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JOB ANALYSIS

INTRODUCTION

This training manual is written in a format and style designed to help you learn the material more easily and retain what you have learned longer than other manuals you may have used in the past. You will need to answer questions about what you read, as you read. The questions will help you to be sure that you understand the important ideas in the text before you go on. Answering the questions is simple.

On each page you will find information you will need to know to be effective in selection work. Numbered blanks scattered through the text mark the places where you need to fill in the missing word to make the sentence correct. The best word for some blanks will be obvious, for other blanks you may need to read the rest of the sentence or even the next sentence to get the meaning and know the word to fill in the blank. The correct answers are in the shaded areas at the bottom of the page.

The best way to use this manual is to cover the answers as soon as you turn to a new page. Write the answers in the blanks as you read. When you reach the bottom of the page, remove the cover and check your answers with the correct answers in the shaded area. You may change any wrong answers you filled in, so that you can review the material knowing that the answer in the blank makes the sentence correct.

At the end of each chapter you will find a review quiz with questions that can be answered in four to six sentences each. Use the space provided to type your answer to each question.

The SPCP Administrator or designated representative will score the quizzes. The scoring is based on evidence that students can:

- express thoughts clearly in writing;
- demonstrate knowledge of the principles and concepts in the chapter;
- support opinions with facts.

After the review of all the quizzes you will be notified of the results.

Directions for Completing Chapter Quizzes

At the end of each chapter you will find a quiz which can be answered in four to six sentences. Write enough to demonstrate your knowledge on the subject.

Use your computer to complete the quizzes, recording your name, department/institution, date and answers. When you have completed all quizzes for the manual e-mail them to Jennifer.Clayman@state.co.us. A "report card" will be issued when all quizzes for all manuals have been completed.

Ms. Clayman will notify you of the results of your quizzes. Do not be surprised if you are requested to rewrite an answer and be more specific or elaborate. *Putting ideas and concepts in written form which can be communicated to readers* is an important competency for human resource practitioners.

CHAPTER 1 - OVERVIEW

Basics

Job analysis, job analysis.... You will be hearing about job analysis as long as you work in human resources. You may be thinking, "What is a job analysis and why is it so important?" When you finish this manual you should know what a job analysis is, why it is important, and you should be able to conduct, interpret, and use a job analysis correctly.

A job analysis is simply the process of obtaining information about who, how and why a job is done and what competencies are required to do the job. There are many reasons to conduct a (1) _____ in human resource work. Here are some of the uses for the information obtained from a job analysis.

Job evaluation, setting salaries, establishing incentives.

Recruiting, setting minimum qualifications, testing and selection device development, vocational counseling.

Planning and Organizing, establishing responsibility, organizing work flow, establishing performance standards, cutting costs by avoiding duplication.

Training, determining training needs, developing courses.

(2) _____ is the category above which describes selection work such as deciding what (3) _____ an applicant is required to possess in order to apply for a specific job. Data collected in a (4) _____ is also used in (5) _____ to create exams designed to select the best applicant to fill a specific job. It is reasonable to say that selection procedures must be developed on the basis of detailed knowledge of work requirements. A job analysis may be conducted for one specific job or for a whole group of (6) _____ jobs called a class. The use of job analysis in this manner is not only good personnel practice; it is also a necessary step in establishing the job-relatedness of (7) _____ procedures under equal opportunity laws.

1. job analysis 2. Recruiting 3. minimum qualifications 4. job analysis 5. test development 6. similar or related 7. selection

Terms

A job description is one end-product of a job analysis. The job description describes what tasks and duties the incumbent performs on the job. A (8) _____ is a distinct work activity carried out by an individual for a specific purpose. Duty is a term used loosely to refer to a large portion of work. Maintaining the boiler and heating system is a (9) _____ while changing the furnace filters is a (10) _____. Typing the daily report is a (11) _____ and typing correspondence, reports, and publications is a (12) _____. When there are enough related tasks and duties, a position is created.

A position is a set of tasks and duties for an individual. A (13) _____ may be occupied or (14) _____. A position is a specific set of tasks and duties performed by an (15) _____. A job is normally made up of a number of similar positions in a given company. In some cases, a job may involve only one position at a given time. A group of positions must be sufficiently (16) _____ in their major tasks and duties to be covered by a single job analysis.

A number of similar jobs existing across organizational lines in different companies are called an occupation. Just as a group of similar (17) _____ make up a job, a group of similar jobs make up an (18) _____.

Give an example of each of the terms below:

Task

Duty

Position

Job

Occupation

Job Families and Classes are additional groupings of similar jobs that are used for certain organizational purposes. A job family is a cluster of two or more jobs that require similar worker abilities and aptitudes. (Class is usually a term used in government personnel systems. A class is also a cluster of jobs which analysts have determined require similar worker characteristics.) Most often classes are arranged in an order of difficulty and complexity such as *junior accountant and senior accountant*. When the terms "Job Family" or "Class" are used in context, the meaning is usually clear.

8. task 9. duty 10. task 11 task 12. duty 13. position 14. vacant 15. individual 16. similar or alike 17. tasks or duties 18. occupation

Job Description

In whatever detail is necessary, the job description is made up of the following elements: job title, work activities, job context, and personal attributes.

The elements of the job description are the types of information developed in the (19)_____. The (20)_____ of a job description usually include most of the following.

Job title seems obvious, but title can often be important in identifying the job's relationship to other jobs in a classified system. The (21)_____ needs to be relatively standardized and self-explanatory because people outside the agency such as applicants, government agencies receiving reports, and other data collectors all need to have the same picture of the tasks and duties when they hear the (22)_____.

Often a working title is used within the work unit and an official job title is used within the classification system. It is appropriate to note the (23)_____ along with the official title in a job description.

A listing of **work activities and procedures** is the heart of the job description. The analysis describes the tasks and duties, the tools used to complete those tasks and duties, the interaction with other workers, and when the work is done. In addition to the "how" of the (24)_____, the "why" is also described. It is also important to describe the nature and extent of any supervision given or received.

Job context establishes the environment in which the job is performed. (25)_____ is the element of the job description which describes physical working conditions such as normal temperature, lighting, noise levels, ventilation, and potential hazards. Job context also includes geographical location and location within the organization. Work schedules, social interaction, and incentives also might appear here.

Personal attributes is another (26)_____ of the job description. Job related aptitude, knowledge, skills, education, training, experience, ability, and personality traits are all (27)_____ that might be included.

After planning the job analysis and establishing the types of information needed and the desired amount of detail, the analyst next considers the method of obtaining the data. The methodology then becomes a part of the final report, but usually does not appear in the job description. Although methodology is not an element of the job description, it is important to document the methods used in the analysis.

19. job analysis 20. elements 21. job title 22. job title 23. working title 24. work activities and procedures 25. job context 26. element 27. personal attributes

Methods of Collecting Data for Analysis

There are many methods of collecting data to be used in job analysis. The technique depends on several different factors: amount of detail needed, time limits, type of job, purpose of the job analysis, and resources available are a few.

Observation of incumbents is a common method. Observation consists of the (28) _____ watching one or more incumbents perform the tasks and duties in their normal manner. The observer records the work activities in some systematic way such as a check list of previously established tasks or a step-by-step narrative. Between the two, the (29) _____ method requires the most prior knowledge of the job. The narrative is usually chronological or follows a cycle from some point, full-circle, back to the (30) _____ point. If at all possible, it is best to (31) _____ more than one worker in case one incumbent uses unique methods. Sometimes it is helpful to have an expert along to explain to the observer what and why activities are taking place. This method is better suited to production work and jobs with physical activities rather than (32) _____ activities. It is difficult to know what people are thinking simply by watching them. Observation also works better if the cycle of work is short as in production work. A project which takes weeks or months to complete would take too long to observe from beginning to end.

One disadvantage of this method is that observed workers may not perform their work activities the way they normally do. Whether it is showing off or slowing down to observe the observer, or some other reaction to being watched, in any case the job performance is often not (33) _____ .

Individual Interview of incumbents in a structured interview away from the job site is another method of getting first hand information without being misled by abnormal work behavior. Often workers can provide subtle information about how and why they perform tasks and duties that even the most careful observer might miss. Workers are also less nervous in this situation because they understand the analyst's purpose.

An interview which the questions are worked out in advance is called a (34) _____ interview. (35) _____ interviews take a great deal of preparation. The interviewer must know what information is needed. The advantage of preparing the questions in advance is the interviewer can concentrate on the worker's (36) _____ instead of thinking about the next (37) _____ to ask. One danger is that the interviewer becomes too inflexible and fails to follow a line of questioning that was not anticipated.

A project, which takes weeks or months to complete, can be described in minutes. Long, complex cycles are (38) _____ suited to this method than they are to the observation method. Jobs which require (39) _____ activities are also better suited to this method of gathering job performance data.

28. job analyst	29. check list	30. starting	31. observe	32. mental	33. typical
34. structured	35. Structured	36. answers	37. question	38. better	39. mental

Group Interview of incumbents is similar to the individual interview except that two or more incumbents of the same job are interviewed by the job analyst at the same time. Under the guidance of the job analyst, the (40) _____ describe their work activities. The analyst combines the data from the incumbents into one job description. The advantage of interviewing more than one incumbent at the (41) _____ time is that a more accurate job description is obtained because the incumbents can discuss the tasks and duties with each other.

Technical Conference is a meeting of Subject Matter Experts (SMEs) such as supervisors, former incumbents who have been promoted, and trainers for the purpose of collaborating to provide information about the job. (42) _____ are often more objective about jobs than (43) _____ are about their own jobs. Incumbents often inflate the importance and difficulty of their jobs hoping to receive a pay increase or a higher classification. The results of the Technical Conference are expressed as a consensus just as they were in the (44) _____ method described above.

Questionnaires are sometimes used when workers are employed in widely spread geographic locations. The analyst typically develops a questionnaire which consists of a list of work activities, tasks, and duties, which the respondent checks off as something that is done on the job or not. Other information requested on the (45) _____ may include percent of time spent on a task or duty, importance to the job, or consequence of error. Questionnaires are completed by incumbents or SMEs. The disadvantage of questionnaires is the inflexibility of structured questions which may need explanations or discussion. In some cases Open-ended Questionnaires which provide the respondents the latitude to describe the job in their own words are used instead of (46) questionnaires.

Other Methods such as Job Incumbent Descriptions, examination of previous job descriptions and class descriptions or combinations of these and the above methods are all suitable approaches to collecting job analysis data depending on the situation. Later we will discuss the ten requirements to make a job analysis defensible. Use any or all of these methods when you design your job analysis to capture the required information.

