

Quick Job Analysis

Ohio **DAS**

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Introduction

Many state agencies have begrudgingly accepted job analysis as a way to head off challenges when selecting personnel. It always surprises me that the real benefit of job analysis, i.e., identifying what a job candidate needs to be successful on the job, takes a back seat. When one considers the amount of time and money wasted as a result of a bad hiring decision, the time spent conducting job analysis seems less burdensome.

But just in case your time is at a minimum, here is a short job analysis method that with cooperation could be completed in an afternoon. The result: a hierarchy of knowledges, skills, and abilities (KSAs) that when assessed in the context of the job should provide you with the very best candidate for the job.

Good luck.

A Step-By-Step Approach To Quick Job Analysis

Step 1: Begin to document the job analysis and test development processes.



ACTION ITEM!!! TURN TO APPENDIX A (page 1) AND ENTER YOUR NAME AND THE DATE YOU BEGAN JOB ANALYSIS. (This notation begins your test log, the documentation needed to demonstrate the job-relatedness of your test. Demonstrable job relatedness is a requirement of the *1978 Uniform Guidelines on Employee Selection*. Without it, you lose if challenged in federal court or by the union.)

Step 2: Identify your SMEs.

You will recall that SMEs are subject-matter experts, those who are intimately familiar with the job in question.



If you have the luxury of using the job incumbent, use him or her. This is the person most familiar with what the job entails. Next, recruit the supervisor of the incumbent and any colleagues of the incumbent who are similarly classified. For highly technical positions, you might solicit the help of a college professor or someone in the private sector who works in a similar position.

Do your best to identify those who are in the best position to judge the accuracy of the PD or who, after reading a description of the job, can identify what knowledges, skills, and abilities (KSAs) are needed to successfully perform the job.



ACTION ITEM !!! TURN TO APPENDIX A (page 1) AND WRITE THE NAMES AND TITLES OF YOUR SMEs IN THE SPACE PROVIDED. DO NOT PROCEED WITHOUT THE INPUT OF AT LEAST TWO SMEs; THREE ARE EVEN BETTER.

Step 3: Verify the accuracy of the Position Description (PD) for the job in question.

Gather the SMEs in one room, and give each of them a copy of the PD. Appoint a recorder to capture the discussion of these questions:

- a) Are the duties and tasks accurately described?

Jobs change over time. Procedures change; equipment is updated; methods are automated. New laws may dictate how much or how little discretion an employee may use in making decisions. A change in the economic climate may signal a change in emphasis or focus. A reduction in workforce or resources may have impacted the work the employee in this position does. Consider what circumstances may have caused the job to change and update the PD to reflect the change.

- b) Has the importance or frequency of any duty changed?

If you have identified a change from Step 3a above, you must also consider if the importance and/or the frequency of any duty has changed. For example, introducing automated systems into the workplace often decreases the percentage of time needed to perform a duty. Again, reflect these changes on the PD and proceed to Step 3c.

- c) Are the worker characteristics representative of the knowledges, skills, and abilities (KSAs) needed to perform the tasks listed? Are some KSAs missing? Are some included that shouldn't be?

ACTION ITEM: No matter what process your Human Resources Office uses to update the PD, you should make any changes to the PD now and use this draft to continue the job analysis and test development process. (These processes are independent from updating the PD and should continue while your HR office follows the process to update the PD.)

When the PD is approved and returned from your HR office, add the approved copy to your test log but keep the draft PD as part of your record. Continue with job analysis, using the draft PD.



ACTION ITEM !!! Insert the draft revised Position Description and the notes from your discussion in your test log on page 2 of the appendix.

Step 4: Assign a value to each duty.

Turn to Appendix A (page 3) for a method using a paired comparison. Or, with your SMEs, determine if the value of each duty is dictated by the order listed on the PD., e.g., if duties become less important, then one might assign the first of four duties a value of “4”; the second duty, a value of “3”; the third, a value of “2”; and the last a value of “1.”

If, on the other hand, the order of the duties was determined by the percentage of time spent performing duties of equal importance, your value assignment for four duties might look more like this:

- Duty 1—4
- Duty 2—4
- Duty 3—3
- Duty 4—1



Position Description:	
Duty 1:	4
Duty 2:	4
Duty 3:	3
Duty 4:	1

Whatever method you use, describe it in your test log or follow the paired comparison method included in Appendix A. A test log entry might look like this:

Dear Test Log,

Today we assigned values to duties using the paired comparison method.

SME #1



ACTION ITEM !!! ENTER THE VALUE ASSIGNED FOR EACH DUTY ON THE CHART IN APPENDIX A, PAGE 4. ALSO, RECORD ON THIS SAME CHART THE PERCENTAGE OF TIME SPENT FOR EACH DUTY BY REFERRING TO THE REVISED PD.

Step 5: Multiply the value of each duty by the percentage of time spent. This number is the Importance of Duty (ImpD) score.



