

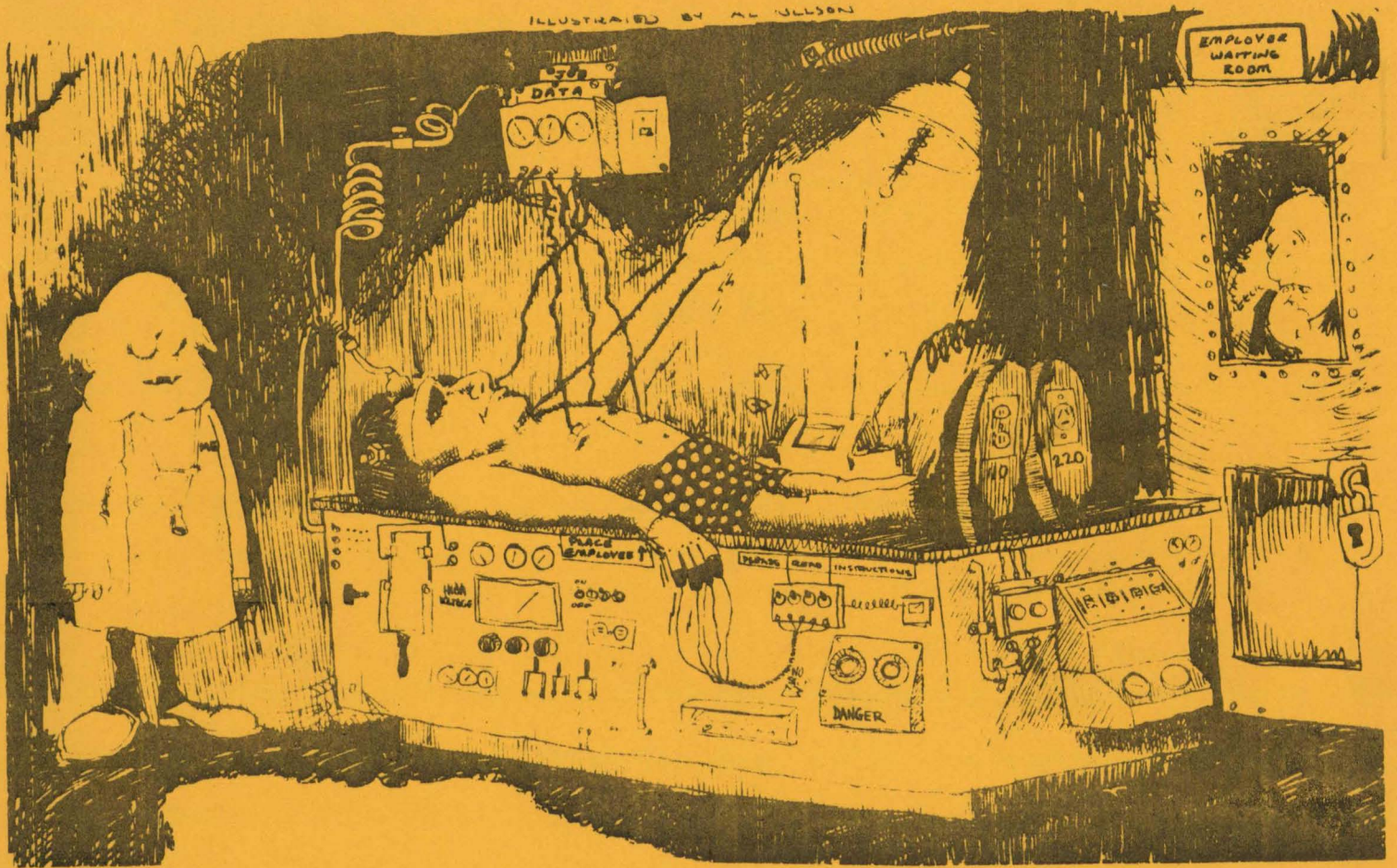
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OPERATORS

MANUAL

ILLUSTRATED BY AL NELSON



FOR JOB ANALYSIS

IOWA MERIT EMPLOYMENT DEPARTMENT

TRAINING MANUAL

FOR

JOB ANALYSIS

DIVISION OF TECHNICAL SERVICES

STATE OF IOWA

MERIT EMPLOYMENT DEPARTMENT

December, 1973

TABLE OF CONTENTS

Acknowledgements.....	1
Introduction.....	3

SECTION

I. Job Analysis: What Is It?.....	5
II. What Does It Do?.....	13
III. What Should You Be Thinking About?.....	19
IV. How To Do It? The Choice Is Yours!.....	27
V. Where Do You Go From Here?.....	33
VI. Now, Try It Out!.....	59
VII. Conclusions.....	63

APPENDIX

A. Job Analysis Approaches.....	67
B. Examples of Knowledges, Aptitudes, Skills, Personal Qualities.....	85
C. Suggested Interview Practices.....	91
D. Questionnaire Forms.....	99
E. Work Diary Form.....	115
F. Readability Indices.....	119
G. Source Materials.....	127
H. Weighing Approaches.....	141
I. Equal Employment Opportunity Uniform Testing Guidelines...	153
J. What, Where, How, When and Why Guide.....	161
K. Job Analysis Report Document.....	169

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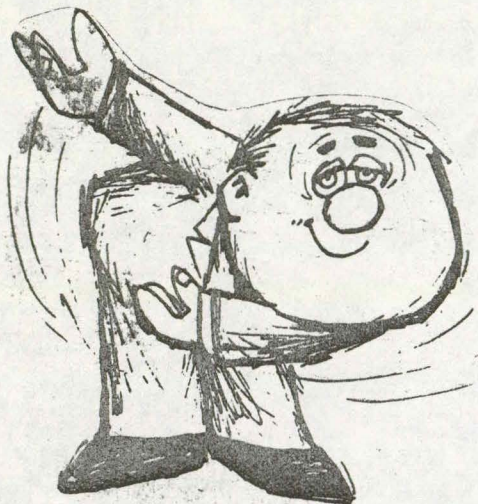
Those familiar with a personnel operation realize that originality consumes only one percent of a personnel specialist's time. The remaining ninety-nine percent of his time involves immediate problem solving activities. Time and budget constraints affect the majority of these activities and dictate that the personnel specialists rely on personal and vicarious experiences, the latter accomplished most often through published works.

This training manual represents this latter kind of personnel activity. Recognition of other person or agency contributions to the development of this publication is hereby made.

Assistance gained and specific procedures alluded to in this manual are direct or indirect products of such work as: "Content Validity: A Procedural Manual" prepared by Stephen J. Mussio and Mary K. Smith, Division of Personnel Research, City of Minneapolis Civil Service Commission; "Selection Oriented Job Analysis Procedures, A Selection System Analysis and Development Report, 1972" prepared by the State of Wisconsin Bureau of Personnel; "A Manual for Job Analysis" prepared by the Division of Research and Test Development, State of Illinois Department of Personnel; "How to Prepare and Conduct Job-Element Examinations" prepared by Ernest S. Primoff, Personnel Research and Development Center, Bureau of Policies and Standards, U.S. Civil Service Commission; and "Handbook for Analyzing Jobs" prepared by the Office of Technical Support, U.S. Training and Employment Service, U.S. Department of Labor.

A special thanks to those who participated in the development of these publications.

INTRODUCTION

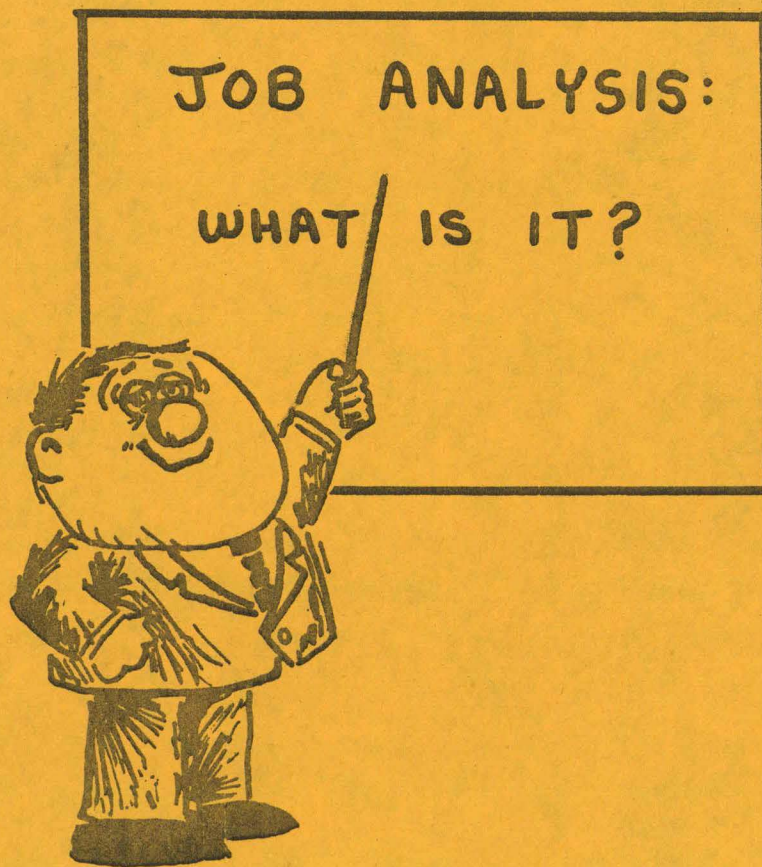


Some personnel agencies utilize their professional staff as specialists dealing with only specific areas of personnel administration. Others prefer assigning to their staff members work encompassing every aspect of personnel administration.

Regardless of which organizational approach is used, these professionals must rely upon the same basic job information retrieval system.

This manual attempts to give you an orientation into that aspect of personnel administration which serves as the foundation to, and common ground for all professional personnel specialists-job analysis.

Section I



SECTION I - JOB ANALYSIS: WHAT IS IT?

Job analysis is the foundation of good personnel administration. All decisions made concerning personnel activities must be founded upon accurate job information. The demand for job information creates a need for some method of acquiring the information. Conventionally, job analysis has been considered to be the process of obtaining and analyzing job-related information, by any method and for any purpose. For our agency the purpose of a job analysis study is to:

- A. Find out what the incumbent or incumbents in positions do in all respects to the work assigned and performed. This includes the normal periodic, occasional, specifically unique or combined work actually done.
- B. Determine where the incumbent actually does the work the place in the unit structure and organization; the physical location of the work; relationship to other jobs, functions, etc.
- C. Determine how the incumbent does the work: alone, in combination; what tools, equipment, sequences, etc. are involved.
- D. Determine when in the sequence of work the incumbent performs the duties; responsibilities for planning, carrying out, coordinating, etc.
- E. Find out why the incumbent does the work: a supervisory function, determination of some fact, interpretation of statutes, provide a necessary function in clerical operation, counseling, etc.
- F. Determine the actual SKILLS, KNOWLEDGES, ABILITIES and PERSONAL CHARACTERISTICS necessary in the work of the incumbent. How much must the incumbent bring to the job; how long to reach performance

standards, level of skills, knowledges and aptitudes application allowed; degree of assistance, supervision, training provided, etc. see Appendix J for further information on these points.

Several methods of job analysis have developed to elicit those job characteristics most commonly sought by personnel specialists. The most widely known approaches are the critical incident method, the functional method, and the job element method. Some specific details concerning each of these approaches is provided in Appendix A. These methods, and others as well, have procedural characteristics common to each other.

Job analysis systems initially involve the collection of job information. Once collected, systems will then review the information prior to developing the specific job facts sought. The job facts sought most often in personnel are those knowledges, abilities, skills and personal characteristics resulting from determining the what, where, how, when and why of the work. (See Appendix B for examples of similar Knowledges, Aptitudes, Skills and Personal Characteristics). The development of this or other job information dictates that in all job analysis systems conclusions and activities be documented. All job analysis approaches verify in some way the job information they develop.