Reliability and Validity are two terms which usually refer to selection devices such as written tests, but also apply to job analysis. Reliability of job-related data refers to the extent to which there is consistency in the information collected by different analysts or the same analyst at different times. Validity relates to the correctness of the data or the extent to which the data represent the reality of the job. (*Please see Chapter 2*)

Two important points: whenever possible, it is best to get input from more than one source; and second, document all of the sources of information you analyze.

40. incumbents 41. same 42. SMEs 43. incumbents, 44. group interview 45. questionnaire 46. structured
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Job Analysis Interviewing

As you have seen in the section about data collection methods, interviewing is an important part of many of the methods. Interviewing is also an important skill in other methods of data collection in which interviewing is not formally named as a step in the process but is used in some form. Interviews are conversations conducted for the purpose of obtaining or exchanging information.

Interviewing skill to some extent is a talent based on good listening habits, but anyone can learn to be a better (47) _____ by following certain principles and practices. Make a conscious effort to follow these principles and your skill will improve.

Always control the interview. You do not need to overpower in order to maintain (48) _____ of the conversation. Let the interviewee do most of the talking.

Establish rapport by showing sincere interest in what the (49) _____ has to say. After all, you asked for the information, you should want to hear it. Help the interviewee make him/herself clear by asking further questions (diplomatically) if necessary.

Direct the interview toward planned objectives. You know what information you need, but the interviewee doesn't. (This assumes you have planned the interview.)

Interviewing is important enough to make the following points worth repeating: Interviewing requires putting people at ease, and listening carefully while directing the conversation, probing for clear and accurate details, and recording relevant information.

Preparing for the Interview does not guarantee you will avoid a disaster, but planning will almost always make the interview go more smoothly. It is even more important to follow these guidelines when conducting group interviews.

Decide whom to interview. The interviewees should be supervisors or *experienced* incumbents. Supervisors often feel less threatened and therefore are (50) defensive. Supervisors have a better grasp of the "big picture" of how this job relates to other (51) _____. A worker knows his or her own (52) _____, and the supervisor knows about the (53) _____. And finally, supervisors know how the job is supposed to be done.

Be sure that interviewees are provided with information about the purpose of the meeting in advance. Provide information about what they need to do to prepare for the meeting such as bringing records or job specifications with them. Also, be sure that arrangements for the employee to be away from work have been made with the interviewee's supervisor. It is good for the other workers and supervisors to know the purpose of the interview and its importance.

47. interviewer 48. control 49. interviewee (or respondent)
50. less 51. jobs 52. position 53. job

Select a room or area which provides privacy during the interview. Learn the interviewee's name in advance and introduce yourself when you meet. Put yourself at ease by putting the interviewee at ease. Often a couple of comments or a short discussion about topics unrelated to work is enough to establish a friendly and open atmosphere. Make the purpose of the interview clear. Make sure the interviewee understands the purpose of the interview is to develop occupational analysis tools which will be used in (54) _____ and (55) _____. It is also helpful for the interviewee to understand the process, what activities will take place during the interview and the approximate length of time of the interview.

An approach that has been found helpful is for the interviewer to formulate a list of task statements on the basis of preliminary research to use as an interview guide. ("How to write task statements" is covered in the next section of this chapter.) During the interview, interviewees are asked to review each (56) _____ on the list. The interviewees correct errors, refine general work activity statements, and add tasks that were not included. Interviews can be conducted without a preliminary task statement list, but the interview will take longer because most people find it easier to edit a list than to create a new one.

Another technique that may help in the right situation is to have a supervisor/subject matter (57) _____ sit in as an observer. The supervisor can help interpret terms and clarify statements if necessary. This technique can be valuable if the job is highly technical and the analyst is not familiar with the tasks and duties of the job. The disadvantage of a supervisor attending is that the (58) _____ may be uncomfortable, and as a result, the job information may be less than candid.

Avoid closed-end questions with "yes" or "no" answers. Avoid leading questions such as those that begin with, "Do you ...?" Sometimes questions that start with "Why...?" sound judgmental. Also avoid questions that may convey any bias. Remember, the purpose of the interview is to collect needed (59) _____ from a person who knows about the job first hand. Your questions should encourage the expert to share what he or she knows.

The interviewer should be prepared to record the data in a manner that will be meaningful later. A pad full of quickly scratched notes which the analyst can neither read nor interpret is not useful. Some interviewers have found a tape recorder to be a reliable way to take notes. Lap top computers also serve as electronic note takers. The interviewee needs to be comfortable with any electronic device included in the interview or the analyst should not use the device.

There are many types of job analyses, several are described in Chapter 4 in this manual. You will notice that many of them involve interviewing in one form or another. Eliciting information from other people through conversation is often an important part of conducting a job analysis, and following the principles covered in this section will be useful.

54. & 55. *recruiting, selection, test development, job evaluation, counseling, planning, and training. (Can you think of others?)*
56. *task statement* 57. *expert* 58. *interviewee* 59. *information*

Task Statements

Here is a definition of a task that is slightly different from the definition in the “terms” section of this chapter. “A task is a meaningful unit of work activity, generally performed on the job by an (60) _____ within some limited period of time.” In both definitions, a task is generally said to describe a work activity that is a procedural work step or action. A task is a discrete unit of activity and represents a composite of methods, procedures and techniques which commonly serve to accomplish one meaningful unit of work. Performing a task by a worker has a reasonably definite beginning and end. The whole activity requires a mixture of decisions, perceptions, and/or physical actions serving a useful job purpose or a particular work assignment. Completion of a task results in a product of service.

The Task Statement List which describes what is being done on the job is the key element of a job description. A task (61) _____ is the fundamental unit of observation. More simply, a task statement is a sentence which describes a basic unit of (62) _____. There are two essential characteristics of good task statements. They must be brief and clear. There are examples of task statements on the next page.

There is a standard grammatical form in which the task statement sentence is structured. The subject “I” is omitted, but understood. The task statement should begin with a present tense action verb which is modified by the means (tools, methods, equipment) required, followed by the object in a complete declarative sentence. Most analysts do not use articles in writing task statements, but it is not a rule.

Each statement of a task is composed of three basic elements, a specific action verb, the object of the action verb, and whatever qualifying phrases may be needed to distinguish the task from related activities. Passive verbs or verbs that describe a process like “*assure*,” “*determine*,” and “*verify*,” should not be used in task statements.

The descriptive word, the (63) _____, tells what is done. An identification of what is being acted upon is called the (64) _____.

A task statement might include information about the purpose that the task is supposed to serve, in other words, the “why.” In addition to (65) _____, “how,” may be needed if the task can be accomplished in more than (66) _____ way. One action, one object. Tasks can be performed independently of other tasks, and only one action and one object should be included in a task statement. If a description of work covers more than one independent activity, it is (67) _____ a single task.

Each task statement should be intelligible when standing apart from other task statements. For example, a task statement like: “Performs other tests,” is not a good statement. Without the list of other tests performed by the job this statement does not have much meaning by itself.

60. individual	61. statement	62. work	63. action verb
64. object	65. why	66. one	67. not

There are several types of information to avoid when writing task statements. Some types of information **not** to use would include:

worker knowledge, job qualifications, aptitudes, or experience
nonproductive activities such as attending training classes and receiving instructions
policies and practices like “wear safety glasses” or “observe dress code.”
working conditions

Examples

Task statement, action verb and object

“Type mileage report”

Task statement, action verb, object and qualifier

“Send purchase requests to Purchasing Department”

Task statement that tells how a task could be done more than one way

“Call customers who purchased defective computers”

“Notify customers who purchased defective computers,” *should be avoided unless it does not matter how the customers are notified.*

Task statement that tells why a task is performed (especially when multiple purposes are possible)

“Call purchasing department *to expedite order.*”

One action and one object per task statement

Right: “Locate gas leaks.” “Repair gas leaks.”

Wrong: “Locate and repair gas leaks.”

Each task statement should stand alone

Right: “Performs safety inspection of stapler.”

Wrong: “Also checks other equipment.”

Task statement that tells when a task is done if time or point in sequence makes a difference

“Sends trouble report to supervisor *at beginning of the shift.*”

Task statement with tools or methods used as qualifiers

“Scrapes snow from sidewalk using lawn tractor with snowplow.”

Avoid multiple action verbs

“Type and mail monthly report.”

Avoid multiple objects

“Clean windows and carpets.”

Avoid combining more than one activity statement into a single task statement.

“Establish problem log and keep it up to date.”

CHAPTER 2 - VALIDITY

Job Analysis and Test Validity

Legal requirements and professional standards, which will be cited and described in this and in other PCP manuals, require that the selection process should select the best employment candidates on the basis of ability to do the job. How can we know who has the ability to do the job without knowing what the job involves and what abilities are needed to perform the tasks and duties? The role of job analysis in selection is clear.

When applied to job analysis, the term “validity” is a question of whether the data about tasks correspond with the reality of the actual (1) _____. The concept of validity refers to the essential correctness of information obtained, or the extent to which data (2) _____ adequately represent the job. One common procedure used to determine job analysis validity is to compare incumbent’s responses about job requirements to those obtained from supervisors. Job analysis “reliability” is measured by similar results between two analysts or (3) _____ results when the same analyst repeats the analysis. If a job analysis is shown to be (4) _____ by either of these two methods, it is also usually (5) _____.

In selection work, validity most often refers to the process of selecting workers to hire or promote. In selection testing, validity describes the degree to which a test does what it claims to do. In the case of selection tests, a (6) _____ test is one which is able to predict performance on the job. There are two very important points about validity which are often misunderstood. First, validity is **not** a general property of a test. The way the test is **used** is valid or invalid. A test may be valid for one job and (7) _____ for another job. Second, all tests possess some degree of validity. To say a test is valid or invalid is an over-simplified statement. The actual predictive value or validity of a test or examination for a specific job or class can be measured and expressed as a number called a validity coefficient.

Job analysis is crucial in the development of a valid test. By identifying the aspects of a job which differentiate superior workers from barely acceptable workers, the foundation of a truly valid selection device is laid. To identify those who will perform best on the job, one needs to know what constitutes good and poor job performance.

1. job (or tasks) 2. collected (or obtained) 3. similar
4. reliable 5. valid 6. valid 7. invalid

Types of Validity

There are three major ways to measure validity. The types of validity are actually descriptive of **how** the validity study is (8)_____. The three types of validation referred to in government regulations and generally accepted by psychologists are criterion-related, content, and construct.

