WHITE PAPER

A NEW LOOK AT THE JOB ANALYSIS INTERVIEW: The Hierarchical Job Analysis
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The Hierarchical Job Analysis

A STRUCTURED APPROACH TO THE JOB ANALYSIS INTERVIEW

The fact that a thorough job analysis is essential to good personnel management goes without questioning. With accurate and complete information obtained from the analysis, an organization can successfully develop recruitment, selection and training programs, establish performance appraisal systems and make meaningful comparisons between jobs for the determination of pay equity. The job analysis has become increasingly important with today’s challenges for improved productivity in American industries. It is the foundation for almost every activity within industrial psychology and human resource management (Wilson, M.A., 2012). It has also long been the focal point in the legal context of human resource selection (Gatewood and Field, 1987).

There are various methods for conducting job analysis. Direct observation, interview, job inventory, critical incidents and the Position Analysis Questionnaire are but a few of the techniques that have been employed over the years (Cascio, 1982). Often, several approaches are combines in job analysis studies. One of the most commonly used techniques is the job analysis interview (Rendero, 1981). A face-to-face interaction with job incumbents or other job experts provides the opportunity for a level of detail that is often unavailable through other methods.

Despite the potential benefits of the interview, the success of the technique depends heavily on the skills of the job analyst. The most important requirement of a job analysis is to insure that all of the essential aspects of the target job are identified. In addition, if job analysis results are to be useful, they must be organized in a meaningful and systematic way. Unless a well-planned approach to the interview is followed, the job analysis can result in a fragmented and incomplete list of job information.

The job analysis interview can provide thorough and meaningfully organize results by insuring that the approach closely attends to the orientation of the job analysis and the level of detail used to describe the job. Jobs can be described using a task orientation (what gets done on the job) or a worker orientation (how the job gets done), or in terms of knowledges, skills, or traits required to perform the job (Arvey and Faley, 1988). Without a unified orientation the results
of the job analysis become less clear and may provide comparisons of job aspects that are misleading.

A job can also be described in various levels of detail, from the most global description of the job responsibilities to specific sections or behaviors required on the job (Wilson and Dierdorff, 2012). To be useful, job activities should be organized on the basis of its level of detail. The risk of not doing this is to possibly place improper emphasis on certain aspects of the job.

THE HIERARCHICAL JOB ANALYSIS

The Hierarchical Job Analysis (HJA) is a technique that provides direction for the job analyst in conducting the job analysis interview. It guides the analyst in conducting the job analysis interview. It guides the analyst in identifying the essential aspects of the job and provides results that are organized in a meaningful and systematic way. The HJA provides specified levels or detail within statements describing the job and maintains a unified orientation within these statements. It accomplishes this by using simple guidelines for conducting the job analysis interview.

The HJA could be thought of as an attempt to describe the job in terms of a “job-tree”. Using a task orientation, the technique requires job experts to break down the target job into a number of sub-jobs that could be performed independently by two or more individuals. Each sub-job is further broken down into a number of independent tasks making up the sub-job. Again, each task is further broken down into a number of sub-tasks.

This successive process of partitioning the job into more and more specific units is continued until it is felt that further breakdowns would produce work behaviors that are not meaningful to the analysis. The outcome of this approach is represented in a dendrogram or job-tree. (See Figure 1 below.) The job analysis results resemble that of an inverted tree, with a small number of sub-jobs appearing near the top of the diagram and a larger number of sub-tasks appearing at or near the bottom.

A CASE STUDY: THE OPERATING ROOM NURSE

To evaluate the effectiveness of the HJA, the technique was used to analyze the position of Operating Room Nurse (ORN) at a north Colorado hospital. At the time of the analysis
approximately 30 Registered Nurses were employed by the hospital to function as ORNs. The surgical department had identified a need to review their performance appraisal program for Operating Room Nurses and Technicians. This served as a good opportunity to test the utility of the HJA in an applied setting.

Figure 1. A Sample Job-Tree Diagram

The job analysis study followed three stages: 1) the training of a small group of job experts in the use of the HJA technique; 2) the development of a list of job activities by the job experts; and 3) the development of a job inventory that could be used to gain input from the entire nursing staff.

STEP 1: HJA TRAINING

The job experts involved in the project were six nurses chosen from a list of ORNs who had been employed in their present positions for a minimum of one year and who were sufficiently familiar with all aspects of the job. The authors met with the six job experts in a series of five ninety-minute meetings. At the initial group meeting a brief training session was conducted, providing an introduction to the purpose of the job analysis and describing the Hierarchical Job Analysis approach.

The training included a description of the goal of the process (i.e., complete coverage of the job, a unified orientation in the job statements, and specified levels of detail). In addition, the job experts were shown a sample job-tree of a familiar job to illustrate the type of product that was
expected from the project. The job represented by the sample job-tree used in the training is presented in Figure 2. For demonstrative purposes, the job-tree included only a sample of the job activities of the waiter/waitress position.

**STEP 2: DEVELOPING A LIST OF JOB DUTIES**

Following their brief training period, the job experts began dividing their job into conceptually distinct sub-jobs. To aid them in this process, they were told to imagine that two or more equally trained nurses were provided to share in the duties of their job. They were then asked to break down the major functions of their job so that independent functions could be delegated to several nurses. Each job expert worked individually for a few minutes generating a list of sub-jobs. A group discussion then followed to compare and evaluate each job expert’s list and to establish one final list of sub-jobs. The sub-job defined by the job experts are shown in Figure 3. They include five different functions performed by the ORN.