Although it is useful to learn about the uniqueness of the different techniques for conducting job analysis and to determine the what, where, how, when, why, K.A.S. and P.C., the important point to remember is that these techniques have much in common: the review, development, documentation and/or verification of job facts.

What job analysis techniques can be used to accomplish these common collection, review, development, documentation and verification objectives? Several analysis techniques are used in the different analysis approaches, and most techniques are useful in the accomplishment of one or more of the above mentioned analysis objectives.

In practice, the following techniques of job analysis are frequently used in combination with one another:

Observation. This refers to an analyst observing personally a job incumbent performing his job. This method is, of course, more feasible for short-cycle jobs than for long-cycle jobs or those that vary considerably from time to time. It also may require traveling outside the immediate area to get to the job sight. (Useful in the collection, review, and verification aspects of completing job analysis objectives.)

Interview. This technique refers to the job analyst interviewing one or more job incumbents, asking questions to solicit the type of information desired. Interviews may in some studies also include supervisors of the work or experts in the field of work. Interviews may require long distance traveling to reach the job site. This technique is somewhat dependent on the worker's communicative skills, which may be good or bad. This technique is more directly defensible as there is face-to-face learning thereby reducing the problem of written communication not conveying all the facts clearly. (Useful in the collection, review, and verification aspects of completing job analysis objectives.) See Appendix C for suggested interview practices.

Questionnaire. This technique involves the completion by job incumbents of a questionnaire designed to elicit specific job-related information. It may also be filled out by the immediate job supervisors or experts in the field. Questionnaires are easy to administer - depending on the clarity of instructions contained therein. They may eliminate the need for travel. They do not provide for face-to-face communication and the resolution of typical communication problems. (Useful in the collection, review,

development, documentation, and verification aspects of completing job analysis objectives.) See Appendix D for various questionnaire forms.

Work Diaries or Logs. Job incumbents are asked to keep a running account of job activities over a period of time, such as a day, week, or month. This method is, of course, more feasible for short-cycle jobs than for long-cycle jobs or those that vary considerably. This technique eliminates the need for travel. Some control over the information gathering process is lost as the analyst asks nothing and controls or directs nothing - the job incumbent must record his work conscientiously. (Useful for verifying all areas of job analysis objectives.) See Appendix E for an example of a work diary form.

Film. Moving picture film or videotape is, in a sense, a variation of the method of observation. Film has the advantage of making observations a matter of permanent record. Equipment needs and costs are the major drawbacks. (Useful for verifying all areas of job analysis objectives.)

Group Sessions. This technique involves bringing together first line supervisors and employees of a specific class of work for "brainstorming". The analyst serves as a moderator to the session, guiding its direction and recording the results of the session participants' discussion. This method requires supervisors and employees to be brought to a central location and away from their work. This technique may require concerted effort on the part of the job analyst to get participants to contribute to the session, and to understand their role as session members. This is a very direct and objective job-related method of getting

at the desired job information. (Useful in collecting, reviewing, developing, documenting and verifying job analysis information.)

Job Source Material. Job analysts can often obtain useful information from reviewing and analyzing various job-related materials such as: work products; work instructions, guidelines and procedures; work production records; maintenance records; and other related job materials. This technique does not result in analysis information for the entire job. It is primarily useful in isolating a particular aspect of a job, for instance, reading level. (Useful in the collection, review, documentation, and verification of job analysis objectives.) An example of the method of isolating reading level is given in Appendix F.

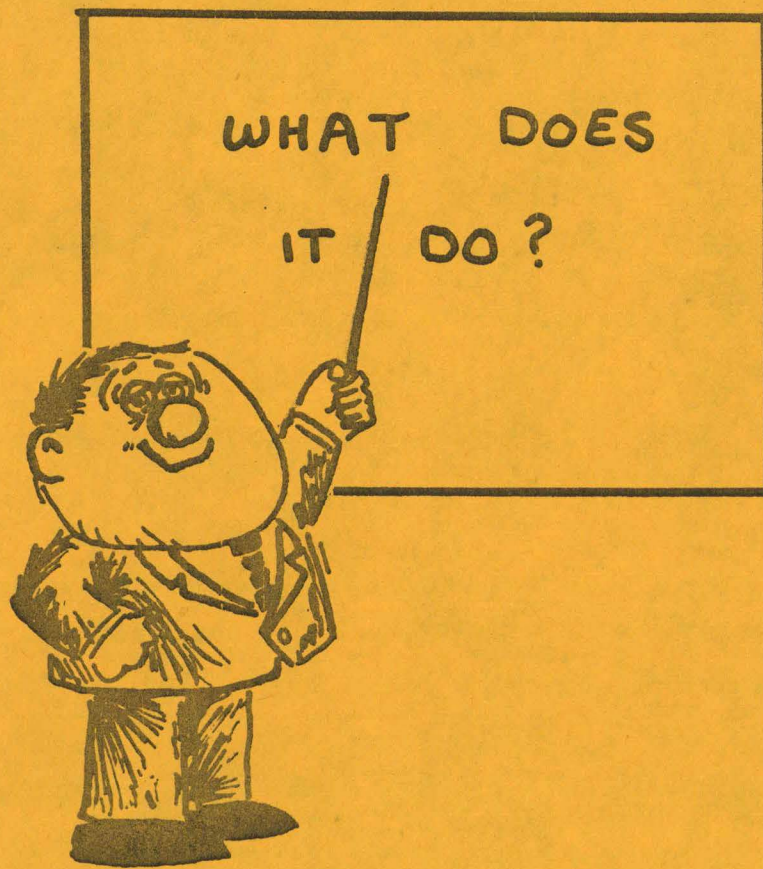
Existing Job Information. Job information found in most personnel offices is useful to the collection, review, development, documentation and/or verification process of a job analysis study. Source material includes: job audit reports, occupational brochures and pamphlets, the Dictionary of Occupational Titles, organizational charts, examinations' content outlines, job specifications, the U.S. Department of Labor's "Occupational Outlook Handbook", The Encyclopedia of Careers and Vocational Guidance, and various technical vocational magazines, etc. This technique provides basically peripheral information, and will not ascertain all the job facts needed. Examples of this kind of material are found Appendix G.

Weightings. This technique is used primarily to establish the relative importance of a given part of job information to the total information or other parts. Examples of different methods of weighting are found in Appendix H.

Others. In actuality many other methods are employed to get job information and they are either "off-shoots" of these techniques or combinations of them.

Job analysis is then a term used to describe the process of collecting, reviewing, developing, documenting and verifying job information by utilizing any one or a combination of recognized objective analysis techniques. Such techniques result in learning the what, where, how, when, and why of the job and permit the development of necessary job knowledge, skill, abilities and personal characteristics associated with performing the work.

Section II



SECTION II - WHAT DOES IT DO?

In architecture, a proper foundation gives support, stability, and strength to a building's superstructure. In personnel administration job analysis information serves the personnel specialist in much the same manner.

Within personnel administration, job analysis information is utilized for a variety of purposes. It gives to interested personnel specialists facts regarding job duties, knowledges, abilities, skills and worker personal characteristics facilitating specific activities within such areas as: labor relations, training, recruitment, performance evaluation, wage and salary administration, classification, and selection.

As a personnel specialist on our staff you will use information obtained from job analysis primarily for: examination development and validation, classification, wage and salary administration, and recruitment purposes.

The ability to isolate specific job knowledges, abilities, skills, and personal characteristics (K.A.S. and P.C.) through learning the what, when, how, where, and why of a job is very important to the proper development of job descriptions, job standards and job qualifications. Classification activities such as these directly influence hiring, promotion, and demotion practices affecting employees and job applicants.

This department strives to insure that those procedures we follow in such employment practices are fair and in accordance with all related Federal and State laws. Proper classification practices and the subsequent requirement of good job analysis

information can be demonstrated by looking at the proposed regulations of the Equal Employment Opportunity Commission governing testing. (See single underlined sections of Appendix I.) Jurisdictions such as ours will be legally as well as professionally obligated to substantiate our classification work and decisions with job analysis information should standards such as these be adopted.

What job analysis information (K.A.S. and P.C.) can do for examination development and validation is to provide those professionals concerned with creating job-related, valid and reliable screening devices, the information necessary to make proper decisions on what kinds of devices to use, what their content should be, and how much emphasis to place on specific content areas. As selection devices also directly influence hiring, promotion, and/or demotion practices, those in positions of developing such instruments are professionally and legally (see double underlined sections of Appendix I) responsible to show that their decisions are founded upon job analysis information.

Knowledge, ability, skill, and/or personal characteristic job information, while assisting in the areas of classification and selection, will also be used by this department in setting salaries. Job evaluation is the formal title given to the analysis of jobs for wage and salary administration. This department uses primarily the point factoring system of job evaluation which requires a thorough knowledge of the characteristics of work of all evaluated classes. As the (K.A.S. and P.C.) assessment process results in the documentation of accurate work characteristics, this information serves as valuable input to any and especially a point factoring job evaluation study.

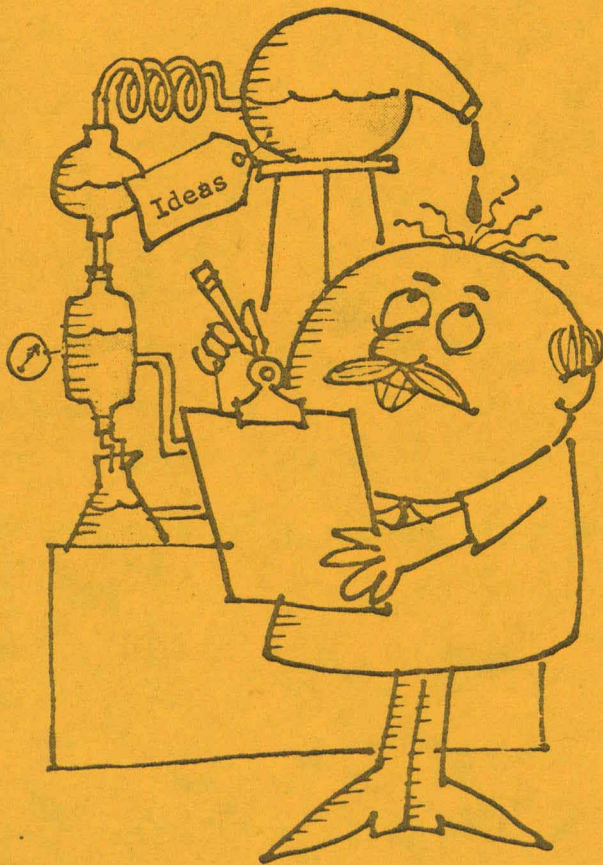
Coming as a spin-off benefit, classification and selection job analysis information is also useful in the area of recruitment. The need to know K.A.S. and P.C. is of vital importance to decisions rendered in such matters as: where do we go for job recruits, what kind of recruitment do we use, what do we tell applicants they can qualify for, and at what educational level do we address our recruitment literature?

As an analyst in this department your day-to-day activities will center primarily on the areas of examination and/or classification. The knowledge you develop through job analysis will also be drawn upon to assist others working more actively with the wage and salary and recruitment programs.

Job analysis provides the job related information for many kinds of decisions in the field of public administration. The knowledges, abilities, skills and personal characteristics it defines are most often utilized in labor relations, training, recruitment, classification, selection, wage and salary, and performance evaluation activities. Your specific application will be in the areas of classification and examination with related benefits to the wage and salary administration and recruitment programs.

Section III

WHAT SHOULD YOU
BE THINKING
ABOUT?



SECTION III - WHAT SHOULD YOU BE THINKING ABOUT?