The following is an example of how to conduct a typical **criterion-related study**.

- Step 1 Study the job or group of related jobs to identify characteristics that might be related to successful job performance. (*Sounds like job analysis, doesn't it?*) The characteristics may include intellectual abilities, personality factors, or other things that can be measured prior to actual job placement.
- Step 2 Decide on the specific measures of these (9)_____. For example, if verbal ability is a potential predictor, is it to be estimated from an interview or measured by a test? If measured with a test, which one?
- Step 3 Test a large (preferably over 100) group of job applicants to obtain scores on the set of selected predictors. For research purposes, it would be ideal if applicants out of the group are hired randomly, but most employers do not do random hiring. Ideally applicants should be hired without considering the predictors being evaluated. The test scores are not a factor in (10)_____ during the validation study.
- Step 4 After new hires have been on the job long enough to be considered fully trained, gather measures of their work performance such as supervisors' ratings or production records. These measures are called the criterion or standard against which the predictors are measured. The criterion tells us which workers are successful on the job.
- Step 5 Statistically compare the (11)_____ with the criterion. This comparison is called a correlation and when it is put into numerical values, the resulting value of the comparison is called the correlation coefficient. The higher the correlation coefficient, the greater the predictive value of the test(s). A positive correlation means that as test scores improve, (12) _____ improve. If there is a positive correlation, we can say the test will (13) _____ job success and therefore using it is (14)_____.

This type of validation study is conducted over a long period of time while the tested applicants become trained and stable in their work, and is therefore called a **longitudinal predictive study**. In another type of (15)_____-related study, the criterion, and the test scores are collected at about the same time from incumbent employees. Since current employees are being tested, there is no need to wait to collect job performance measures. This is called a concurrent criterion-related study. A concurrent study says, **if** current workers had been tested before they were hired, this is what the result would have been.

8. conducted 9. characteristics 10. hiring 11. test scores (or predictors)
12. work performance 13. predict 14. valid 15. criterion

On the previous page there are several terms that might be new to many students. If asked, could you define:

predictor

criterion (the plural of criterion is criteria)

criterion-related validity (If more than one measure is used to identify good workers, the plural, CRITERIA is used)

longitudinal (predictive) criterion-related study

concurrent criterion-related study

correlate

correlation coefficient

positive correlation

If the subjects with the highest test scores are the best workers, there is a (16) _____ correlation, and the stronger the relationship is statistically, the higher the correlation (17) _____. Numerically, correlation coefficients vary between +1.0 to -1.0. A coefficient of +1.0 means that as one variable (test scores) goes up, the other variable (job performance) goes up proportionately the same amount. On the other hand, a coefficient of -1.0 means that as one variable goes up the other goes *down* proportionately the same amount, this is called a negative correlation. Tests with validity coefficients in the range of .3 to .5 are considered to be relatively good predictors of performance on the job. Tests seldom achieve validity correlation coefficients above .5.

The second, and most commonly used type of validity study, is the **content validity study**. The basis for claiming a test is valid for a specified job is that the test measures important aspects of the job as described in the job analysis. The content of the test matches the content of the job. A complete and accurate job analysis is essential in a (18) _____ study.

Construct validity is used more often in connection with psychological tests than with employment selection tests. A test claims to measure a personality trait (construct) which is important in performing work behaviors required to do the specified job. Construct validity is often demonstrated by comparing test results with the results of other tests which also measure the same (19) _____. A complete and accurate job analysis is essential to identify the important personality traits. Constructs are sometimes expressed as *competencies* such as honesty and leadership.

16. positive 17. coefficient 18. content validity 19. construct

CHAPTER 3 - LEGAL REQUIREMENTS

Background

There is a long history of legislation dealing with employment and labor relations. Labor laws go back as far as the time of the Civil War and beyond. While the progression and development of labor law is interesting, the focus of this study starts with the Civil Rights Act of 1964, Title VII. We will also examine how federal legislation, court decisions and state law are associated with job analysis.

There are two areas which affect selection. The first is Equal Employment Opportunity (EEO) legislation. The keystone of EEO legislation is the (1)_____ of 1964. The second area is the merit system. The merit system is based on the Colorado (2)_____, Article XII. The (3)_____ and other EEO legislation affects both the public and private sectors. The merit system affects on the (4)_____ sector.

The Civil Rights Act of 1964 was amended by the Equal Opportunity Act of 1972 and the Civil Rights Act of 1991. The interpretation of *Title VII*, the selection section of the Act as it is carried out by federal enforcement agencies is detailed in the Uniform Guidelines on Employee Selection Procedures. The four federal agencies involved are: Equal Employment Opportunity Commission, Civil Service Commission, Department of Labor, and Department of Justice. The guidelines deal with the selection aspects of (5)_____ legislation and consequently (6)_____ validity. Here is what the Uniform Guidelines on Selection Procedures, Introduction V, have to say about *Title VII* and validity.

Test Validity

“The concept of validation as used in personnel psychology involves the establishment of the relationship between a test instrument or other selection procedure and performance on the job. Federal equal employment opportunity law has added a requirement to the process of validation. In conducting a validation study, the employer should consider available alternatives which will achieve its legitimate business purpose with lesser adverse impact. The employer cannot concentrate solely on establishing the validity of the instrument or procedure which it has been using in the past.” (Uniform guidelines Overview, Sec. V, p. 38291).

According to this paragraph, equal employment opportunity law has added a requirement to do validity research. The employer should also consider available (7)_____ which will have (8)_____ adverse impact and not concentrate only on validating the test instrument or procedure used in the past.

1. Civil Rights Act 2. Constitution 3. Civil Rights Act of 1964 4. public
5. EEO or labor 6. selection or test 7. alternatives 8. less

(Uniform Guidelines, Technical Standards, Sec. 14. A, page 38300.) “Any validity study should be based upon a review of information about the job for which the procedure is to be used... Any method of job analysis may be used if it provides the information required for the specific validation strategy used.”

“There should be a review of job information to determine measures of (9) _____ behavior(s) or performance that are relevant to the job or group of jobs in question. These measures or criteria are relevant to the extent that they represent critical or important job duties, work behaviors or work outcomes as developed from the review of (10) _____ .” (Uniform Guidelines, Technical Standards, Sec. 14, B (2), page 38300.)

Job analysis is not only good practice in developing selection strategies, (11) _____ is also mandated by federal guidelines. The Uniform Guidelines describe three kinds of validity studies: Criterion-related, content, and construct validity. The following quotes are from Uniform Guidelines, General Principles, Sec.5., B, page 38298.

“Evidence of the validity of a test or other selection procedure by a criterion-related validity study should consist of empirical data demonstrating that the selection procedure is predictive of or significantly correlated with important elements of job performance.”

“Evidence of the validity of a test or other selection procedure by a content validity study should consist of data showing that the content of the selection procedure is representative of important aspects of performance on the job for which the candidates are to be evaluated.”

“Evidence of the validity of a test or other selection procedure through a construct validity study should consist of data showing that the procedure measures the degree to which candidates have identifiable characteristics which have been determined to be important in successful performance in the job for which the candidates are to be evaluated.”

Of the three types of the validity statements listed in the Uniform Guidelines, (12) _____ is the type which relies most heavily on the content of the job being represented in the content of the selection device. It follows that this type also relies most heavily on an accurate (13) _____. The Test Development PCP Manual covers validity studies in detail. For the purpose of demonstrating the legal requirements for job analysis, this manual will concentrate on **content validity**.

9. work 10. job information 11. job analysis
12. content validity 13. job analysis

According to the Uniform Guidelines, Documentation of Impact and Validity Evidence, Sec. 5, C, page 38305: "Reports of content validity for a selection procedure should include the following information."

(1) *User(s) location(s) and date(s) of studies.* Dates and location(s) of the job analysis should be shown (essential).

(2) *Problem and setting.* An explicit definition of the purpose(s) of the study and the circumstances in which the study was conducted should be provided. A description of existing selection procedures and cutoff scores, if any, should be provided.

(3) *Job analysis - Content of the job.* A description of the method used to analyze the job should be provided (essential). The work behavior(s), the associated tasks, and if the behavior results in a work product, the work products should be completely described (essential). Measures of criticality and/or importance of the work behavior(s) and the method of determining these measures should be provided (essential). Where the job analysis also identified the job knowledges, skills and abilities used in work behavior(s), an operational definition for each knowledge in terms of a body of learned information and for each skill and ability in terms of observable behavior(s) and outcomes, and the relationship between each knowledge, skill, or ability and each work behavior, as well as the method used to determine this relationship, should be provided (essential). The work situation should be described, including the setting in which work behavior(s) are performed, and where appropriate, the manner in which knowledges, skills, and abilities are used and the complexity and difficulty of the knowledge, skill, and ability as used in the work behavior(s).*

(4) *Selection procedures and its content.* Selection procedures including those constructed by or for the user, specific training requirements, composites of selection procedures, and any other procedure supported by content validity should be completely and explicitly described or attached (essential).

According to the excerpts above, the setting in which work behavior(s) are performed is not enough in a description of a job. Where appropriate, the (14) _____ in which knowledges, skills, and abilities are used in the (15) _____ should also be provided. Measures of (16) _____ and/or (17) _____ of the work behaviors and the method of determining these measures should be provided.

***NOTE:** After the time the Uniform Guidelines were written, knowledge, skill, and ability and work behavior have come to be expressed as **competencies**.

14. *manner* 15. *work behaviors* 16. *criticality* 17. *importance*

The documentation for a job analysis should provide the when and where; and the purpose of the analysis which is considered the (18) _____. Validity demonstrated by data showing that the content of the selection procedure is representative of important aspects of (19) _____ on the job is called (20) _____ validity.

The following definitions are taken from Uniform Guidelines. Definitions, Sec. 16, page 38307 - 38308.

Ability. A present competence to perform an observable behavior or a behavior which results in an (21) _____ product.

Job analysis. A detailed statement of work behaviors and other information relevant to the job.

Job description. A general statement of job duties and responsibilities.

Knowledge. A body of information applied directly to the performance of a function.

Selection procedure. Any measure, combination of measures, or procedure used as a basis for any (22) _____ decision. Selection procedures include the full range of assessment techniques from traditional paper and pencil tests, performance tests, training programs, or probationary periods and physical, educational, and work experience requirements through informal or casual (23) _____ and unscored (24) _____ forms.

Skill. A present, observable competence to perform a learned psychomotor act.