ACTION ITEM !!! COMPLETE THE CALCULATION FROM STEP 5 AND ENTER THAT NUMBER IN THE CHART ON PAGE 4 OF APPENDIX A.

Step 6: Determine a hierarchy of KSAs by distributing the points reflected by the Importance of Duty score among the KSAs linked to that duty. This distribution begins the process of determining the hierarchy.

By considering how critical each KSA is to successfully performing the duty to which it is linked, the KSA will begin to take on a value and will accumulate value each time it is linked to a duty and assigned a piece of the ImpD point total.

For example, if the ImpD score for Duty 1 is 140 [frequency (35%) multiplied by the value of the duty (4) from Step 5] and there are seven KSAs linked to the duty, then the SME will determine how many of the 140 points should be assigned to each KSA. Theoretically, if the SME determined each KSA was of equal value in contributing to successful performance, he or she could assign 1/7 of the total points (20) to each KSA. *This is rarely the case.*



ImpD Ratings Points of 140	
KSA #1	50
KSA #2	50
KSA #3	10
KSA #4	30
KSA #5	00
KSA #6	00
KSA #7	00

More often, there are one or two KSAs that are far and above the others in their contribution to successful performance, and these should, therefore, receive the bulk of the points. Note: It is not necessary to “waste” valuable points on KSAs of lesser importance, e.g., skill in the operation of office machinery linked to a report writing duty requiring the more critical KSAs like these: the ability to write clearly and concisely, the ability to perform statistical analysis, the ability to establish facts and draw conclusions. In other words, SMEs may completely bypass a KSA when distributing the ImpD points. In addition, it is important for SMEs to focus on the KSAs that the applicant must bring to the job and not those KSAs that can be learned/enhanced after employment.

This process will continue for each Duty.



ACTION ITEM !!! USE THE SAMPLE RATING FORMS ON PAGE 5 OF THE APPENDIX AND ENTER FOR EACH DUTY THE KSAs AND THE KSA DESCRIPTION (e.g., 5/Knowledge of Management). INSERT THE POINTS DETERMINED BY THE ImpD CALCULATION IN THE SPACE PROVIDED.

Step 7: Distribute the rating forms to each SME for independent completion. Then collect and tally the value of each KSA. NOTE: If a KSA is linked to successive duties, it will accumulate value each time a portion of the ImpD points is assigned.



ACTION ITEM !!! Use the tally sheet on page 8 of the Appendix to determine the overall value of the KSA. Enter the points assigned by each SME to the KSAs, add them up, then divide by the number of raters. This number is the KSA’s overall value or the Importance of the KSA (ImpK) score.

Step 8: List the KSAs in a hierarchy, starting with the most highly valued KSA. Arrange the remaining KSAs in descending order by ImpK score.



ACTION ITEM !!! USE THE FORM ON PAGE 9 OF THE APPENDIX TO LIST YOUR KSA HIERARCHY.

Step 9: Determine which of these KSAs will be assessed during your selection process. It is not necessary to test all KSAs.

Gather your SMEs and record their rationale for determining at which point in the hierarchy KSAs are considered to be of diminishing value. Consider these questions:

- a) Is there a point at which there is a significant gap in ImpK scores. The point in the hierarchy where the gap between ImpK scores starts to widen usually indicates that the KSAs lower in the hierarchy are beginning to have less value in their contribution to successful job performance.
- b) Is there a point at which one can assume that the lower-ranking KSAs are necessary components of higher ranking KSAs (e.g., it is probably safe to assume that if an applicant can perform algebra or statistics then he or she also has the ability to calculate fractions, decimals, and percentages).
- c) Is there a point in the hierarchy where the lower-ranking KSAs are part of the minimum qualifications of the position? You might argue that if the applicant made it through application screening, then he or she has sufficiently described experience or education indicating possession of these KSAs.



ImpK Scores	
KSA #1	162
KSA #2	155
KSA #3	142
KSA #4	141
KSA #5	77
KSA #6	50
KSA #7	12

- d) Is there a point in the hierarchy where the lower-ranking KSAs could easily be acquired during the probationary period?

STOP!!! Indicate on page 10 of the appendix the rationale for testing only certain KSAs.

Step 10: Develop your test plan.

As a result of Step 9, you will have determined which KSAs will be assessed. These KSAs, their ImpK scores, and a decision of how to best assess the KSAs will constitute your test plan.

Choose the method of testing which will give you the best indication of the applicant’s skill level. Each KSA subtest can be a combination of any number of assessment methods, including work samples, multiple-choice questions, and oral interview questions.



ACTION ITEM !!! Turn to the Appendix (page 10) and fill in the chart, which is the graphic representation of your test plan.

Step 11: Determine subtest weights.

The ImpK scores will dictate how much weight you assign each subtest.