Architects, in building a skyscraper, not only concern themselves with putting a good foundation under the floors to come, but how well the foundation and subsequent floors are to be built. Many variables influence decisions made during the planning stage like: the weather, building codes, labor costs, material costs, money availability, and more. These factors often alter, while the project is underway, the building's final appearance.

Like the architect, the job analyst has many things to consider when planning his study and deciding the techniques to use in building his job information. As the job analyst, you must consider such things as: equipment, mailing and travel expenses, timing, manpower needs, and manpower availability.

Initially, you must establish the purpose for your study. If your study is directed at resolving selection and/or recruitment problems, your final product should be worker characteristics - those knowledges, abilities, skills and/or personal characteristics needed by the applicant or employee to adequately perform the job.

If your study is intended to assist in classification work, you not only need to know worker characteristics, but you will need to identify what the job requires the worker to do or work characteristics.

Finally, job analysis work for the purpose of resolving wage and salary administration problems requires only that your job analysis activities demonstrate work characteristics.

To more clearly represent what is meant by worker and work characteristics the following example is presented. Let's say we analyzed a chemist working in a criminal laboratory and among other duties he performed identified this job task:

TASK

Identifies and compares tool impressions in the lab in order to
What Where
show similarity between unknowns or knowns using: comparison micro-
Why
scope, binocular microscope, related suspected tools, and a pola-
How
roid camera: by following established written procedural guidelines.

This broadly defined task was then further distinguished by these sub-tasks called behaviors and their related K.A.S. and P.C.:

<u>Behaviors</u>	<u>Knowledges, Abilities, Skills, Personal Characteristics</u>
A. Observe the impression and evidence submitted in order to develop direction of testing.	1. Knowledge of tools and their uses. 2. Ability to observe size and shape.
B. Selects the examination necessary to identify and/or compare impression.	1. Knowledge of the equipment to be used in identifying and/or comparing impressions.
C. Examines tool impressions.	1. Knowledge of tools and their uses. 2. Knowledge of the equipment to be used in examining tool impressions. 3. Knowledge of how to take simple camera snapshots. 4. Ability to take photographs. 5. Ability to operate related lab equipment.
D. Identify and/or compare impressions.	1. Knowledge of tools and their uses. 2. Ability to draw logical conclusions.

The behaviors have a direct relationship to the specific knowledges, abilities, skills and/or personal characteristics shown. This task, its behaviors and their related K.A.S. and P.C. make up what has been referred to as the "work characteristics".

Worker characteristics differ in that they reflect only those aspects of the work that a worker must possess when he comes to the job, and not those he will learn while on the job. Therefore, in the above example, each K.A.S. and P.C. of each sub-task is reviewed to see if it is essential in a newly hired person. Only A-1, A-2, C-1, D-1 and D-2 are essential and these K.A.S. and P.C. then represent the "worker characteristics".

After considering whether your primary task is to ascertain worker or work characteristics or both, you should then review the class of work under study for several factors: how big the class is - its population being represented by the number of filled positions; where its incumbents' are located what its minority population is; and if its positions have similar or dissimilar duties and responsibilities.

These class factors will influence your decisions concerning the specific job analysis techniques to use. For instance, since some techniques require you to travel, and let's say your analysis of the class population indicated that employees were located in the four corners of the State, you might then want to use a technique which does not require travel - presuming travel time, or funds are problems.

Classes that are small may be analyzed utilizing full employee participation rather than evaluating only a representative sample of

the workers. In such cases, you might choose techniques as participatory and time consuming as exist, knowing that upon completion your results would represent a review of all the jobs and the total field of work.

Classes in which a variety of jobs are performed and individual position duties and responsibilities are diversified present problems for such techniques as observation, interview, and film. Careful selection of positions to be reviewed must be made to insure that the job information gathered represents all aspects of work found in the class. A technique which can be used to overcome this problem is the questionnaire.

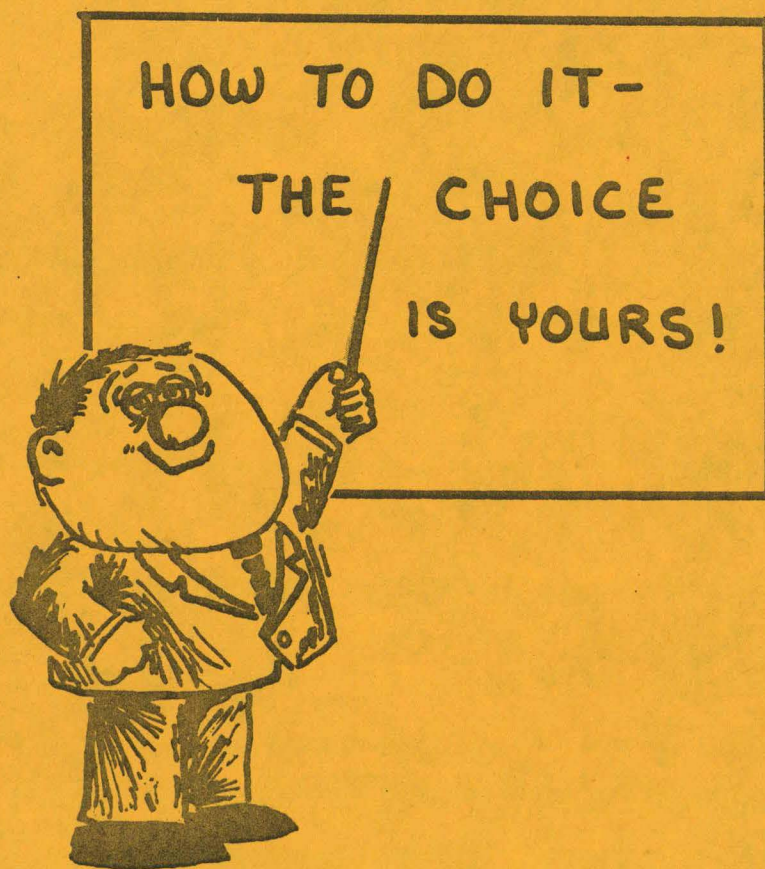
The minority status of the class serves to reflect the accessibility of the work to minorities and the need to utilize techniques like group sessions which more completely analyze the job and provide for direct minority employee participation.

Certainly one of the major considerations in planning your study is how much time you have to complete the project. Limitations of a few weeks will require the utilization of techniques which can be performed from the office. Techniques such as the questionnaire are most useful in these situations. Unlimited time would permit utilizing any one or a combination of techniques.

Finally, some understanding of the agencies who utilize the class and their personnel administrators is useful. Often times such persons choose to be a part of the evaluation process and accommodating them may have a bearing on your choice of techniques.

Preliminary considerations as to the nature of the class to be studied, and the nature of the job information needed, should be reviewed prior to setting a course of action. These considerations will influence the methodology of your study.

Section IV



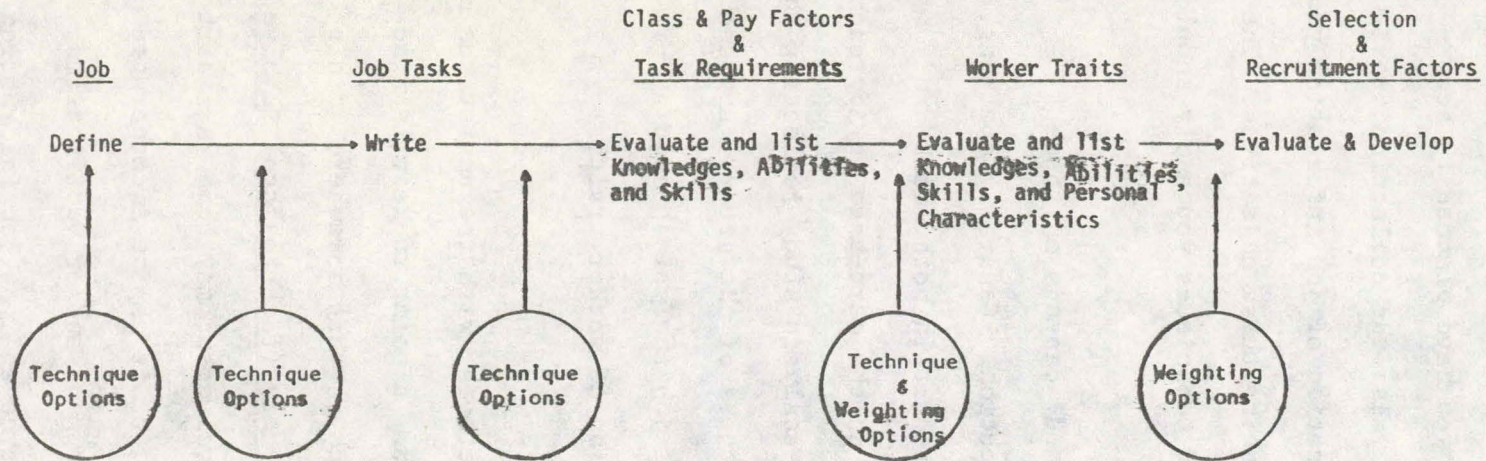
SECTION IV - HOW TO DO IT - THE CHOICE IS YOURS!

How do you begin to perform a job analysis study? Remembering that in your study preparation you have planned to accomplish the major objectives of job analysis: the collection, review, development, documentation and verification of job information you should now establish ways of accomplishing these objectives. The rationale for the steps you follow and techniques you apply should be a part of the study record.

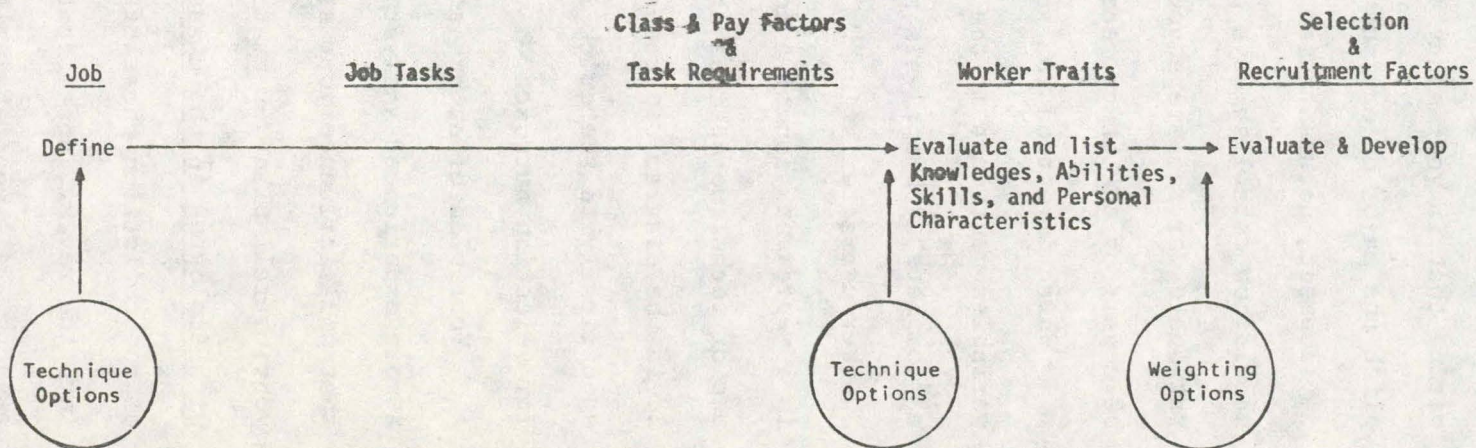
Which direction you go in your study depends on those variables mentioned in the previous section. Generally speaking, a "complete" job analysis study will result in both "work" and "worker characteristics". Diagrammed on the next page in Approach 1. is a representation of a complete job analysis study reflecting the use of technique options at various stages of the study. Approach 2. in the diagram depicts a program of job analysis geared specifically to the quick identification of worker traits for selection purposes.