Unfairness of selection procedure. A condition in which members of one race, sex, or ethnic group characteristically obtain lower scores on a selection procedure than members of another group, and the differences are not reflected in differences in measures of job performance.

Work behavior. An activity performed to achieve the objectives of the job. Work behaviors involve observable (physical) components and unobservable (25) _____ components. A work (26) _____ consists of the performance of one or more tasks.

This following definition is **not** in the Uniform Guidelines, but it is important.

Competency. An observable behavior that contributes to success on the job.

18. why 19. performance 20. content 21. observable 22. employment
23. interviews 24. application 25. mental 26. behavior

Case Law

“Legal interpretations define what is called case law, which serves as a precedent to guide, but not completely determine, future legal decisions.” (The Law and Personnel Management, page 23). While, title (27) _____ of the Civil Rights Act of (28) _____ as amended, and the merit system required by (29) _____ of the Colorado constitution are law established by legislature and the people. Case law exists as a result of precedents set when courts ruled on (30) _____.

There are three landmark cases which have direct impact on selection: *Griggs v. Duke Power Company*, *Albemarle Paper Co. V. Moody*, and *Washington v. Davis*. Of these three decisions, *Moody* is most directly concerned with job analysis.

In *Albemarle Paper Co. v. Moody* (1975) the Supreme Court specified in detail what “job relevance,” a term used in the *Griggs* decision means. In validating several tests to see whether or not they predicted success on the job, Albemarle focused almost exclusively on job groups near the top of the various lines of progression, while the same tests were being used to screen entry-level applicants. Such use of tests was prohibited.

“Moreover, the company had not conducted any **job analysis** to demonstrate empirically that the knowledges, skills, and abilities among jobs and job families were similar; yet tests that had been validated for only several jobs were being used as selection devices for all jobs. Such use of tests was ruled unlawful.” (The Law and Personnel Management, Contemporary Issues in Applied Psychology, page 23). Thus the job relatedness of Albemarle’s testing program had not been demonstrated sufficiently.

As a result of legislation and case law a list of legal requirements to make a job analysis defensible emerged. Study the list of ten Characteristics of Legal Defensibility on the next page and compare it with any job analysis with which you are familiar. Is that job analysis defensible?

Not only is job analysis necessary to make any selection procedure valid, but it is also required by EEO (31) _____ and (32) _____ law. A good job analysis results in a better selection procedure. A good selection procedure results in better hires.

Much of the material in this chapter came from the *Uniform Guidelines On Employee Selection Procedures*. “Uniform” because four federal agencies, Equal Employment Opportunity Commission, Civil Service Commission, Department of Labor, and Department of Justice, agreed to follow the same guidelines in enforcing equal employment opportunity legislation. *Standards for Educational and Psychological Testing* (also referred to as the Joint Technical Standards) is a publication which deals with professional standards of what makes a procedure acceptable to experts in the field. Unlike the *Uniform Guidelines*, the Joint Technical Standards do not have the force of law, but is held in great deference (respect) by the courts.

27. VII 28. 1964 29. Article XII 30. cases or cases in this field 31. legislation 32. case

Ten Characteristics of Legal Defensibility

1. A job analysis must be done and it must be done on the exact job for which the test will be used.
2. The job analysis must be reduced to written form.
3. It must describe the procedure used.
4. Data should be collected from several sources.
5. Data should be collected by an expert job analyst.
6. Data should be collected from a large enough sample size to cover all relevant positions.
7. Tasks, duties, and activities must be identified.
8. The relative degree of competency necessary for entry level must be specified.
9. The tasks and activities necessary to good job performance must be identified.
10. KSAs necessary to do the important activities above must be identified.

The Ten Characteristics of Legal Defensibility is taken from the *Uniform Guidelines*.

CHAPTER 4 - METHODS OF JOB ANALYSIS

Introduction

Job analysis is used for many purposes (see Chapter 1) but in this manual and this chapter in particular, we assume job analyses are for selection purposes. *Selection purposes* means the data about tasks, duties, KSAs, and competencies will link directly with tests developed to differentiate between potentially good workers and poor workers.

There are many varied strategies for conducting a job analysis. The methods described here will give the reader samples of the various approaches and the strong points and weak points of each. Many analysts use a combination of two or more of these methods in their job analysis. The preferred method is the Total Competency Job Analysis because it is designed to meet the ten Characteristics of Legal Defensibility. (Chapter 3) The Total Competency method is described in detail in the next chapter.

It is acceptable if the job analyst wishes to improvise and combine methods or add or subtract steps because of the nature of a particular job. If you do not use the Total Competency method, be sure to consider the ten Characteristics to ensure defensibility. The key point of Chapter 3, Legal Requirements, cannot be over-emphasized: the job relatedness of a selection procedure cannot be demonstrated without a defensible job analysis.

The first step in any job analysis is to gather readily available information for making preliminary decisions about the job analysis technique. Such information will always include the class description and may include one or more position descriptions and an audit report. It may also include previous examinations, existing job analyses, examples of job performance plans, existing task inventories and performance management factors.

Critical Incidents Method

The Critical Incidents Method was originally created to accurately select and classify military personnel during World War II. The original problem dealt with the reasons Air Force pilot candidates failed in flight training schools and subsequently why pilots failed during actual missions in the war. Analyses of instructor and supervisor reports indicated that many of the comments on these failures lacked necessary specificity to accurately pinpoint the reasons for the poor performance.

The Critical Incident Method was developed to formalize a job analysis data collection method to specify the aspects of good and poor performance. John Flanagan, the developer of the Critical Incidents Method, defines critical incidents as extreme behavior either outstandingly effective or ineffective with respect to attaining the aims of the activity. The incident makes a significant contribution, either positively or negatively to those aims.

Critical incidents are examples of (1) _____ behavior either (2) _____ or (3) _____ with respect to attaining the aims of the activity. The incidents are collected from Subject Matter Experts who are called together to form a (4) _____. The SME panel, usually supervisors or incumbents in the class or job, fill out a SME qualification sheet to document their (5) _____. They also sign a confidentiality form stating they will not discuss the information they gain in the study with (6) _____. While confidentiality is less important in this setting than it is in test development, it is important that the (7) _____ can speak openly when discussing their subordinates' or peers' incidents of work behavior.

Critical Incident Process

Step 1 Convene the panel. Ask each SME to bring 15-25 incidents which are examples of exceptionally good or poor work behavior. A panel of five should develop 80-100 statements without duplications (more would be better).

EXAMPLE: "Joe designed a drainage system which prevented the usual flooding in the basement during that last heavy downpour."

"One day, six months ago, Jane typed for half an hour before she noticed that she had forgotten to turn on her computer."

Step 2 In a brainstorming setting, let the SMEs take turns in reporting work behavior incidents and discuss them if necessary. It is important to bring the SMEs together instead of asking them to mail in their incidents. Hearing and discussing incidents from others often reminds them of situations or events they observed from their own work situation.

Step 3 Record the incidents verbatim. Analyze the statements and group them into categories of (8) _____ behaviors called factors.

Step 4 Develop a test that measures the derived factors.

Advantages: The major advantage of the (9) _____ method is that the data are primary examples of on-the-job behavior. There is no abstraction or subjective judgment. The method details those critical behaviors that can make or break an organization instead of the routine matters that may take up the bulk of workers' time, but can be done competently by most workers.

Disadvantages: The mass of narrative data can not be quantified. An inexperienced analyst may have problems in recognizing and organizing the factors. Supervisors who do not record observations as they occur will often remember only the most recent events.

<p>1. extreme 2. effective (or positive) 3. ineffective (or negative) 4. panel 5. qualifications 6. anyone 7. SMEs 8. related or similar 9. Critical Incidents</p>
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Job Element Method

While the Critical Incidents Method is less structured than most methods of (10) _____, the Job Element Method is a step toward a more formal, structured approach. Just as the Critical Incidents Method came from the federal government through the (11) _____, the Job Element Method was developed in 1955 by Ernest Primoff, a psychometrist with the U.S. Civil Service Commission. His major goal was to construct an efficient system that would get at the important and testable underlying characteristics of a job with maximum input from Subject Matter Experts in a minimum amount of time.

According to Primoff, a job element is defined as a worker characteristic which influences success in a job. (12) _____ include combinations of abilities, skills, (13) _____, or personal characteristics.

Compare the definitions of KSAs in the definitions section of Chapter 3 with Primoff's definitions below.

Ability: The capacity to successfully perform an activity at the present time.

Skill: The proficient manual, verbal or mental manipulation of data, people or things.

Knowledge: An organized body of information, usually of a factual or procedural nature, which if applied, makes adequate or superior performance of the job possible.

Personal Characteristic: A special specific personality factor, attitude, aptitude, physical or mental trait needed to do the work that appears either in addition to or to a greater extent than what is generally expected of all employees.

Willingness: Such as willingness to do simple repetitive tasks or work odd shifts.

Interest: Such as interest in learning new techniques.

10. job analysis 11. Air Force 12. Job elements 13. knowledges

Job Element Process

Step 1 Assemble a panel of between three to six (14) _____. The SMEs are **preferably** superior or above average (15) _____ in the class. Supervisors of the class may also participate in the job analysis.

Step 2 In a brainstorming session the SMEs generate a list of (16) _____ elements that are used in performing the job.

Step 3 The SMEs rate each job element on four scales. The ratings are on a 0-2 basis with 2 being the most (17) _____ or most important.

Each job element is rated on four different scales by the SMEs. The scales are:

1. Barely acceptable - What relative portion of even barely acceptable workers are good in this job element? Rate this scale "2" if (18) _____ barely acceptable workers are good in this element.
2. Superior - How important is the element in picking out the (19) _____ ?
3. Trouble - How much trouble is likely if the element is ignored when choosing among applicants?
4. Practical - To what extent can we fill our job openings if we demand applicants who are good in this (20) _____.

Step 4 Analyze the elements. Score and analyze the job elements to identify those elements that have greatest potential for selecting superior applicants. The higher the total rating score, the more likely the element is important.

Advantages: The primary advantage of this method is that it is very well defined and requires less interpretation than other methods. It is close to a cookbook method of job analysis. As far as worker characteristics are concerned, the document is complete and well organized. This method is relatively efficient and does not require many (21) _____.

Disadvantages: This method introduced the approach of having SMEs rate the elements, but failed to link the job elements to the tasks of the job. A subsequent version of this method was drafted by the originator (22) _____, which included task statements. We do not recommend this version described here, even though it represents a step up in the evolution of job analysis methods.

