement, 51–80.

Website

Tasks and Task Analysis is available at http://www.nwlink.com/~donclark/hrd/tasks.html.