Your plan of attack and its objectives, with the assistance of a more experienced analyst is your own. A point to keep in mind that will influence your study approach is that somewhere within your overall plan you must become directly (face-to-face) involved with employees in the class. This involvement may come as a part of the collection phase of your study, or it may be incorporated into the review, documentation, development and/or verification aspects. All good analysis have employee-analyst job information

Approach 1



Approach 2



exchanges built into them somewhere. This type of procedure gives the best content validity possible to your overall analysis.

Before you get too involved with your planning remember to lay the ground work for your job analysis activities by contacting concerned agency personnel to explain the purpose of the study and the involvement they will have in its completion.

Looking more closely at the model for a complete job analysis, Approach I, you will see how it provides for the collection, review, development, documentation and verification of job information. For example:

Since the analyst needs to develop in his mind a beginning picture of what the job being studied involves defining the field of work should first be accomplished. This could be handled through the collection and review of job-related "in-house" information. Existing position job descriptions, audit reports, organizational charts, the Dictionary of Occupational Titles, Class Specifications and Standards, related job literature, and selection material would all serve as sources for the analyst to define the job and its' functions.

Next the analyst would identify the actual work tasks. Assuming that in defining the job, all "in-house" material had been exhausted, the analyst must then decide which technique to use in order to isolate the actual job tasks and learn the what, where, how, when, and why of the work. Techniques available, as you may remember, are the group session, observation, the personal interview, the questionnaire, the work log, and film. In this example time and class conditions permit utilizing employees in the collection, review and development of relevant task statements.

Employees utilizing the "group session" concept would then be gathered together and presented the rough job definition and task statements developed from the preliminary work. They would be asked to approve, disapprove, rework and develop relevant job tasks.

Verification of this information could then be accomplished through the utilization of job information gathered by another job analysis technique. Since in this example employees have already been used in a direct face-to-face way, they would not need to be directly involved in this phase of the study. In-house source material has been used so the techniques of observation, film, questionnaire, and work diary would now be considered. The material developed through utilizing one of these techniques is then reviewed by the analyst and it would either verify the tasks developed or raise issues requiring further analysis.

From the verified task statements the analyst would next ascertain their related knowledges, aptitudes, skills, and/or personal characteristics. The analyst could write these himself, utilize the employee group session, or build them into a questionnaire he would send out to others employed in the class of work under study.

For classification and selection purposes, the job tasks, knowledges, aptitudes, skills, and/or personal characteristics would finally need to be weighed.

In making these types of planning decisions you are tailoring your study. In performing the techniques, job information will be collected, reviewed, developed, documented and verified. The results are weighed K.A.S. and P.C., and task statements which are used primarily for classification purposes and selection device development.

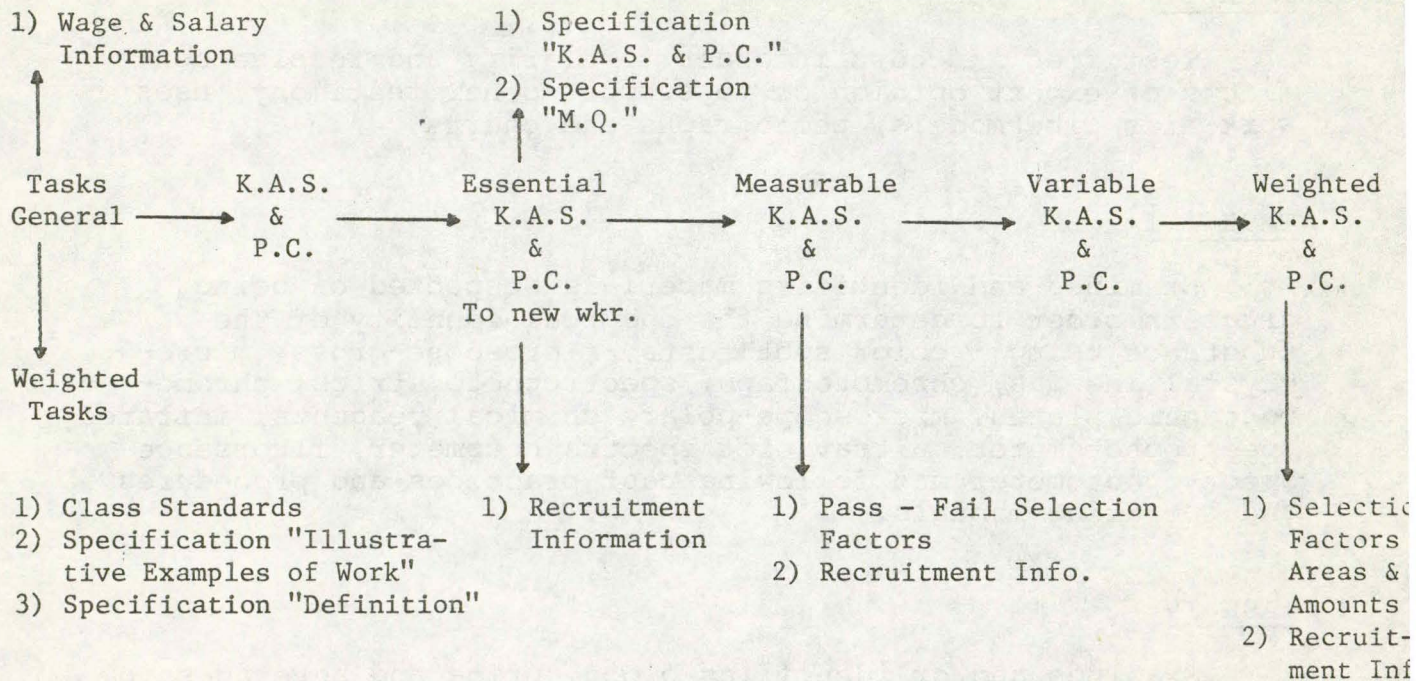
Section V

WHERE DO YOU
GO
FROM HERE ?



SECTION V - WHERE DO YOU GO FROM HERE?

The job information that you have acquired is now ready for further work. To help you better understand its relationship to the fields of classification, selection, wage and salary administration, and recruitment the following flow chart and description is presented:



To elaborate on this, let's again look at the job analysis information developed for the Criminal Laboratory Chemist I classification.

The following general tasks were identified as representing the specific duties and responsibilities of these kinds of Chemist I positions:

B.C.I. CHEMIST I

TASKS

TASK I

Presents testimony or written reports to grand juries preliminary hearings or trial reports in order to interpret, present and defend evidence and test results by using work aids like models, photographs and charts.

TASK II

Testifies in court in order to clarify and resolve conflicts of expert opinion or to support other testimony, uses work aids like models, photographs and charts.

TASK III

Examines and identifies materials suspected of being drugs in order to determine the chemical identity of the substance using: color spot tests, microscope-gross, micro-crystalline gas, chromatograph, spectrophotometrics, chromatographic plates, microscope-polar, chemical reagents, infrared spectrophotometer, ultraviolet spectrophotometer, fluorescence spectrophotometer and following past practices and procedures and operating manuals.

TASK IV

Examines and/or identifies blood, urine and beverages in order to ascertain alcohol content using: gas-chromatograph, volumetric analyzer, chemicals, glassware, Bunsen burner and following operating manuals.

TASK V

Learns drug analysis test techniques and procedures in order to develop proficiency and independent activity using literature, experienced personnel, federal training programs and work experiences.

TASK VI

Learns alcohol analysis test techniques and procedures in order to develop proficiency and independent activity using literature, experienced personnel, federal training programs and work experiences.

TASKS (Continued)

TASK VII

Attends court in order to observe expert testimony practices.

TASK VIII

Examines, identifies and compares hair, fibers and physiological body fluids in order to show similarity between unknowns or knowns using: micro-analysis comparison and plain microscope, polaroid camera, chemical reagents, electrophoresis, following operating manuals and procedures.

TASK IX

Learns hair, fiber and physiological body fluids test techniques and procedures in order to develop proficiency and independent activity.

TASK X

Examines, identifies and compares paint, glass, metal, soil, flammable liquids, incendiary devices and bomb contents in order to compare substances (paint, glass, soil) with knowns and to identify substances (flammable liquids, incendiary devices, bomb contents) using: microscopes, chemical spot test, sieve analysis, density gradient tubes, atomic absorption, emission spectrograph, polarizing microscope, x-ray diffractometer, gas chromatograph, following operating manuals and procedures.

TASK XI

Learns chemistry and physical analysis techniques and procedures related to paint, glass, metal, soil, flammable liquids, incendiary devices and bomb contents in order to develop proficiency and independent activity.

TASK XII

Writes laboratory reports and "bills of particular" in order to reflect test procedures, data and/or conclusions using standard writing tools and following general content guidelines.

TASK XIII

Develops simple maps and charts in order to illustrate numerical or statistical data using standard graphic equipment.

TASKS (Continued)

TASK XIV

Assembles daily and monthly activity figures in order to present work activity in all lab areas.

TASK XV

Receives, processes and returns materials submitted to the lab in order to be processed and to maintain the chain of custody.

TASK XVI

Identifies and compares fingerprints, footwear, tire treads, serial numbers, foot-palm impressions in order to identify persons and/or materials used in criminal activities or disaster victims using: hand magnifier, fingerprint comparator, fingerprint equipment, acids and other etching solutions, polaroid camera following principles and practices outlined in State, Federal law enforcement academy training and procedure manuals.

TASK XVII

Identifies and compares tool impressions in order to show similarity between unknowns or knowns using: comparison microscope, binocular microscope, related suspected tools and polaroid camera.

TASK XVIII

Identifies and compares fired bullets, cartridge cases, distance determinations, firearm discharges and residues in order to determine the physical and chemical aspects of unknowns and to show similarities to knowns using: comparison microscope, binocular microscope, emission spectrograph, atomic absorption spectrophotometer, bullet trap, shot trap, micrometers, calipers, chemicals, analytical balance by following text book and course work literature and instructions.

TASK XIX

Learns physical and chemical analysis techniques and practices of fired bullets, cartridge cases, distance determinations, firearm discharges and residues in order to develop proficiency and independent activity.

TASKS (Continued)

TASK XX

Collects physical materials at the scene of crimes in order to preserve and document material for future identification purposes using: gloves, vials, plastic bags, scalpels, tweezers, magnifying glasses following B.C.I. crime investigating agent's instructions.

TASK XXI

Drives a state automobile in order to reach crime scenes and make court appearances under, occasionally, specific instructions of B.C.I. investigating agent or department automobile operating regulations.

TASK XXII

Prepares and gives speeches to public and private groups in order to provide general information about the crime lab using normal audiovisual aids.

TASK XXIII

Conducts tours for any interested persons in order to show them the laboratory facilities.

TASK XXIV

Instructs law enforcement personnel in techniques and methods of collecting physical material in order to achieve a basic level of knowledge concerning evidence collection using routine training aids.

TASK XXV

Examines and/or identifies blood, urine, body fluids and tissues in order to ascertain drug and or poison content using: color spot tests, microscopic-gross, microcrystalline, chromatograph, spectrophotometers, chromatograph plates, chemicals, infrared spectrophotometer, ultraviolet spectrophotometer, florence spectrophotometer, gas chromatograph, columetric analysis, glassware, Bunsen burner, C. O. oximeter, x-ray diffractometer, emission spectrograph, blender following operating manuals and guides.

TASKS (Continued)

TASK XXVI

Learns chemistry and physical analysis techniques and procedures in blood, urine, body fluids and tissues in order to develop proficiency and independent action.

TASK XXVII

Maintains laboratory equipment in order to insure its operability using: cleaning fluids and simple tools following maintenance manuals.

From these general task statements a classification specification was developed.

The following class specification "Definition" and "Illustrative Examples of Work" sections represent direct applications of this job information.