14. SMEs	15. incumbents	16. job	17. critical or crucial	18. most
19. superior or best workers	20. job element	21. resources	22. Primoff	

Structured Interview Method

The structured oral interview is the method used most often in the state personnel system. It is quick and gets good Subject Matter Expert (SME) response. The integration and amount of input is normally limited, so this method has poor reliability. (23) _____ should not be used as a primary method of developing tests for diverse classes. The structured oral interview is most appropriate for the construction of (24) _____ examinations and class examinations that are seldom re-used.

The structured oral interview is an oral questionnaire. Instead of writing the responses, the SMEs give the information (25) _____ in a face to face situation. With a skillful interviewer, this method may be superior to other data gathering methods, because people are often more willing to talk than to (26) _____. After the interviewer gains rapport, certain types of information may be obtained that a SME might be reluctant to put in writing or say to a group (panel). If a (27) _____ misinterprets a question, the interviewer can explain more clearly what is needed. The structured oral interview is particularly appropriate when dealing with workers with low verbal and literacy levels.

Structuring the (28) _____ is a critical step in the job analysis. The interviewer must have a clear idea of what information is needed. He/she must have a clear outline of the best sequences of questions and comments that will systematically bring out the desired responses. A written outline, schedule, or checklist will provide a set plan for the interview, while decreasing the possibilities for failure to get important and needed data.

To build confidence and cooperation in the SME-Interviewer relationship, the interviewer must assure the SME that his responses will be held in strict confidence by the analyst and that no documentation will be made of any comments which would embarrass the SME if revealed under the open records law.

Recording interviews on tape is convenient and inexpensive, and eliminates the necessity of (29) _____ during the interview. Interviews recorded on tape may be replayed as often as necessary for complete and objective analysis at a later time. If the (30) _____ has no objections to being taped, taping interviews is the preferred method.

When interviews are not taped, it will be necessary for the interviewer to take written notes, either during the interview or immediately after the interview. Writing notes after the interview is the least suitable method, but better than no written notes at all. We suggest the actual wording of the responses are retained as accurately as possible. Between writing responses and thinking of the next question, the interviewer may hear but not really listen to the responses. A good interviewer makes it a point to be a good (31) _____ whether the responses are recorded or written.

<p>23. Structured oral interviews 24. position 25. orally or verbally 26. write 27. SME 28. interview 29. writing or taking notes 30. SME 31. listener</p>
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Structured Interview Process

Summary

Gather Initial Information: gather all the information possible about the class you are analyzing.

Identify and Schedule SMEs: seek the best incumbents or supervisors.

Structure the Interview: write questions in advance.

Carry Out the Interview: ask each SME the same questions in the same wording.

Document the Results: consider the information required by the Uniform Guidelines for Employee Selection.

Analyze the Data: identify testable competencies which differentiate superior workers from barely acceptable workers.

Follow-up: often analysis of the information generates more questions.

Develop the Examination: based on KSAs identified in the job analysis and expressed as competencies.

Details of the Process

Step 1 Gather information. Failure to gather all possible information can often have either or both of these bad results: less cooperation from the SME if s/he feels you do not know what you are doing, and you are not likely to ask the right questions.

Step 2 Most often analysts conducting Structured (32) _____ Job Analyses interview only one SME. While one is acceptable, more than one SME is better. Even with three or four SMEs one at a time, the time in interviewing is still comparatively short. One at a time interviewing is easier than convening a panel because you do not need to (33) _____ schedules. The importance of the interview should be stressed so that interruptions can be avoided.

32. Interview or Oral Interview 33. coordinate or accommodate (juggle?)

Step 3 Structure the interview. Writing the questions in advance will ensure that important questions are not skipped and that each SME is asked the same questions. The questions should relate to duties, tasks, knowledges, skills, abilities, of the job you are analyzing. Design each interview question to add information about criticality of tasks and duties, competencies, and KSAs. What training will the new hire will receive? Does the work activity or competency differentiate between barely acceptable workers and (34) _____workers?

Here are some examples of topics and questions to include in a job analysis interview for selection purposes. The more you know about a job ahead of time, the (35)_____detailed you can make interview questions. These examples are meant to help you get started developing your own job specific questions.

Organizational Structure

What is the major goal of the agency?

What is the goal of the unit in which the job is located?

Does the position supervise or train anyone?

Is an organizational chart available?

Position Details

What are the major goals and objectives of the position?

What are the major duties for each objective?

What initiates action? Does the position automatically carry out prescribed duties every day?

Who are the people that this position must work with or have contact with to do the job?

Does the position make policy?

Personal Traits

What is the level of his/her leadership?

What are important factors in rating performance for this job?

What behaviors would merit special recognition?

Link the answers to these questions to Knowledges, Skills, and Abilities.

<i>34. superior or good 35. more</i>

- Step 4** Conduct the interview. Ask the same questions of each SME. If the SME gives information that is useful, but not directly related to the questions, list the additional information in the “comments” section.
- Step 5** Document the responses. It is absolutely necessary for the SME to sign the SME information sheet. Background information that came from Class Descriptions, Position Description Questionnaires, previous job analyses, task inventories, etc. should be listed along with the time, date, location, and reason for the interview. Documentation also includes the responses to the structured interview questions, whether transcribed from tape or hand-written notes.
- Step 6** Analyze the responses. Once the answers to interview (36) have been linked to KSAs and expressed as competencies, they should be analyzed to identify the (37) _____ which differentiate between superior workers and barely acceptable workers. Remember the KSA or competency, will not easily be learned on the job but will differentiate between job applicants.
- Step 7** Follow up if necessary. In many cases, follow-up questions will be required either when documentation is prepared or when the examination is developed. Be sure the SME understands that additional questions may be necessary, get the SME’s phone number and a schedule of good times to call.
- Step 8** Develop the examination. Any (38) _____ which is highly rated, but not used in the test, must be explained. The most common reasons for **not** using all of the KSAs (competencies) is the length of the test and the amount of time required to administer the test. The documentation (Step 5) should also show the connecting links from (39) _____ and duties to KSAs to competencies to test items.

Advantages: Requires minimal SME time, does not require extensive scheduling because the interviews are conducted with one SME at a time, consequently the turnaround time is quick.

Disadvantages: There is a danger of interviewer bias. If only one SME is interviewed, there is possible rater bias. Asking the most effective questions and interpreting the answers requires a level of expertise that most inexperienced analysts do not have. If the interviewer does not stay focused on the differences between superior and (40) _____ workers the results may not be valid and in any case, this method is not very reliable.

As defined in chapter 1, (41) _____ means consistency, additional data collected will be similar to the first data, and (42) _____ means the extent the data demonstrates what it claims to demonstrate.

36. questions 37. competencies 38. competency 39. tasks
40. barely acceptable 41. reliability 42. validity

Task Inventory Method

Task inventories are lists of task statements which are evaluated on dimensions relevant for selection or other purposes.

The statement above may need to be broken-down to make it meaningful.

Task: a discrete unit of work with a beginning and end, and identifiable input and output that is performed by an individual.

Task Inventory: task statements are grouped under duties to form the task inventory.

Task Statement: consists of two parts, the action the worker is expected to perform and the results expected from the worker's action. A task statement defines the action by using concrete, explicit, action verbs like *composes*, or *sorts*, and avoids general process verbs like *coordinates* or *manages*.

Inventory List: the number of tasks listed in an inventory for selection purposes can vary from 50 to 200 depending on whether the inventory covers a single class level or multiple class levels within a series.

Dimensions: dimensions, components, factors; are aspects of a task that is being rated or evaluated. For example, consequence of error, difficulty to learn, percent of time spent doing this task, are dimensions on which SMEs could evaluate "Greets visitors when they come to the reception desk." Evaluate each task on the same dimensions.

Relevant to Selection: not all task statements on the task inventory are used to develop the selection device. Only those tasks which are important, are not quickly learned on the job, and which distinguish superior workers should be evaluated.

Selection: includes choosing a candidate from a pool of candidates to fill a vacant position, either initial hires or promotions.

Other Purposes: job evaluation for compensation, organizational analysis, and planning for training are functions which could use this method of job analysis.

Task Inventory Process

Step 1 Locate written sources of task statements, including Class Descriptions (CDs) existing task inventories for similar work, and any internal documents defining this work in the State of Colorado.

Step 2 Draft the task and duty statements. This is the most time consuming aspect of a (43)_____ job analysis. Unless the inventory comprehensively represents the (44)_____ comprising the job of interest, the information may be misleading.

The analyst should conceptualize the job in terms of major activities. Task statements are grouped under (45)_____. Particular attention should be paid to the scope of the performance domain so that all relevant duties are included.

Task statements should represent a discrete (46)_____ of work which has a definite (47)_____ and ending, and an identifiable input and output, and they always begin with an (48)_____. They must be capable of standing alone. They should represent activities that will serve to differentiate jobs when such (49)_____ is important for selection.

Step 3 SMEs review the task and duty statements. SMEs, both job incumbents and (50)_____, should be selected to review the preliminary list of (51)_____. The SMEs' qualifications must be (52)_____ for future reference. The review is designed to identify and add missing statements, delete irrelevant items, and revise poorly worded or incomplete statements.

Step 4 Choose the tasks for selection. Not all (53) _____ on the task inventory are used to develop the selection device. Only those tasks which are important, are not quickly learned on the job, and which distinguish (54)_____ workers should be used. Selection of tasks is done by a panel rating the edited preliminary task list on three scales: importance, amount needed at entry, and ability to distinguish superior from barely adequate workers. The recommended method of collecting ratings of the task list is a questionnaire administered in a group setting.

Step 5 Develop a selection tool. The job description generated by the Task Inventory Method is most often used to develop checklist (55) _____ rating instruments.

<p>43. task inventory 44. tasks 45. duties 46. unit 47. beginning 48. action verb 49. differentiation 50. supervisors 51. task statements 52. documented 53. task statements 54. superior or inferior 55. training and experience or T&E</p>
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Advantages: The task inventory method is very objective and when fully utilized provides a very reliable description of the job. In developing training and (56) checklist ratings, tasks can be used directly as items on the self-rating form. Taking tasks straight to test (57)_____ speeds up the test development process, and is clearly defensible.

Disadvantages: When fully utilized, the method is very time consuming. The resulting exam may suffer because the tasks which are discrete units of work with identifiable input and (58)_____ do not cover the whole job. Important, but not discrete behaviors, may not be reflected in the task list. For tests other than (59)_____ checklist ratings, KSAs must be inferred from numerous tasks and the importance of any KSA must be determined.