**Figure 2. Sample Job-Tree of a Coffee Shop Waiter or Waitress**

![Job-Tree Diagram](image)

To insure a work related orientation in the job analysis results, the job experts were reminded throughout the process to develop job statements that describe what gets done on the job as opposed to worker attributions that are needed for the job. This was reinforced by requiring that each job statement begin with an action verb.
In the next step of the job analysis, the job experts were asked to divide the five previously identified sub-jobs into tasks that make up each sub-job. Focusing on one sub-job at a time, the job experts were asked to consider ways in which the sub-job could be divided into two or more smaller, independent tasks. Again, the nurses worked individually, generating a list of tasks. The entire group then discussed each person’s list and came to a consensus on a final list for that sub-job. For example, in breaking down the sub-job of the scrub nurse, the job experts identified eight independent tasks that they perform, ranging from preparing the operating room for surgery to teaching surgical procedures to other personnel. The final list of tasks for the scrub nurse sub-job is shown in Figure 4. A total of 31 tasks were identified for all 8 of the sub-jobs.
Figure 4. A Breakdown of the Scrub Nurse Sub-Job

- Prepare the Operating Room for Surgery
- Assist the Surgeon During Surgery
- Keep Count of Instruments
- Create a Sterile Environment
- Assure Patient Safety
- Act as a Patient Advocate
- Teach Scrub Procedures to Other Personnel
- Clean the Operating Room After Surgery
- Perform Scrub Nurse Duties
The next step in the job analysis required the job experts to break down each task into sub-tasks. Similar to the previous step, the nurses focused on one task at a time until breakdowns on all tasks had been completed. The 31 tasks of the ORN were ultimately broken down into a total of 161 sub-tasks. An example of how these tasks were broken down is provided in Figure 5. The task, *preparing the operating room for surgery*, was described by four sub-tasks.

At this point it was felt that the statements describing the sub-tasks were sufficiently detailed for the purpose of the job analysis and the process was discontinued. Throughout the entire process the job experts were reminded of the objectives of the job analysis – to list and describe all of the essential duties of the job; to maintain a task orientation in their description of the job; and to provide specific levels of detail in the descriptions.

**Figure 5. Prepare the Operating Room for Surgery**

**STEP 3: THE JOB INVENTORY QUESTIONNAIRE**

In order to obtain input from the entire surgical nursing staff, data from the final job-tree were used to develop a job inventory questionnaire. The job-tree approach proved to be very efficient in the development of the inventory. It was developed by listing each of the 161 sub-tasks in a questionnaire format. This allowed all 30 ORNs to indicate how often they performed each of these activities and the average amount of time it takes to perform them. The sub-tasks were grouped into five different sections corresponding to each of the five previously identified sub-jobs. The responses of the surgical staff were tabulated for the 161 questionnaire items. These results were then incorporated into the job-tree as an indication of the importance of each job.
activity. The final job-tree, included a breakdown of the job of the ORN into sub-jobs, tasks and sub-tasks along with an estimate of the frequency in which the sub-tasks are performed and the average amount of time it takes to perform each sub-task.

**DISCUSSION /SUMMARY**

The HJA provided a comprehensive look at the job of the ORN. It identified five distinct functions that are performed by nurses in the surgical department at this particular hospital. With the HJA we were able to describe the position of the ORN using a task orientation with several levels of detail. The value of this approach becomes apparent when the job analysis results are used to develop human resources programs.

One measure of the utility of a job analysis is in the ease with which the results are used in later programs. The breakdown provided by the HJA is well suited for designing performance appraisal systems, pre-employment selection instruments and training programs.

A performance appraisal instrument should focus on the major functions of the job. The job-tree approach clearly defines these major functions. In the present case study the major functions of the job are best represented at the “task” level of the job-tree. A performance appraisal instrument can be constructed to validate these tasks. The sub-tasks can be used to develop items for measuring performance on each of the tasks. For example, to evaluate the performance of an ORN in the task of preparing the operating room for surgery, several items could be generated. One such item would evaluate how effective a nurse is at collecting all of the necessary instruments and supplies for the surgical cases. Other items could be developed in the same manner.

The HJA is equally well suited for developing pre-employment selection instruments. Selection interviews could be developed by structuring questions which evaluate the applicant’s ability or past experience in performing the major functions of the job. Questions for the interview could be constructed using the same procedure in which performance appraisal items are developed. A job candidate’s experience or knowledge of setting up for surgical cases could be evaluated by asking the candidate to describe the procedure. The interviewer could refer to the sub-task items as a standard for evaluating the candidate’s responses.
The job-tree is also effective for developing training programs. The five sub-jobs which were identified in the case study provide logical topic areas for training. A typical training program can be developed which consists of a sequence of training modules. The tasks that are listed below each sub-job on the job-tree clearly define the domain of the possible training modules.

In summary, we feel that the HJA is an effective technique, capable of producing a thorough description of the job. The value of the HJA lies in the fact that the results of the analysis are well organized, allowing for ease in the application of the results to human resources programs. The HJA is a simple procedure. It provides a clear strategy for structuring the job analysis interview. The fact that it follows a logical sequence of steps from global to specific descriptions of the job makes the HJA attractive to those individuals who conduct the job analysis interview as well as those who are asked to participate in them.
References