Following this class specification is part of a point factor job evaluation system. By looking it over and from reading the tasks you will see how points were arrived at for the class, and then used in determining its overall salary range.

IOWA

CRIMINAL CHEMIST I

DEFINITION

Under general supervision, learns how to and performs various chemical and physical examinations, results of which are used in court proceedings; performs related work as required.

ILLUSTRATIVE EXAMPLES OF WORK

Learns drug, alcohol, firearm, hair, fiber, physiological body fluid, paint, glass, metal, soil, flammable liquid, incendiary device, bomb, blood, urine, and tissue analysis test techniques and procedures.

Identifies and compares tool impressions, fired bullets, cartridge cases, firearms discharges, fingerprints, footwear, tire treads, serial numbers and foot-palm impressions.

Examines and identifies materials substances suspected of being drugs; examines and identifies blood, urine, body fluids and tissues when suspected of containing drugs, including alcohol.

Examines, identifies, and compares hair, fibers, physiological body fluids, paint, glass, metal, soil, flammable liquids, incendiary devices, bombs against known like materials.

Testifies in court or present written reports on results of laboratory analysis.

Drives to crime scenes to collect physical evidence for analysis.

Instructs law enforcement personnel in the techniques and methods of collecting physical material.

Writes laboratory reports, assembles daily and monthly work activity information.

Prepares and gives speeches to public and private groups concerning general crime laboratory activities.

Maintains laboratory equipment in operating order using cleaning fluids and simple tools.

KNOWLEDGES, ABILITIES, AND SKILLS

Knowledge of chemistry and biochemistry; of the physical characteristics of paint, glass, metal, soil, flammable liquids, incendiary devices, bomb contents, hair, fibers, physiological body fluids, fingerprints, footwear, tire treads, serial numbers, finger-foot-palm impressions, blood, urine and tissues; of basic laboratory equipment; of safe handling of firearms; of tools and their uses; automobile operating laws, rules and regulations; and of methods of illustrating information.

Ability to communicate effectively orally and in writing; to read technical and/or scientific literature; to learn; to recognize hazardous situations; to draw logical conclusions; to follow instructions; to add simple numbers; to distinguish sizes, shapes and colors; and to drive a car.

Skill in the operation of basic laboratory equipment and chemicals.

EDUCATION, EXPERIENCE, AND SPECIAL REQUIREMENTS

Minimum thirty(30) semester hours (or its academic equivalent) of college course work in the field of chemistry; or an equivalent

combination of education and experience substituting one (1) year of laboratory chemical analysis experience for 8 semester hours of the required chemistry course work to a maximum of four (4) years or 30 semester hours.

NECESSARY SPECIAL REQUIREMENTS

Possession of a valid driver's license and normal color perception.

JOB EVALUATION MANUAL

47

I
O
W
A

merit system

2.2 RESPONSIBILITY FOR POLICY, METHODS AND PROCEDURES: This factor evaluates the responsibility vested in a class for the execution or organization of policies, methods and procedures. It would include "functional" guidance of others or any form of guidance, advice or control exercised over employees not under the supervision of the class in a direct or recognized line of authority. The factor would measure the incumbent's function to make recommendations, give or render interpretations or express conclusions of personal opinion, knowledge and independent thinking rather than just to supply factual information or data, as such. There is present the developing or improving methods of work in the positions of other classes and there may be substantial influence or effect upon the methods, procedures or courses of action selected and approved by others not subordinate to the incumbent in a recognized line of authority or put into effect by other than the incumbent or his subordinates.

DETERMINATION OF DEGREE: Each sub-factor is expressed in terms of the importance of recommendation and responsibility for the origination or execution, or both, and the jurisdiction and type of guide line. Select the sub-factor and degree most applicable to the class being evaluated.

DEGREE

SUB-FACTORS	1 10 Points	2 25 Points	3 50 Points	4 85 Points	5 130 Points	6 185 Points
Responsibility for execution of policies, methods and procedures	Performs operations in which responsibility is limited to following or carrying out existing methods and procedures related to duties of own position, requiring either formal education, prior experience or short on-the-job training period.	Responsibility for carrying out, interpreting and enforcing existing methods and procedures related to duties of (a) sub-professional, sub-technical, craft or clerical staff positions; (b) small group of non-professional positions; (c) an individual professional position.	Responsibility for carrying out, interpreting and enforcing existing policies, methods and procedures related or applicable to (a) staff position or small operating unit of non-professional positions; (b) an individual professional, technical or managerial position	Responsibility for same functions as Degree 3 (execution variable) but as applied to a large operating unit of non-professional positions or, a small unit of professional, technical or managerial positions.		
Responsibility for origination of policies, methods and procedures	Methods developed by others	Methods developed by others, responsibility for improvement of routine operations	Responsibility for assisting in originating and developing intra-unit procedures related or applicable to (a) small operating unit of non-professional positions; (b) an individual professional, technical or managerial position; (c) employees on complex jobs	Responsibility for assisting in originating intra-unit policies, methods and procedures related to (a) a highly specialized professional, technical or managerial position; (b) small unit of professional, technical and management positions (c) large unit of non-professional positions	Major responsibility for assisting in the formulation of administrative policy within a medium sized agency or institution	Major responsibility for assisting in the formulation of policies, methods and procedures in an applicable specialized unit throughout the state or for a large agency or institution.
Responsibility for origination and execution combined			Major responsibility for developing, coordinating and executing policy for a small agency of limited scope and complexity	Policies and methods affecting (a) small agency or institutions; (b) major unit of a medium size agency or institution	Major responsibility for developing, coordinating and executing intra-unit policy and methods affecting either (a) specialized units within medium sized agency or institution (b) all operating, administrative and maintenance units within a medium sized agency or institution; (c) a large highly specialized unit within an agency or institution.	Major responsibility for approving, coordinating and executing policy, methods and procedures affecting large units, divisions within a large agency or institution

JOB EVALUATION WORK SHEET

Family Group CHEMIST

Bench Mark Class(s) CHEMIST I - CRIMINAL LABORATORY
Survey

CLASS TITLE AND CODE NUMBER		CHEMIST - I												
PREPARATION FOR THE CLASS	1. Education	130												
	2. Experience	-												
RESPONSIBILITIES OF THE CLASS	1. Supervision Exercised	-												
	2. Policies, Methods & Procedures	25												
	3. Personal Contacts	60												
	4. Records, Reports, Information & Money	40												
	5. Material Items	60												
	6. Safety &/or Welfare of Others	40												
PERSONAL DEMANDS	1. Physical Demands	15												
	2. Mental Demands	100												
	3. Mental Skills	65												
	Working Conditions	10												
TOTAL POINTS FOR THE CLASS		545												
WAGE GRADE		12												
Salary Grade		22												

STATE OF IOWA

IOWA MERIT EMPLOYMENT DEPARTMENT

The general task statements were shown to be directly related to specific knowledges, abilities, skills and personal characteristics which were reviewed in three separate ways. This review of K.A.S. and P.C. initially involved asking if the K.A.S. and P.C. resulting from the tasks were essential for a newly hired employee to have?

The Chemist I K.A.S. and P.C. subjected to this evaluation are listed below:

Knowledge of chemistry and biochemistry; of chemistry and biochemistry as they relate to the specific areas of paint, glass, metal, soil, flammable liquids, incendiary devices, bomb contents, toxicology, microanalysis, drugs, firearms, toolmarks, fingerprints, blood alcohols, hair fibers, physiological body fluids and tissues; of the physical characteristics of paint, glass, metal, soil, flammable liquids, incendiary devices, bomb contents, hair fibers, physiological body fluids, fingerprints, footwear, tire treads, serial numbers, and finger-foot-palm impressions; of basic laboratory equipment; of specific laboratory equipment used in performing tests in the areas of paint, glass, metal, soil, flammable liquids, incendiary devices, bomb contents, toxicology, microanalysis, drugs, firearms, toolmarks, fingerprints, blood alcohols, hair, fibers, physiological body fluids and tissues; of drugs, their physical appearance, packaging and equipment used in utilization; of drugs and poisons; of the types and physical characteristics of firearms and related materials; of the safe handling of firearms; of tools and their uses; of how to operate a camera;

of automobile operating laws, rules, and regulations; of test item construction; of the proper use of audiovisual aids; of testing procedures used in evaluating paint, glass, metal, soil, flammable liquids, incendiary devices, bomb contents, etc.; of the proper collection procedures and documentation procedures of evidence; of agency reporting procedures; of source material locations; of methods of illustrating information; of office procedures regarding the receipt, process and return of analysis materials; and of the nature of physical evidence.

Ability to communicate effectively orally and in writing; to visually follow activities; to read technical and/or scientific literature; to learn; to follow instructions; to recognize poor or inappropriate court testimony; to recognize hazardous laboratory situations; to draw logical conclusions; maintain composure while under cross-examination; to add simple numbers; to convert raw data to weight and volume figures; to distinguish sizes, shapes and colors; to operate analysis equipment; to use audiovisual aids; to drive a car; to take photographs; to use simple tools; and to read schematics.

Skill in the operation of equipment and the use of chemicals.

The following list represents those K.A.S. and P.C. deemed essential characteristics to a newly hired chemist in order for him to perform the work satisfactorily:

Knowledge of chemistry and biochemistry; of the physical characteristics of paint, glass, metal, soil, flammable liquids, incendiary devices, bomb contents, hair, fibers, physiological body fluids, fingerprints, footwear, tire treads, serial numbers, finger-foot-palm impressions, blood, urine and tissues; of basic laboratory equipment; of safe handling of firearms; of tools and their uses; automobile operating laws, rules and regulations; and of methods of illustrating information.

Ability to communicate effectively orally and in writing; to read and understand technical and/or scientific literature; to learn; to recognize hazardous situations; to draw logical conclusions; to follow instructions; to add simple numbers; to distinguish sizes, shapes and colors; and to drive a car.

Skill in the operation of basic laboratory equipment and chemicals.

This information was used to develop additional classification material as well as recruitment data. Examples of the application of this kind of information can be seen in the previous class specification's "K.A.S. and M.Q." sections and the following example of recruitment literature.

No High School Diploma?

Need a Job?

See

ME

54

Eighth Grade Education...
High School Graduate...
Work Experience

See ME for a Job

If you quit school before finishing high school or if you're a high school graduate, Iowa government may have the job you've been looking for. Every day, Iowa government departments and institutions are looking for people to fill many different jobs. A lot of these jobs require only a minimum of education or experience. Several jobs do not require you to take a written test.*

In some of these jobs, work experience can be substituted for education or education can be substituted for experience. An approved high school equivalency certificate or successful completion of the General Educational Development (GED) Test can be substituted for actual high school graduation.

Many salaries listed are recommended for increases shortly. Please check on updated salary information.

Look over the following list, check the jobs that interest you and then follow the easy steps to getting the job you want.

Job Number	Job Title	Monthly Salary (Subject to Upward Revision)
00260	Mail Clerk I	\$373-\$502
02105	Activities Aide	\$392-\$527

Office and Clerical

00010	Utility Office Worker	\$307-\$392
02015	Nursing Assistant I	\$355-\$478
02050	Public Health Nursing Aide	\$307-\$392
03005	Community Program Aide I	\$338-\$433
03006	Community Program Aide II	\$373-\$502
03205	Mental Health Worker I	\$355-\$478
03210	Child Development Worker I	\$355-\$478
03220	Foster Grandparent	\$322-\$412
03065	Dormitory Supervisor	\$338-\$433
03225	Geriatric Worker I	\$355-\$478
03250	Drug Abuse Counselor Trainee	\$355-\$478

04301	Construction Aide	\$433-\$581
05300	Conservation Aide	\$307-\$392
05165	Laboratory Aide	\$355-\$478
05424	State Waters Aide	\$355-\$478

07005	Custodial Worker	\$373-\$502
07105	Watchman	\$392-\$527
08005	Maintenance Worker I	\$412-\$553
08365	Automotive Serviceman	\$412-\$553

07200	Food Service Worker	\$338-\$433
07305	Laundry Worker I	\$338-\$433
07315	Linen Room Attendant	\$338-\$433

The essential K.A.S. and P.C. were further evaluated to determine their utility for selection purposes. This was accomplished by asking (1) Is there a way of measuring this K.A.S. or P.C. quantitatively? If the answer was "no", it was dropped from consideration; if it was "yes", then this question was asked (2) Would varying amounts of this K.A.S. or P.C. cause varying levels of job effectiveness? If "no", then the K.A.S. or P.C. was considered only as a qualifier (pass/fail) factor; if the answer was "yes", the item(s) were then subjected to weighting.