Summary: Task inventory is of limited use in selection because it does not focus on worker characteristics which (60)_____ between superior workers and barely acceptable workers. It does provide a detailed description of the job for classification purposes. Task inventory techniques are most appropriate for developing (61)_____.

Other Job Analysis Methods

The U.S. Department of Labor (DOL) method is outlined in *Handbook for Analyzing Jobs*. Jobs are described in terms of “work performed” (job-content data), and “worker traits” (job-requirement data). Despite its intended applicability, the method does not provide sufficient job-related information for all purposes. It is particularly inadequate with regard to selection and selection-related applications. The DOL method does not provide a means for clearly linking the relationship between job requirements and specific examples of job content.

The Functional Job Analysis (FJA) is a comprehensive job/task analysis approach which focuses on interactions among the work, the workers and the work organization. FJA involves the following five components:

1. Identification of purpose, goals, and objectives
2. Identification and description of tasks
3. Analysis of tasks
4. Development of performance standards
5. Development of training content.

56. experience 57. items 58. output 59. training and experience or T&E 60. differentiate 61. T&E checklist ratings

The Position Analysis Questionnaire (PAQ) is a structured job analysis instrument used to analyze and describe the job as it is being performed. There are 187 elements relating to job activities. The elements are grouped into six categories:

1. Information Input
2. Mental Processes
3. Work Output
4. Relationship with Other Persons
5. Job Context
6. Other Job Characteristics

Each element is rated by SMEs on a specified scale such as possibility of occurrence, or amount of time spent.

Clearly there are many methods of analyzing jobs. Each has its own purpose and advantages and disadvantages. The methods range from the less formal Critical (62) _____ method to the more structured (63) _____ Inventory method which utilizes SMEs rating each task on (64) _____ scales. The (65) _____ method is the fastest method and is often used in interviewing one SME for expedience although a much better job analysis results from interviewing more than one SME.

62. Incidents 63. Task Inventory 64. three scales 65. Structured Interview

CHAPTER 5 - TOTAL COMPETENCY JOB ANALYSIS

Introduction

The degree to which a test does what it says it will do, such as predicting which workers are more likely to succeed in a specific job, is called (1) _____ . The type of validity which is established because the content of the test measures the content of the job is called (2) _____ validity. By claiming content validity, the test developer can avoid time-consuming and expensive (3) _____ research in which test scores are compared to work performance. Content validity is used for most tests in the Colorado state personnel system, which means (4) _____ to verify the job content is critical.

The Total Competency Job Analysis (TCJA) method evolved from the methods described in Chapter 4. It is structured, depends on input from multiple Subject Matter Experts (SMEs) and most important, links tasks to KSAs and Competencies. (*Written Communication* is a KSA. *Putting ideas and concepts in written form which can be communicated to readers* is a competency.)

TCJA is the most defensible of the job analysis methods described in this manual, and is the **preferred method of job analysis**. When a selection process is challenged in court, the plaintiffs' lawyers most often question the job analysis first, because they know (5) _____ is frequently the weakest part of a selection process.

Based on the standards established _____ in the case of (6) _____ (Chapter 3), there are 10 characteristics of legal defensibility. TCJA was developed to satisfy the requirements of defensibility. As a review, write as many of the ten characteristics of legal defensibility as you can remember in the space below, then compare them with the list on the next page.

* *Please note, the terms task list and task statement list are used interchangeably throughout this chapter even though they may have slightly different meanings.*

1. validity 2. content 3. criterion related or statistical research 4. job analysis 5. job analysis 6. <i>Albemarle Paper Co. vs. Moody</i>
--

1. A job analysis must be done and it must be done on the exact job for which the test will be used.
2. The job analysis must be reduced to written form.
3. It must describe the procedure used.
4. Data should be collected from several sources.
5. Data should be collected by an expert job analyst.
6. Data should be collected from a large enough sample to cover all relevant positions.
7. Tasks, duties and activities must be identified.
8. The relative degree of competency necessary for entry level must be specified.
9. The tasks and activities necessary to good job performance must be identified.
10. KSAs and Competencies necessary to do the important activities above must be identified.

As the (7)_____ job analysis method of the state personnel system, the TCJA is both definitive and defensible. It can be time consuming to conduct a TCJA, so the best time to use this method is before a job vacancy exist. This enables the analyst and the SMEs to work without the pressure of time constraints which accompany a (8)_____ that needs to be filled quickly. TCJA is used for class analysis, but the same format can be applied to (9) _____ analysis.

Once the TCJA is completed, the analyst can use it to fill subsequent vacancies in the same class. SMEs can review the analysis tasks and duties, and add to or subtract from the master job analysis to develop a task list which reflects the activities of the vacant position.

7. preferred 8. vacancy 9. position

Nine Elements of a Total Competency Job Analysis

Before discussing the steps of how to do a TCJA, a description of TCJA elements and their features should be helpful to the student encountering (10) _____ for the first time.

There are nine elements that become permanent parts of a Total Competency Job Analysis. (Sample forms for most elements are in Appendix A)

1. Narrative
2. Task (Statement) List, one for each class in the series
3. KSA List, one for each class in the series
4. Linkage of KSAs to tasks, one for each class in the series
5. Competency List of the rated KSAs expressed in competency terms, one for each class in the series
6. Profile, one for each class in the series
7. Minimum Qualification Statement one for each class in the series
8. SME Information Sheets
9. SME Signature Sheet

The job analysis document begins with an introductory narrative. The (11)_____ should contain the class title and the class code. It should also include the name and job title of the person conducting the (12)_____ and a description of other documents which were used, such as PDQ's, previous analyses, classification job analysis, and questionnaires. Time, place, SMEs' qualifications, and methodology are also important parts of the TCJA narrative.

The body of the narrative is a summary description of the work activities. Be sure to emphasize the tasks that differentiate one level from another in the class series. The key to writing a good (13)_____ is to remember that a judge or other lay-person probably will not read the technical parts of the analysis. Write the narrative in a manner that a non-technical reader will have a clear understanding of what the incumbents in the class do on the job and how you reached your conclusions.

The second element of a TCJA is the task statement list. The task statement list should contain the (14)_____ that characterize the job. The tasks should not be duties or responsibilities. As defined in Chapter 1 (page 3), a task is a (15)_____ carried out by an individual for a (16)_____. Responsible for road maintenance, is an assigned responsibility. "Maintains Highway 66 from junction to bridge," is a duty. "Uses shovel to scrape road-kill from pavement," is a task. Notice that only the (17) _____ example tells the reader **what the worker does**. Occasionally analysts write micro-statements that are too detailed, but the more common error is to write task statements that are too broad.

10. TCJA 11. narrative or introduction 12. TCJA 13. narrative
14. tasks 15. distinct work activity 16. specific purpose 17. third

A task statement list for a class can range from 50 tasks to over 150 tasks depending on the nature of the work and the amount of detail. **An analysis of a class series should contain a separate task list for each** (18) _____ in the series. One level may do all of the same tasks as the class below plus additional tasks or with less supervision. Be sure to identify those tasks which differentiate one class from the next higher and next lower. All of the task (19) _____ will be rated by a panel of SMEs.

The panel also rates Knowledges, Skills, and Abilities (KSAs,) the next element in the TCJA. The KSA list includes the basic 18 plus up to 12 unique KSAs that apply specifically to the class. Each KSA on the list should also list the task numbers of one to four tasks that require this KSA to perform the activity. The link between tasks and KSAs is critical.

Competency is defined as an observable behavior that contributes to success on the job. Competencies are very similar to (20) _____. Both are basic abilities, talents, or aptitudes; broad terms for proficiency in performing a job at expected standards. Competency is the broader term. A competency can incorporate more than one KSA. Competencies also include personal behaviors or traits such as leadership, honesty, conscientiousness, etc.

SMEs should not write the competency list. The analyst is best qualified to use the rated KSA list to generate a list of competencies required to perform the job. Test Developers will attempt write test items which measure the competencies the job analyst identifies. Content Validity depends on (21) _____ being linked to KSAs and KSAs being linked to (22) _____ and competencies being measured by (23) _____ to show there is a relationship between work activities required to be a successful worker and test items.

The next element is a list of minimum qualifications (MQs). A minimum qualification requirement is any kind and level of measurable behavior of an individual that is a **necessary** prerequisite to enter into, and to perform or learn to perform competently, one or more critical or essential job-relevant tasks or functions. MQs are used as a screening device in application reviews conducted either manually or in the Applicant Data System (ADS).

The (24) _____ assembled to *develop* the (25) _____, and rate the KSAs and competencies are also qualified to generate a list of MQs and reasons the MQs are needed. The statement of the requirement should be explicit and clear to applicants and others. It should avoid subjective concepts or ambiguous terms.

It is not enough to list the recommended MQs. They should also be justified. The rationale for the requirement, its validity in effect, should be shown by reference to relevant demands of the job or licensure requirements.

18. class or level	19. statements	20. KSAs	21. tasks	22. competencies
23. test questions	24. SMEs or panel	25. task list		

KSA profile ratings are also a natural by-product of the rating process. ADS Profile ratings are stored in the automated system and there should be one for each job level. (Forms in Appendix A)

Based on the data collected up to this time, the analyst has enough information to recommend an exam plan with test weights, factors and factor weights. The exam plan is **recommended** but is not binding. In the (26)_____ exam plan, the analyst may suggest that a new written objective test or some other test is needed. Such a suggestion is not a guarantee the test will be developed, but will certainly be considered in setting test development priorities.

Each Subject Matter Expert must complete and sign a SME Information Sheet to document his/her qualifications to serve on the panel. (Forms in Appendix A)

The last required element in a (27)_____ is the SME Sign-off Sheet. The SMEs sign the Sign-off Sheet to indicate they have seen the analyst's report and agree with the analysis. There is also a space for comments stating they would (28)_____ if the following changes were made. The analyst is not bound to make the suggested changes, but should give them serious consideration, especially if more than one SME makes the same (29)_____. Each SME should sign a separate Sign-off Sheet to be attached to the SME's "Subject Matter Expert Information Sheet." (Forms in Appendix A)

Any additional, relevant information should be included in the report or an appendix of the report.

Summary: The analyst must include the nine elements listed and described here to make a Total Competency Job Analysis complete. While the methods of collecting the data may vary, the inclusion of all nine elements is essential.

<p>26. recommended 27. TCJA 28. sign or agree and sign 29. suggestion or recommendation</p>

Total Competency Job Analysis Process

Step 1 Gather and review existing sources of information about the class or class series being analyzed.