To determine the weight of each subtest, first total the ImpK scores. Then determine what percentage of the total each ImpK score is. For example, consider these ImpK scores from this test plan:

KSA #	ImpK score	How tested	Subtest weight (% of 100)
Ability to 3	89	Report Writing exer.	18
Knowledge of 5	87	M-C questions 1-15	18
Knowledge of 11	82	M/C questions 16-25	17
Knowledge of 13	79	Oral Interview # 5	16
Knowledge of 14	75	Oral interview # 2	15
Skill in 29	73	Work sample	15

The total of the ImpK scores is 485. To determine the subtest weight for each KSA, divide each ImpK score by 485. For example for the first KSA, you would divide 89 by 485. The result is .183 or 18%. By continuing the calculations for each KSA, you will have determined how many points in a 100-point test should be distributed to each subtest.

NOTE: In the example above, the weights total only 99 because of the need to round numbers to the nearest whole. You may assign the extra point to any of the subtests with one stipulation: a KSA lower in the hierarchy should not then be weighted more than a KSA higher up in the hierarchy. In the example above, you could add the point to any of the KSA weights except the last one.

Conclusion:

Although the intent of this manual is to describe a quick job analysis method, your responsibility regarding selection extends beyond the demonstrable job-relatedness of your exam. Consider the following:

The links between your subtests and the KSAs should be very clear, i.e., make sure you are testing what you say you are testing.

The pass point should be defensible. Determine, with the help of your SMEs, what score suggests minimum acceptable competence. Do not arbitrarily set the pass point at 70%; this percentage may, in fact, be too low if the subtests are easier than the skill level required of the job.

Consider if any subtest is “fatal.” If the KSA tested is so important to overall job performance (e.g., word processing skills for an executive secretary), the test writer may determine that the applicant must demonstrate a certain level of proficiency. If he cannot, then he will fail the entire exam even if he performed well on all other subtests. (NOTE: This designation is supported by ImpK scores at the top of the hierarchy.)

How you use the resulting test scores is often scrutinized. Closely grouped scores could indicate the applicants are “substantially equal,” and you may not, if a union contract is in place, be able to choose the applicant with the highest score .

Often, when I am considering whether or not the test or a test question is doing its job, I ask this:

If an applicant answers this test question correctly, does it really make him or her a better Secretary? or Police Officer? or Training Officer?

Remember, the closer your test looks like actual job requirements, the more defensible the job-relatedness. For those of you who care, it's called fidelity. And the higher, the better.

Test Log

The description of the steps taken in the development of the test for

(insert position title and position control number here)

Step 1: Enter today's date and the name and title of person directing this job analysis.

Name _____

Title _____

Date this job analysis began _____

Step 2: Enter the names and titles of those serving as Subject-Matter Experts.

SME 1

Name _____

Title _____

SME 2

Name _____

Title _____

SME 3

Name _____

Title _____

Step 3: Attach a copy of the revised PD here. (Your working document(s), with your handwritten notes, are preferable here; they will show your good faith efforts at establishing content validity.)

Enter the names of the SMEs who reviewed the PD and the date of the review.

Date of the review_____

SME_____

SME_____

SME_____

Step 4: Assign a value to each duty on the PD.

Describe your method:

OR

Use the paired comparison method:

Which is more important, Duty 1 or Duty 2?	1	2	Equal
Which is more important, Duty 1 or Duty 3?	1	3	Equal
Which is more important, Duty 1 or Duty 4?	1	4	Equal
Which is more important, Duty 2 or Duty 3?	2	3	Equal
Which is more important, Duty 2 or Duty 4?	2	4	Equal
Which is more important, Duty 3 or Duty 4?	3	4	Equal

Enter a hash mark in the space provided below each time the duty was selected “more important” or “equal” to:

	Hash marks	Total	Value assigned *
Duty 1			
Duty 2			
Duty 3			
Duty 4			
Duty 5			

***Always assign the lowest ranking duty (or duties) a value of at least “1”; add the # of hash marks earned by every other duty to arrive at its value. For example, if Duty 2 received two has marks, add that # to 1 for a total value of 3.**

Steps 4 and 5: Enter the information obtained in Steps 4 and 5 on the chart below.

Duty #	Value of duty (criticality)	X (times)	Frequency (% of time spent)	=	Importance of Duty Score (ImpD)
1		X		=	
2		X		=	
3		X		=	
4		X		=	
5		X		=	

STEP 7 KSA Tally Sheet

KSA #	SME #1	SME #2	SME #3	TOTAL	TOTAL ÷ 3 (ImpK score)

STEP 8 KSA Hierarchy

Using the list from Step 7, list the KSAs by ImpK score in descending order.



KSA	ImpK score

ImpK Scores	
KSA #1	162
KSA #2	155
KSA #3	142
KSA #4	141
KSA #5	77
KSA #6	50
KSA #7	12

STEP 9 Rationale for testing only certain KSAs

The SMEs determined to include the following KSAs in the selection plan for the following reasons:

STEP 10 Test Plan

KSA	Written Test	Job Sample	Oral Interview	Other (Specify)	Subtest Weight