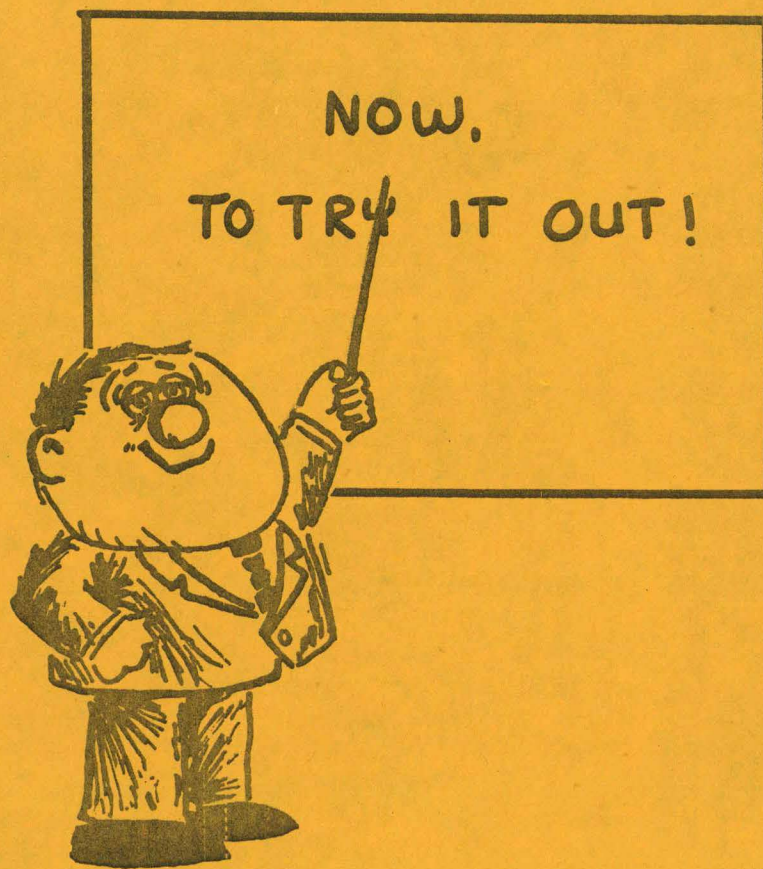
All K.A. and S. meet the first question criteria for "yes". Knowledge of automobile operation laws, etc., was eliminated from selection considerations as the requirement of a driver's license in the job qualifications adequately tested for this factor. The second question resulted in "no" for these factors: Ability to distinguish size, shape and colors; to recognize hazardous situations; to add simple numbers; and to drive a car. Also, "no" was the response for "skill in the use of basic equipment and chemicals".

The factors once weighed were further evaluated against such considerations as (1) the employee probationary period serving as the test (2) cost and ease of administration of the selection devices and (3) the reliability of different testing devices. The selection composition arrived at is demonstrated on the following page.

As you see, job analysis information is used in this agency in several ways. It has direct application to our wage and salary, classification, selection and recruitment programs.

This manual is not intended to give the details on how to use job analysis information in each of these areas. It is important, however, that you begin by seeing in what ways job analysis information will be used.

Section VI



SECTION VI - NOW, TO TRY IT OUT!

This section of this training manual uses a technique called "programmed instruction", in which the material is presented in small steps, reiterating in each step only small "bits" of the information previously discussed in this manual. You will frequently have to complete statements or answer questions about the material as you are reviewing it. Each bit of information in this section is presented in its own numbered box, or frame, like this:

Page 41

(TEXT)

Page 41

Given a student with the necessary prerequisites, which of the following, in your opinion, would be most dependent on his intelligence?

1. Whether he gets through the program or not. Turn to page 42.
2. How much he knows about the subject upon finishing. Turn to page 45.
3. How long he takes. Turn to page 46.

If you turned to one of the above pages you would find:

Page 42

(from page 41)

Page 42

(from page 41)

No, there is little correlation between the student's intelligence and his ability to get through a program. The only difference is that bright students go faster.

Please return to page 41 and
select another alternative

(TEXT)

Page 45

(from page 41)

Page 45

(from page 41)

There seems to be no evidence that a difference in intelligence is reflected in the amount learned from a program.

The assumption is now made that if a student meets the prerequisites and finishes the program, he will score about the same as anybody else on the examination regardless of his I.Q.

Please return to page 41 and
select another alternative

(TEXT)

Right! Given a student with the necessary prerequisites, the only difference intelligence seems to make is in the time it takes to get through the program.

(TEXT)

(Note: When you are referred to page 46, where the correct answer is confirmed, the next unit of information to be learned is presented on that or another page and the same pattern illustrated on page 41 is followed throughout this programmed section).

-
- A. You have been asked to perform a job analysis study on a class entitled Employer Liability Auditor II.

Initially, you know that regardless of all other considerations your study will be concerned with the _____ of job information.

1. Location of employees in the class and subsequently the location - page 3.
2. Collection, review, development, documentation, and verification - page 2.
3. Work and worker characteristics isolation - page 4.

-
- B. You are also told that this study is intended to resolve existing problems with the class specification and selection procedures.

Your study objective should be to establish knowledges, abilities, skills and personal characteristics of the worker as well as the work. This is _____.

1. True - page 2.
2. False - page 3.

-
- C. Knowing that your time to complete this project is limited, your next step should be to _____.

1. Contact the agency to inform them of the study - page 2.
 2. Evaluate the class - page 3.
 3. Randomly select employees to be surveyed - page 4.
-

Page 1A

Yes, since you don't know the purpose of the study you can't be sure if work or worker characteristics are needed. The location of employees may be useful to you in picking your analysis techniques, but with only this information the only thing you can be sure of is that regardless of all other factors - all job analysis studies involve these common characteristics.

Go on to Item B, page 1

Page 1B

Since our purpose is to resolve classification and selection problems, we will have to carry our work beyond the identification of work characteristics.

Go on to Item C, page 1

Page 1C

No. This should be done once you have completed your study planning process. At this point more planning is necessary.

Please return to page 1 and select another alternative.

-
- A. Review of the class reveals that there are 33 positions 28 of which are physically located outside of Polk County. No employees are minorities, and all positions appear to perform basically the same duties and responsibilities.

This information helps you finalize your study plan because _____.

1. You now know that with 28 positions located outside the immediate area, travel will be difficult and a technique should be employed which minimizes this problem - page 4.
2. The absence of minorities means you do not need to utilize techniques which involve employee participation - page 5.
3. You can get a representative sample of the work directly from employees right in your immediate area - page 3.

Page 1A

No. This information may be useful in your decisions regarding which technique to use, but other considerations may influence this also. The question seeks an answer more basic to all job analysis systems.

Please return to page 1 and
select another alternative.

Page 1B

As we will need specific information about the nature of the job as well as the worker to perform it - both work and worker knowledges, abilities, skills, and personal characteristics will be necessary.

Go to Item C, page 1

Page 1C

Yes. You have your basic study and specific analysis objectives in mind; it is now important to review the class.

Go on to Item A, page 2

Page 2A

The absence of minorities does not mean face-to-face contact is to be eliminated, and picking a technique which reduces your travel time is unnecessary as you have enough of a sample close at hand to bring employees to you. The fact that these employees do the same work as those outside the area permits you to plan your initial phase around limited employee participation.

Go on to Item A, page 3
below

-
- A. What would you do next?
1. Contact the employing agency to explain study - page 5.
 2. Formalize your plan - outlining techniques to be used - page 4.
 3. Begin to develop background job information - page 6.

Page 1A

No. Work or worker characteristics are objectives of job analysis studies and can only be established as objectives once the purpose of the study is known. At this time you do not have enough data to say what your objectives are!

Please return to page 1 and
select another alternative

Page 1C

Randomly selecting employees may be necessary - due to time constraints, then again it may not. It is premature to make this decision at this point in your planning process.

Please return to page 1 and
select another alternative

Page 2A

It is true that with 28 positions outside of the immediate area you should be concerned about travel; however, electing a technique like questionnaire to better canvas these employees is not necessary.

Please return to page 2 and
select another alternative

Page 3A

As your approach will be reviewed by other staff members and as you personally will want to set out all your steps and procedures, this is the time to document the choices you make in your planning activity, then inform the agencies concerned.

Go on to Item A, page 4
below

-
- A. Diagramming your plan as you see it would result in something close to which of the following:

Page 2A

The presence of minorities is intended to only serve as a guide to the need for electing techniques with greater employee participation. The need for direct personal contact in your study still exists and the lack of minorities should not direct your attentions away from this planning consideration.

Please return to page 2 and
select another alternative

Page 3A

You will want to inform the agencies, but as yet this is not the best time.

Please return to page 3 and
select another alternative

Page 4A

If your plan resembles this one you are on the right track as you will accomplish the collecting, review, development, documentation and verification of job information. This process permits the direct fact-to-face contact desired in a job analysis, and it gets work as well as worker data as fast as is possible by eliminating travel problems. Weighting methods used are less complicated and thereby speed up the overall operation.

Go on to Item A, page 5
below

A. Having mapped out your study approach and then conveying it to the employing agency, you now begin to define the job for yourself and to prepare tentative job tasks and K.A.S. and P.C. lists for your employee sessions. On a separate sheet of paper, see if you can list those inhouse materials you should now consult. _____ Turn to page 7.

B. From the inhouse material you isolate this preliminary job function "audits employers payroll records in depth and in detail for compliance with related State and Federal unemployment insurance laws".

What tentative K.A.S. and P.C. would you develop from this? Turn to page 6.

Page 3A

You have some other things to do before you take this step.

Please return to page 3 and
select another alternative

Page 4A

This procedure is fine if your purpose is one of primarily developing worker characteristics to be used in selection studies. Since this study is to get at classification information as well as selection, this plan is not acceptable.

Please return to page 4 and
select another alternative

Page 5B

Knowledge of community employers, their physical locations and employment practices.

Knowledge of payroll accounting practices.

Knowledge of State and Federal Unemployment Insurance laws.

Ability to add, subtract, divide and multiply numbers.

Ability to communicate effectively orally.

Go on to A Below

-
- A. In validating the job information developed by your employee group you elected to use a random surveying of the 28 positions located outside of the Polk County area.

Which questionnaire method of those presented to you in the appendix would be best?

1. P.D.Q. Merit Forms M2 A & R Page 7
2. P.A.Q. Page 8
3. Illinois "Professional" Form Page 9
4. One made up of Tasks & K.A.S. & P.C. isolated by the employee group Page 10

Page 4A

If your plan resembles this one, you are on the right path; however, your choice of job interviews and the Wisconsin weighting method are two techniques which tend to require travel and more study time to complete. As you are under some constraints to do this in as short a time as possible, other techniques would be more useful.