Some examples are:

- Class Description
- Position Description Questionnaires (PDQ's)
- Previous Job Analyses
- Previous Exams
- Performance Plans for positions in this class
- Minimum Qualifications

Step 2 Recruit and select subject matter experts.

- Check Department of Personnel CPPS reports to determine what agencies utilize the class(es) being analyzed.
- Contact the Human Resources office of your department and ask the HR Specialist for assistance in identifying and recruiting appropriate SMEs. Referrals from participating SMEs can also be a good source for additional recruiting.
- Determine if the class(es) are homogeneous or heterogeneous. If heterogeneous be sure to get at least one SME for each specialty area.
- Be sure to recruit an adequate number of SMEs to be representative of the whole spectrum of the class population.
- A good mix of incumbents and supervisors is preferred for a balanced perspective.
Incumbents are only allowed to rate at their own level and below.

Step 3 Assemble and distribute the SME packet.

- The packet should include SME Information Sheets, task statement forms and advice on writing task statements, and KSA sheets explaining the meanings of the 18 KSAs, and any other relevant material the SMEs can work on in advance to save time once the panel is assembled.
- The most common method of developing a master task statement list is for each SME to make a list of task statements and submit them to the analyst. The analyst merges the lists into a master task list that the assembled SMEs rate.
- Mailing the edited master task statement list to the SMEs allows for prior ratings which will speed up the panel meeting. It is also acceptable to distribute the edited master task statement list at the first SME panel meeting.

Step 4 Conduct the job analysis interview with the SME panel.

- Ask for general information to be used in the narrative.
- Compile, condense and number the task list.
- SMEs rate the tasks for importance and frequency (percent of time).
- SMEs rate the 18 standard KSAs for importance, and amount needed at entry.
- Ask the SMEs to identify unique KSAs. Compile and condense the unique KSAs and add them to the KSA list.
- SMEs rate the unique KSAs for importance, amount needed at hire.
- Anchor the tasks to the KSAs.
- Inquire about minimum qualifications to validate their appropriateness.
- Ask for suggestions for an exam plan. SMEs may know of performance tests or an occupational licensure test, etc. that can serve as models in your exam plan.

Step 5 Compile and average the ratings.

- Compute the average of SME ratings of importance, frequency, and criticality for each task (average importance rating X average frequency rating = criticality).
- Compute the average SME ratings and criticality for KSAs (average importance X average amount needed at entry = criticality).

Step 6 Write the job analysis report.

- Begin with the narrative.
- Identify SMEs and sources of information and describe duties, responsibilities, and other pertinent information.
- The task list with ratings is done best with a spreadsheet.
- List the KSAs and their ratings (average importance rating X average amount needed at entry = criticality). Also list the task numbers of 2-5 tasks (anchors) that are examples of how the KSA is necessary for success on the job.
- List the KSAs rated for amount needed at entry (Profile).
- Write a Minimum Qualification statement that justifies the MQs the panel selected.
- Recommend an exam plan which measures the competencies you found to be highest in criticality.

Step 7 Review draft report.

- Either send a copy of the job analysis report or reassemble the panel to read and discuss the report. We also recommend sending a draft of the report to SMEs who were not available to participate because they work in outlying areas. Their input could be helpful and the opportunity to review the report encourages a feeling of ownership.
- If the SMEs essentially agree with the report, they should sign the SME Signature Sheet indicating they agree.(Forms in Appendix A). An SME who finds a substantial difference between the job and the job analysis may indicate what changes must take place before he/she will sign the SME signature sheet. Note this in the narrative.
- Make any necessary revisions.
- Keep a copy of the report.

Total Competencies Job Analysis in Detail

The Elements and Process sections explain what is needed in a TCJA and how to do it, but in some cases a more detailed explanation is necessary. Consider this section a review with added suggestions.

Task List

The preferred method of preparing the master (30) _____ is to request each (31) _____ to prepare a list of task statements and bring them to the first meeting. Take the longest list, the one with the (32) _____ items, because it is the list least likely to have left something out. Lead the panel in editing the list for content and well written task (33) _____. Ask the other panel members if they have additional tasks on their lists which are not on the edited list. The analyst prepares and copies the final version of the list before the second meeting of the panel.

Another, more practical, option is acceptable. Often SMEs do not bring a task statement list to the first meeting, even when they are requested to. As a practical approach, the analyst can prepare the first master task statement list from the initial document research review which would include (34) _____. The analyst-prepared-task-list serves to get the discussion started and is more efficient than starting from zero task statements.

Much of this step can be done by mail on an individual basis between the (35) _____ and the SMEs. We recommend that the assembled panel does at least the final edit. The interaction between panel members is critical in arriving at a task list which accurately describes the job from more than one point of view. The more (36) _____ or diverse the class is, the more necessary it is to include consensus input.

Rating Tasks and KSAs

The panel rates each task on the list for importance and frequency. Importance is based on how much this (37) _____ contributes to the reason the job was created or what output was needed to make management decide to create the job. A second aspect of importance is consequence of error. What are the effects if an incumbent makes a/an (38) _____?

Your mentor is to be your guide as you learn to perform the selection function. Be sure to make the best use of your time with your mentor.

Frequency has to do with how much time an incumbent spends doing this task on the average. There are not any arbitrary percentages for the 5-1 ratings. Compare the frequency of the task to frequency of other tasks on the list to arrive at a rating.

<p>30. task statement list 31. SME 32. most 33. statements 34. class descriptions, PDQ's, previous job analyses, minimum qualifications, previous tests, etc. 35. job analyst 36. heterogeneous 37. task 38. mistake or error</p>

Different levels in a class series may do the same task, but it may **not** have the same relative importance to both jobs. For example, a Bookstore Manager and a sales clerk may both use a cash register to check out customers. The manager also orders merchandise, evaluates employee performance, and balances accounts. The clerk runs the cash register and balances the cash drawer at the end of a shift. When both are being evaluated for work performance, only a small part of the manager's rating is based on how well he/she checks out customers. Checking may be the (39) _____ task separating the good clerk from the barely acceptable clerk.

The panel rates each task from 1-5. Five means the task is very important to the job. If the task is unimportant, rate the task as 1, not zero, because zero confuses the averaging and criticality calculations.

Frequency can be expressed as an average percent of work time the incumbent spends doing a specific task. The person with a wide variety of tasks may have one task that takes more time than any of the others even though that task does not take much time. In that case, rate the task as "5" because it is more frequent than the others.

There are always tasks that the incumbent seldom performs but **must** be done correctly when they are performed. Example: a police officer drawing and firing a pistol. These tasks should be rated low in frequency, but high in (40) _____ because of the consequence of error.

Rating the KSAs is much the same as rating tasks. Rate from 1 (unimportant) to 5 (most important.) Do **not** use zero. The SMEs rate each KSA on importance and **amount needed at entry**. How much of the Knowledge, Skill, or Ability, the SMEs are rating, must the candidate bring to the job and how much of the KSA can easily be taught in the first few months? The point is, why test and hire an applicant on the basis of knowledge, skills, and abilities which most people can learn easily after they are hired?

At the same time the SMEs are rating KSAs for importance and (41) _____ they should give examples of tasks in which the workers need to have the KSA to perform the task. Three to five examples from the task list are adequate for each KSA. If the tasks that are linked to the KSA are rated high in criticality, it is important to test for the KSA (or competency it is linked to).

The analyst does the computations after the panel meeting. Knowledge, skill, and ability in using spread-sheet software makes this step much easier. Average the SME ratings for each task for importance to get (42) _____ . Similarly, find average amount needed at entry.

Average (43) _____ X average (44) _____ = criticality

39. most important or only 40. importance 41. amount needed at entry
42. average importance 43. importance 44. amount needed at entry

The KSAs are then expressed as **competencies**. The same KSA written in competency terms will be different for various classes/positions. The competency reflects the level and the nature of the work. Knowing which are the most critical competencies tells the HR Specialist which attributes to measure in order to select and hire the workers most likely to succeed on the job.

Keep in mind that the entire panel does not need to be assembled at the same time. Sometimes the analyst recruits three or more SMEs at each of two or more agencies or on different shifts. In these cases, it is more cost effective for the analyst to go to the agencies than to have the SMEs come to the analyst. We do not recommend holding separate meetings for less than three SMEs, because there is less (45)_____ between SMEs. Also, all SMEs are not required to go through all of the steps to be considered participants. The analyst will find it helpful to list each meeting, date, and the attendees, in the job analysis report.

The SMEs' review of the job analysis (46)_____ can be done by mail. The analyst should consider the number of pages before copying a separate report for each SME. Requesting SMEs who were not on the panel to review the finished product can promote buy-in throughout the system.

Some would consider much of this section to be micro-managing. Actually most of the details in this section are tips about what works best according to our experience. If the analyst has all of the material required in the TCJA "Elements" section, the project is likely to be acceptable. The better one understands the process, the easier it is to know which innovations are (47)_____ and which are not. The Total Competency Job Analysis method is more flexible than these instructions might indicate. When in doubt, call the Department of Personnel.

Advantages: Addresses the 10 characteristics of defensibility. Comprehensive, objective, and quantitative, the TCJA is the most thorough method of job analysis discussed in this manual. Once completed, the Class TCJA with modifications can be applied to other vacancies in the same class. Links are established from tasks to KSAs to competencies. Panel members see the final product at sign-off, and usually are favorably impressed by the method.

Disadvantages: In some cases, task statements cannot be copied or imported from other software sources. Word processing task statement lists is time consuming. Required numerical calculations are tedious if the analyst is not familiar with spreadsheet software. Often the procedure requires two to four half-day meetings of the SME panel.

45. *interaction or discussion* 46. *report* 47. *acceptable or valid*

References

For further reading on the subject of Job Analysis, we suggest the following references. Many of these references served as sources for this manual.

Bemis, Stephen, *et al.* *Job Analysis: An Effective Management Tool*. Washington: The Bureau of National Affairs, Inc., 1983.

Gael, Sidney. *Job Analysis: A Guide to Assessing Work Activities*. San Francisco: Jossey-Bass, Inc., 1983.

Gael, Sidney, editor. *The Job Analysis Handbook for Business Industry and Government*. White Plains NY: John Wiley and Sons, 1988.

Mathis, Robert, and John Jackson. *Personnel and Industrial Relations*. St. Paul: West Publishing Co., 1982.

McCormick, Ernest J. *Job Analysis: Methods and Applications*. New York: Amacom, 1979.

Miner, John B., and Mary Green Miner. *Personnel and Industrial Relations*. New York: MacMillian Publishing, 1985.

Rosse, Joseph, and Robert Levin. *High-Impact Hiring*. San Francisco: Jossey-Bass Publishers, 1997.

APPENDIX A

TOTAL COMPETENCY JOB ANALYSIS FORMS

Appendix A - Total Competency Job Analysis Forms

Appendix A includes samples of most forms needed to complete a Total Competency Job Analysis. Feel free to photocopy this material or to develop similar forms as needed. Record Task Statement ratings next to the tasks on the analyst generated Task List.

Total Competency Job Analysis Checklist

Task Rating Scale

Knowledge, Skills, and Abilities Rating Scales

Knowledge, Skills, and Abilities Individual Rating Form

Job Competency Ratings

Subject Matter Expert Confidentiality Statement and Information Sheet

Subject Matter Expert Signature Sheet

TOTAL COMPETENCY JOB ANALYSIS CHECKLIST

Class Code(s) _____ **Class Title(s)** _____

- _____ 1. Narrative
- _____ 2. Task list(s) with ratings of importance, frequency, and criticality
- _____ 3. KSA list(s) with ratings of importance, amount needed at entry, and criticality
- _____ 4. Linkage of tasks with KSAs
- _____ 5. KSAs linked to competencies
- _____ 6. KSA profile ratings for all job levels
- _____ 7. Minimum Qualifications with justifications
- _____ 8. Recommended exam plan with test weights, factors, and factor weights where appropriate
- _____ 9. SME Information Sheets
- _____ 10. SME reviewers sign-off sheets

Selection System Reviewer

Title

Date

TASK RATING SCALES

Please use the following scale to rate the Importance of each of the tasks in the effective performance of the job. Importance is defined as how much doing this task contributes to the reason the job exists and the consequence of an error made in performing this task. Think of a typical work load over a period of a month or longer.

A rating of:

- 1 means the task is not very important
 - 2 means the task is somewhat important
 - 3 means the task is of average importance
 - 4 means the task is of above average importance
 - 5 means the task is extremely important
-

Also, use the following scale to rate Frequency of each of the tasks in the effective performance of the job. Frequency is defined as either a percent of work time spent doing the task or amount of time on the job spent doing this task in comparison to the time spent doing the other required tasks of this job. Take an average of seasonal or periodic work loads to include both busy and slow times.

A rating of signifies:

- 1 the task is done seldom and for a short duration
- 2 the task is done somewhat frequently or significant time is spent doing the task
- 3 the task is done with average frequency or for an average duration
- 4 the task is done more often than most tasks or very significant time is spent doing the task
- 5 the task is one of the most frequently performed tasks and a considerable amount of time is spent performing this task

KNOWLEDGES, SKILLS, AND ABILITIES RATING SCALES

Please use the following scale to rate the Importance of each of the knowledges, skills, and abilities in the effective performance of the job. Importance is defined as how much having this KSA contributes to successfully performing important tasks.

A rating of:

- 1 means the KSA is not very important
 - 2 means the KSA is somewhat important
 - 3 means the KSA is of average importance
 - 4 means the KSA is of above average importance
 - 5 means the KSA is extremely important
-

Also, use the following scale to rate Amount Needed at Entry for each KSA. Amount Needed at Entry is defined as how much of a KSA a person needs to have already to perform up to standard at the level of the job at entry.

A rating of:

- 1 means the KSA can be learned on the job;
- 2 means the KSA is somewhat necessary at entry;
- 3 means the KSA is necessary to perform up to standard at entry;
- 4 means the KSA is above average in amount needed at entry;
- 5 means the KSA is essential to perform up to standard and can not be learned on the job.

COMPETENCY LIST

The highest rated KSAs and supporting Tasks expressed as Competencies are listed below. Most of the listed Competencies should be measured in selecting candidates for this class or position.

Example:

<u>KSA</u>	<u>TASKS</u>	<u>COMPETENCY</u>
Verbal Ability	1,3,4,21	Formulates abstract ideas and concepts in terms of words to communicate with others

<u>KSA</u>	<u>TASKS</u>	<u>COMPETENCY</u>
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KNOWLEDGES, SKILLS, & ABILITIES INDIVIDUAL RATING FORM

	KSA	IMPORTANT	AMOUNT NEEDED ENTRY	AT TASKS
1	Verbal Ability			
2	Numerical Ability			
3	Reasoning			
4	Mechanical Ability			
5	Spatial Ability			
6	Spelling Ability			
7	Knowledge of Grammar			
8	Clerical Speed and Accuracy			
9	Physical Ability			
10	Interpersonal Skills			
11	Written Communications			
12	Oral Communications			
13	Management/Admin Skills			
14	Supervision Skills			
15	Public Relations			
16	Data Processing Skills			
17	Planning and Organizing			
18	Keyboard Skills			
19	(Unique)			
20				
21				
22				
23				
24				

(Please add a second page if you wish to add unique KSAs up to the maximum of 12 unique KSAs.)

JOB COMPETENCY RATINGS

Occupational Group _____

Instructions: Several competencies that may be required for successful job performance are listed below. You are to evaluate the **Importance** of each competency for overall successful job performance and the **Amount** of the competency that is required to perform the job effectively at entry. Mark your rating in the appropriate column to the left of each competency. In addition, give examples of tasks that depend on the specific competency for successful performance. A sample task is given for the Arithmetic and Mathematical Reasoning competencies

Importance (Imp) of each of Competency	Amount (Amt) of Competency required at entry
1 Competency is <i>not very important</i> 2 Competency is <i>somewhat important</i> 3 Competency is <i>of average importance</i> 4 Competency is <i>of above average importance</i> 5 Competency is <i>extremely important</i>	1. <i>Almost none</i> of the Competency is needed at entry 2. <i>Some</i> of the Competency is needed at entry 3. <i>A moderate amount</i> is needed at entry 4. <i>An Above average amount</i> is needed at entry 5. <i>A considerable amount</i> is needed at entry

Imp	Amt.	Competency
_____	_____	1. Arithmetic: performs computations such as addition, subtraction, multiplication, and division correctly using whole numbers, fractions, decimals, and percentages. Example of tasks: <i>1. Checks accuracy of computation on Tax Forms.</i>
_____	_____	2. Mathematical Reasoning: Solves practical problems by choosing appropriately from a variety of mathematical and statistical techniques. Example of tasks: <i>1. Uses multiplication to determine amount of travel reimbursement.</i>
_____	_____	3. Reading: Understands and interprets written material, including technical material, rules, regulations, instructions, reports, charts, graphs, or tables; applies what is learned from written material to specific situations. Example of tasks:
_____	_____	4. Reasoning: Identifies rules, principles, or relationships that explain facts, data, or other information; analyzes information and makes correct inferences or draws accurate conclusions. Example of tasks:
_____	_____	5. Interpersonal Skills: Shows understanding, courtesy, tact, empathy, concern; develops and maintains relationships; may deal with people who are difficult, hostile, distressed; relates well to people from varied backgrounds and situations; is sensitive to individual differences. Example of tasks:

- _____ 6. **Problem Solving:** Identifies problems; determines accuracy and relevance of information; uses sound judgment to generate and evaluate alternatives, and to make recommendations.
Example of tasks:
- _____ 7. **Writing:** Recognizes or uses correct English grammar, punctuation, and spelling; communicates information in a succinct and organized manner; produces written information, which may include correspondence and/or technical material that is appropriate for intended audience.
Example of tasks:
- _____ 8. **Applied Information Technology/Application:** Knowledge of and use of computers, computer software and related equipment as it pertains to the performance of the job.
Example of tasks:
- _____ 9. **Perceptual Speed/Attention to Details:** Ability involves the degree to which one can quickly and accurately verifies data and reconciles errors and inconsistencies.
Example of tasks:
- _____ 10. **Decision Making/Mature Judgment:** Makes sound, well informed, and objective decisions; perceives the impact and implications of decisions; commits to action, even in uncertain situations, to accomplish organizational goals; causes change.
Example of tasks:

Potential Test Question Material

Identify examples of reading material (e.g., statutes, rules, operating procedures, department or agency mission statement), forms, or key activities that may serve as content or background for test questions measuring the competencies.

_____ SME Name

_____ Agency

_____ Date

Thank You For Your Cooperation

SUBJECT MATTER EXPERT CONFIDENTIALITY STATEMENT & INFORMATION SHEET

This sheet serves as permanent documentation of the expertise that qualifies you as a Subject Matter Expert (SME) for developing examinations. Please answer each of the following questions as completely as possible.

Your Name: _____ Work Phone Number: _____

Gender: ___ Male ___ Female Ethnicity: ___ White ___ Black ___ Asian ___ Hispanic ___ American Indian

E-mail Address: _____ Agency Name _____

Your Work Address: _____

Your Current Job Title _____ Time on Job _____

You are considered a Subject Matter Expert for the following Class (es): Tax Examiner
Consider your current and previous experience and check as many as applicable that describe your relationship to the job for which the examination is being developed:

- I supervise the position (or a job in the class).
- I am an incumbent in the position (for one of the positions in the class)
- I supervise a similar position.
- I do similar work.
- Other relationship (Please describe) _____

What work experience would document your expertise in contributing to this examination (e.g., years and level of work experience, work duties relevant to this position/class, special duties or work roles, etc.)?

What education or accomplishments would document your expertise (e.g., degrees, courses, licenses, membership, publications, leadership roles, honors, awards, etc.)?

Any other experience that would document your expertise (volunteer, elected office, etc.)?

I understand that I will be using and developing confidential test material. If test information is divulged to anyone not specifically authorized, the test may be compromised and determined void. I will not divulge to anyone any of this exam material including factors, factor descriptions, core questions, answers or behavioral anchors. All exam material that is generated and evaluated remains the property of the State of Colorado. I will not make or retain copies of this material.

Signature

Date

SUBJECT MATTER EXPERT REVIEW SIGNATURE SHEET

Name _____

SME's Job Title or Occupation _____

Place of Employment, Agency or Institution _____

Employment address: Street _____

City, State, Zip _____

Position or class being examined _____

Please check the appropriate statements below.

- () I have read and reviewed the final job analysis for this position or class.
- () I have read and reviewed test material which may appear in the final, test revision.
- () I have read other material which may be used in test development or job analysis

Please specify other material _____

Please check the most appropriate statement below.

- () I agree the material is essentially correct with only a few minor exceptions.
- () I disagree with the material presented, because there are major, inaccurate, items.
- () I would agree with this material if the following changes or amendments are made.

Comments about the process or analyst(s):

Signature _____ Date _____