Please return to page 4 and
select another alternative

Page 5A

Remember that a variety of things are available including: audit reports, specifications, class standards, selection device outlines and material, D.O.T., class or occupational literature, U.S. Dept. of Labor Handbook of Jobs, Encyclopedia of Careers, organizational

Please go on to B, page 5

Page 6A

This method is best in that it will help to confirm the tasks and K.A.S. and P.C. isolated by the employee group, and can be initiated while other job analysis tasks are underway, thereby saving time. It also will be easy for the incumbents to fill out. The P.A.Q. would be difficult for incumbents to fill out, the Illinois form would not get at job tasks well enough, and developing your own requires that you wait for the employee sessions to complete their work - thereby taking more time.

Go on to A below

-
- A. The employee group developed 25 work tasks and 45 related K.A.S. and P.C. which have been subsequently verified by you.

What do you plan to do next with the task information?

1. They should be reviewed for their essentialness to a newly hired person - page 8.
 2. They can be ignored as they have only led to the K.A.S. and P.C. desired - page 9.
 3. They should be weighted for use in developing the class specification and standards - page 10.
-

This form will not be the easiest to get employees to understand and it requires quite a bit of time to complete.

Please return to page 6 and
select another alternative

Even though task statements led to K.A.S. and P.C. the question of essential or non-essential refers to those K.A.S. and P.C. required to perform the task. Therefore, such a review should be directed at the K.A.S. and P.C. Tasks are useful for other purposes.

Please return to page 7 and
select another alternative.

A. The knowledges, abilities, skills, and personal characteristics you now have are called worker characteristics. This is

1. True page 10
2. False page 9

B. In weighting worker characteristics you have selected the Minneapolis system for it's simplicity and quickness. Assuming these K.A.S. and P.C. were isolated and verified, which of them would answer all the questions to be asked in "yes"?

- A. Knowledge of community employers employment practices.
- B. Knowledge of the physical location of community employers.
- C. Knowledge of payroll accounting procedures.
- D. Knowledge of State and Federal unemployment insurance laws.
- E. Ability to add, subtract, divide and multiply numbers.
- F. Ability to communicate effectively orally.

1. A, B, C and F Page 10
2. C, E and F Page 9
3. C, D, E and F Page 11

Page 6A

The Illinois "Professional" form is geared primarily to the isolation of worker characteristics and therefore will not help you confirm your tasks and classification information.

Please return to page 6 and
select another alternative

Page 7A

Since our original purpose was to develop job information for both classification and selection areas, we will use the task information.

Please return to page 7 and
select another alternative

Page 8A

These are work rather than worker characteristics as they may represent some K.A.S. and P.C. not essential for the new employee to bring with him to the job.

Go on to Item B, page 8

Page 8B

Yes. Only these three characteristics can be considered as absolutely essential for a newly hired employee to possess. As others did not meet the first criteria, there is no need to subject them to further evaluation. Each of the three could be measured and, if measured, would reflect varying levels of the K.A.S. and/or P.C. which would result in varying levels of job effectiveness.

Go on to Item A, below

A. In terms of job analysis activities and the objectives of this study, your last and final procedure is to _____.

1. Rank those K.A.S. and P.C. determined to be worker traits - page 11.
 2. Develop selection device content and write job qualifications and specification standards - page 10.
-

Page 6A

This method, using employee data, is by far the best method in that you would be getting specific confirmation on those K.A.S. and P.C. already deemed job-related by people in the class. However, this study has time constraints and in this approach you must wait for the employee to finish and then draft a form or questionnaire. Another method of getting this material validated sooner needs to be considered.

Please return to page 6 and
select another alternative

Page 7A

As these tasks can be used in the "Illustrative Examples" section of the class specification and will be useful in showing distinctions between levels of jobs in the same series in the class standard, they should be weighted - by percentages, to reflect the relative amounts of activity in each area of work.

Go on to A, page 8

Page 8A

No. Worker traits refer to those an employee must bring with him to the job, these K.A.S. and P.C. have not been purged of those elements which are learned by the new employee on the job.

Go on to B, page 8

Page 8B

The knowledge of employer practices and their physical locations are not essential for a new employee to possess. He can learn these things once he gets on the job. Also, new employees will no doubt be trained on the specific legal aspects governing their work.

Please return to page 8 and
select another alternative

Page 9A

These functions may be performed by you in total or in part, but for your purposes job analysis is completed once you have achieved the objectives of collecting, reviewing, developing, documenting and validating job information.

Please go on to Page 11
9A

Page 8B

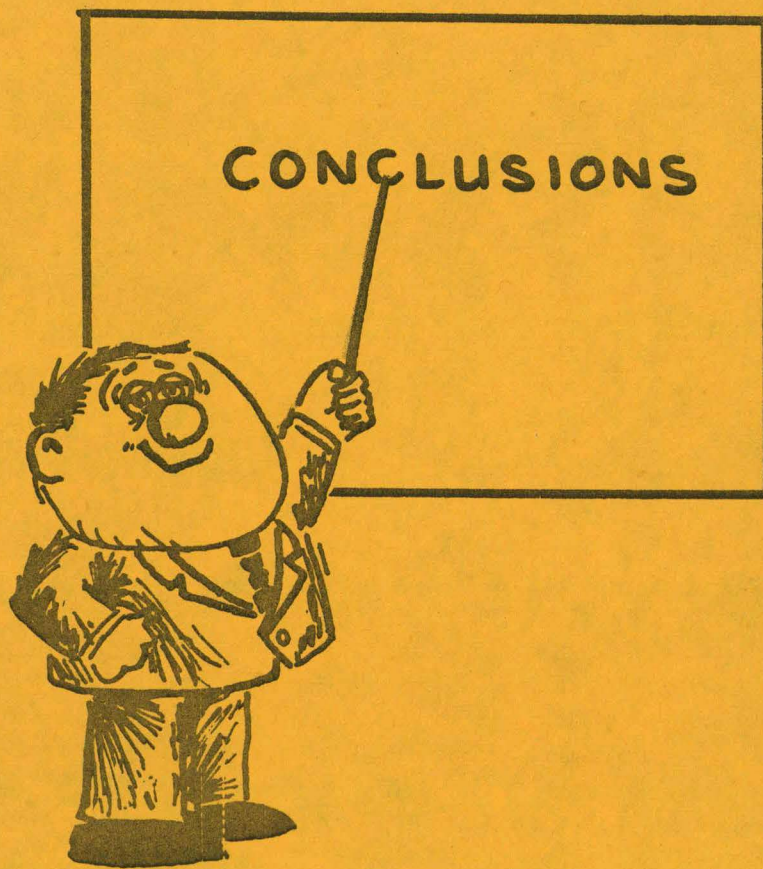
The knowledge of State and Federal unemployment insurance laws is not essential for a newly hired employee to possess - this area will no doubt be covered by an agency training program.

Please return to page 8 and
select another alternative

Page 9A

You now need to rank these worker characteristics and may follow any one of techniques suggested. This final information will then be ready for classification activities and use in setting minimum qualifications by those responsible for the respective program area.

Section VII



SECTION VII - CONCLUSIONS

You have learned what Job Analysis is, what it does, how to do it, and have even tried it out once yourself.

You should now realize that a job analysis study is intended to answer such questions about the job as: What does it entail?, Where is it performed, its relationships etc.?, How is it done - with what equipment, etc.?, When is it done - and what role does it play in planning, coordinating, etc.; and Why is the work performed? By answering these questions job tasks are developed which lead directly to the K.A.S. and P.C. related to the work performed and the background of the worker required to perform them. This information is vital to the decision making process in the areas of selection, wage and salary administration, classification, and recruitment. An example of a finished job analysis study for the purpose of selection decisions is provided in appendix K.

As you may have gathered from this manual, this training is intended to give you only an orientation to the kind of personnel analyst work you will be doing with this agency. Job analysis is important as it is the basis for all the other types of work you will do whether assigned to our classification, selection or recruitment program areas.

Each of these areas will provide you additional training in manual, on-the-job or other form(s) as you are assigned to work in them. In all cases experienced analysts will be present to help you begin to apply this knowledge and to assist you with the additional training material you will receive.

APPENDIX A
JOB ANALYSIS APPROACHES

APPENDIX A

JOB ANALYSIS APPROACHES

A. CRITICAL INCIDENT APPROACH

General Statement of Critical Incident Technique

The Critical Incident Technique is a method of defining a job in terms of the concrete and specific behaviors necessary for successfully performing it.¹

Method of Data Collection²

"This method asks supervisors, employees, or others familiar with a job to record critical incidents of behavior. The incidents are just what the name implies--actual outstanding occurrences of successful or unsuccessful job behavior. Such occurrences are usually recorded in stories or anecdotes. Each one describes 1) what led up to the incident and the setting in which it occurred, 2) exactly what the employee did that was so effective (or ineffective), 3) perceived consequences of the critical behavior, and 4) whether such consequences were actually within the control of the employee."³ These incidents can be gathered by an individual interview with the above mentioned person(s); a group interview with the same people; or by mailing out questionnaires to these individuals. It is usually

¹M. D. Dunnette, Personnel Selection and Placement, (Belmont, Calif.: Brooks Cole Publishing Co., 1966) p. 79

²Many of the ideas explained in this section were extracted from Dr. J. P. Campbell, op. cit., pp. 3-4

³Dunnette, op, cit., p. 79

suggested that many incidents of successful and unsuccessful job behaviors be collected--anywhere from one hundred to several thousand depending upon the scope and complexity of the specific job under consideration. Then, in order to make it easier to define 1) the worker behaviors required on the job, 2) the selection inferences that can be drawn from these statements (that is, what measurement instruments "seem" appropriate, and 3) the comparison of each activity with other activities, it is necessary to "categorize" these statements of critical job behavior. Categories refer to general behavioral dimensions created by clustering similar critical incidents into homogeneous groups. An important function of categories is the way in which they facilitate comprehension of the job description and aid in comparisons with other job descriptions. The total number of individual critical incidents is too much information to deal with all at once. It is a method of summarizing all of these specific observations. Therefore, a premium is placed on developing categories such that: the incidents within each category represent similar behaviors and the incidents in different categories represent behaviors that can be easily distinguished from one another; the title and definition of the categories are specific and unambiguous--usually achieved by requiring the interviewees to agree on both which category is suggested by the incident and which incidents fall into what categories⁴; the categories cover all the major factors that constitute total performance in a particular

⁴P. Smith and L.M. Kendall, "Retranslation of Expectations: An Approach to the Construction of Unambiguous Anchors for Rating Scales," Journal of Applied Psychology, 1963, 47, p. 151

job; and the categories are neither so few and broad that all meaning is lost nor so narrow and numerous that there is too much information with which to deal.

For example, it was determined that several incidents referring to critical clerical behaviors were describing one specific category of a General Clerk's job--"Ability to Work Accurately and Neatly"--and were therefore placed in the category by the test technician. Placements were then double-checked by the original supervisors, etc., and a checklist for this category was constructed (see Figure F-1).

Utilization of Results

Application of the critical incident methodology results in information such as that shown in Figure F-1. The general behavioral dimension "Ability to Work Accurately and Neatly" can, in terms of the content validity procedure, be considered as an examination content area. The critical incidents under this content area can serve as examples of the kinds of employee behaviors that affect job performance effectiveness. The required knowledges and skills can be inferred from these behaviors.

Critical incident information can be used for the additional purposes of constructing job performance rating scales, constructing work sample tests, and identifying training needs.

FIGURE F-1
SAMPLE CHECKLIST OF CRITICAL INCIDENTS

JOB: Clerk Typist I

DIMENSION: Ability to Work Accurately and Neatly

CRITICAL INCIDENTS:

1. Notices an item in a letter or report that didn't appear to be right, checks it, and corrects it.
2. Produces a manuscript with square margins on each side, making it look like a printed book.
3. Notices and corrects an incorrect address on a mailing roster to clients.
4. Uses a Secretary's Manual whenever in doubt about proper usage.
5. Misfiles charts, letters, etc. on a regular basis.
6. Types key information showing size, location, and other data in reversed order because of carelessness.
7. Continually fails to use the dictionary "when in doubt" of a word's spelling because is never in doubt.
8. Makes typing errors and crooked margins so flagrant as to necessitate the retyping of 600-800 pages.

Evaluation

There are several advantages in using a critical incident approach to job analysis. Perhaps the most significant contribution of this approach results from the fact that the incidents themselves reflect actual occurrences of on-the-job behavior and are not arbitrary statements. The justification for the incident lies in the fact that the job performance it describes actually occurred at some time in the past.

The major disadvantages of using this approach are: 1) certain essential employee behaviors may be excluded because no specific incidents were generated by the supervisors involved in the study; this possibility is increased when the instructions restrict the respondents to relating only extremes of job performance; 2) for adequate coverage of all essential job behavior hundreds or even thousands of critical incidents are required--obviously, it would be difficult to generate this many incidents if there were only a few employees in the particular position under study; and 3) the data in critical incident methods are "reports of past occurrences, subject to the distortions that reports of the past are heir to, and it would take skilled interviewers to ferret out the factual from the impressionistic, thus limiting the utility of this method for persons without such skill."⁵

B. FUNCTIONAL APPROACH

General Statement of Objectives

With the functional approach, an analyst studies a job in

⁵Dawis, op. cit., p. 3

terms of "what the worker does in relation to data, people, and things (worker function); the methodology and techniques employed; the machines, tools, equipment, and work aids used.....; the materials, products, subject matters, or services which results; and the traits required of the worker (worker traits)."⁶

Method of Data Collection

Job analysis information gathered by the functional approach is similar to the critical incident method in what it tries to achieve as an end product. However, the procedures of observation and categorization are done primarily by a job analyst--not supervisors or incumbents. The job analyst first familiarizes himself with the general characteristics of the job by reading the job specifications, organizational charts, books, pamphlets, or other relevant literature. Specific information about the job is obtained by observing employees performing their jobs and by interviewing employees, supervisors, or others knowledgeable about the job.

Utilization of Results

The data obtained through the job analysis is organized into descriptions of the work performed (task statements). The functional approaches generally have highly developed systems for organizing the data and describing the tasks in a standardized manner. The system includes a finite vocabulary with detailed definitions for use in

⁶United States Department of Labor, Handbook for Analyzing Jobs, 1972, p. 1. Available from Superintendent of Documents, U.S. Printing Office, Washington, D. C., 20402.

writing the task statements. An example of a task statement for the position of Social Welfare Worker is:

"Evaluates information gained from interview with parents, observation of home conditions, case record, and precedents, checking information with colleagues or collateral sources as needed, in order to decide whether to proceed with or discontinue child placement plan."⁷

The functional approach goes beyond the writing of task statements into the establishment of the worker traits necessary for satisfactory job performance. These worker traits are categorized as follows: aptitudes, temperaments, training time, interests, physical demands, and working conditions.

The functional approach also converts the worker trait information into numerical codes for classification purposes. This conversion process is not relevant to the objective of establishing content validity.

The highly structured methodology utilized in the functional approach yields more standardization than might be found in the other job analysis approaches. The result of the standardization is that the task statements are very clearly defined and readily understandable. The relationships established between the worker functions and traits required in the worker would presumably assist the test technician in inferring selection objectives from the job analysis information. However, it could be argued that it is very

⁷Fine, S. A., and Wiley, W. W., An Introduction to Functional Job Analysis, (Washington: The W. E. Upjohn Institute, 1971) p. 48

difficult, if not impossible, to look at a job and infer the "traits" that are required to perform the job behaviors. It is preferable to go directly from the job to the observable skills required and bypass the indirect "worker trait route" advocated by this approach.

C. JOB ELEMENT APPROACH

General Statement of Job Element Technique

The Job Element method describes a job in terms of its component elements that are required for successful job performance. Ernest Primoff defines the job elements as "Knowledges, skills, abilities, and personal characteristics related to job success."⁸ In a recent project report, Primoff indicated that:

"Research has shown that the major job elements which constitute job success include a wide variety of characteristics. Some depend on specific training, some are more general.

A job-element may be:

- a skill, like ability to use woodworking tools;
- an aptitude, like aptitude for learning trade theory and practice;
- a willingness, like willingness to do simple tasks repetitively;
- an interest, like interest in learning new techniques;
- a personal characteristic like reliability and dependability.

Since the purpose of the job-element rating procedure is to permit evaluation of a person for the entirety of job success, every aspect of job success must be included under the major element."⁹

⁸Ernest S. Primoff, "Summary of Job Element Principles; Preparing a Job Element Standard", (Personnel Measurement Research and Development Center, Standards Division, Bureau of Policies and Standards, United States Civil Service Commission), August 1971, p. 8

⁹Ernest S. Primoff, "How to Prepare and Conduct Job-Element Examinations" (Draft copy), (Personnel Research and Development Center, Bureau of Policies and Standards, United States Civil Service Commission, Washington, D. C.), January 1973, Appendix 3, p. 16

Method of Data Collection

A group of approximately six supervisors and/or expert workers suggest fifty or more job elements. They then rate these elements "in terms of relation to job success"¹⁰ using a scaling technique shown in Figure F-2.

¹⁰Ibid., Appendix 3, p. 19

FIGURE F-2¹¹

JOB ANALYSIS BLANK FOR ELEMENT SELECTION

RATER'S
 NAME & GRADE _____
 RATER'S
 TITLE & INSTALLATION _____
 JOB _____ GRADE _____

Element No.	Barely acceptable workers	To pick out <u>superior</u> worker	Trouble likely if not considered	Practicality. Demanding this element, we can fill	SxP	Total Value S + T + SP - B - P
	+ All good ✓ Some good 0 Almost none good	+ Very important ✓ Valuable 0 Does not differentiate	+ Much trouble ✓ Some trouble 0 Safe to ignore	+ All openings ✓ Some openings 0 Almost no openings		
1						
2						
3						
4						

As Primoff explains, "Elements are rated for the following four considerations:

How important is the element for even barely acceptable work?

How important is the element for superior accomplishment?

How much trouble is likely if the element were to be ignored in evaluating applicants?

How practical is it to expect applicants to be qualified in the element?¹²

¹¹Ibid., p. 14

¹²Ibid., Appendix 3, p. 19

The procedure for analyzing the information supplied by the raters is briefly outlined in Figure F-3.

FIGURE F-3¹³

"Summarizing Results for Selection of Major Elements"

1. Summarizing Results for Each Rater

Count each plus as 2, each check as 1, each zero as 0.

In the narrow column "S X P," at the right of the Job Analysis Blank, note for each rater the product of "Superior times Practical" for each item. For example, if a rater marked plus for Superior and check for Practical in an item, the product is 2×1 , or 2. If a rater marked plus for Superior and zero for Practical in another item, the product is 2×0 , or 0.

Next, in the last column, Total Value, add the totals of Superior plus Trouble plus S X P, and subtract the values for Barely and for Practical. . . .

2. Summarizing Results for All Raters

After each rater's results are summarized, add the Total Values for each element.

The final Total Value for an element is the sum of the Total Values for all raters.

Finding the totals can be done by placing the papers of the raters one over the other, offset, so that the columns to be added are next to each other. . . .

3. Choosing Set of Elements

Choose the ten elements with highest total values. If it is obvious that two or more of the chosen elements are identical in meaning, choose the one with the highest value, eliminate the other or others, and choose additional elements so there will be ten elements in the final set."

¹³Ibid., pp. 16-17

The ten "major" job elements identified by this analysis are then further defined by the identification of their "sub-elements."¹⁴ Consequently, the elements may be refined to fewer than ten "major" elements.

The sub-element components of each major element are determined through a procedure that closely parallels the procedure for determining the "major" job elements. This sub-element procedure includes: 1) supervisory and/or expert worker identification of the sub-elements within each major element; 2) sub-element ratings; 3) analysis of ratings; and 4) selection of the "major" sub-elements. The primary variations between the two procedures occur in the rating scales and the rating interpretations.

Utilization of Results

Five to ten Job Elements with their component sub-elements are identified as the most important elements for job success. The elements then are used as the content areas of the examination.¹⁵

The Job Element method of job analysis has a supplementary procedure for employee selection. This procedure of synthetic validation (the J-Coefficient) uses self-ratings or tests that are designed specifically for the element content areas.

Evaluation

Evaluation

The Job Element method is dependent upon contributions of

¹⁴Primoff uses Item Contents as the categorical name for the components of a job element; however, for clarity's sake, we are using Primoff's explanatory label of "Sub-element", i.e., Item Contents (sub-elements).

¹⁵Ibid., Appendix 3, p. 19

relevant information by expert workers and supervisors, and is therefore logically compatible with the content validity procedure while providing a sound foundation of information for examination analysis. However, the job element approach has some limitations when applied to the content validity procedure outlined in this manual. First, and most basic, is the fact that this method skips over the procedure of delineating job tasks and jumps right into the listing of "necessary skills" required for different levels of performance. This assumes, perhaps incorrectly, that all persons interviewed basically agree on what are the primary tasks on the job. In addition, the skipping of this initial step makes it very difficult to justify that a particular skill is job-related if it cannot be shown that it is necessary in order to do a particular task on the job.

The job element analysis includes inferences concerning not only the knowledges, skills, and personal characteristics necessary for satisfactory job performance but it also includes inferences concerning aptitudes, interests, and attitudes. It is highly questionable that these types of inferences can be justified on a purely rational basis. Finally, the excessive use of complex weighting schemes and calculations tends to obscure the real issue-- the necessity for specifying the needed skills as tightly as possible as they relate to the tasks on a particular job.

APPENDIX B
EXAMPLES OF KNOWLEDGES, APTITUDES, SKILLS
and
PERSONAL CHARACTERISTICS

ELEMENT CATEGORY

ELEMENT SUBCATEGORY

SPECIFIC ELEMENT

ELEMENT COMPONENT

Knowledge

Knowledge of food preparation

Knowledge of large volume
food preparation methods

Knowledge of large volume
salad making methods

Knowledge of large volume
desert making methods

Knowledge of short order
cooking

Knowledge of sandwich
making

Knowledge of soup making

Knowledge of standard
cleaning techniques

Knowledge of wall washing
methods

Knowledge of cleaning
techniques

Knowledge of wet mopping
methods

Knowledge of hospital
cleaning techniques

Knowledge of germicidal
cleaning techniques

Knowledge of isolation room
cleaning techniques

ELEMENT CATEGORY

ELEMENT SUBCATEGORY

SPECIFIC ELEMENT

ELEMENT COMPONENT

Aptitude

Mechanical Aptitude

Aptitude to learn
functional components
of small machines

Aptitude to learn to repair
washing machines

Aptitude to learn to build
washing machines

Aptitude to learn
functional components
of gasoline engines

Aptitude to learn to repair
automobile carburetors

Aptitude to learn to service
power lawnmowers

Aptitude to learn
basic arithmetic

Aptitude to learn to add

Aptitude to learn to multiply

Numerical Aptitude

Aptitude to learn
advanced statistics

Aptitude to learn to do
statistical tests

Aptitude to learn to calculate
exact probabilities

ELEMENT CATEGORY

ELEMENT SUBCATEGORY

SPECIFIC ELEMENT

ELEMENT COMPONENT

Skill

Numerical ability

Ability to do basic
arithmetic

Ability to add

Ability to multiply

Ability to do advanced
statistics

Ability to do statistical
tests

Ability to calculate exact
probabilities

Ability to write
reports

Ability to write clearly
and concisely

Ability to organize large
amounts of information

Writing ability

Ability to write novels

Ability to create fictional
characters

Ability to develop a story
plot

ELEMENT CATEGORY

ELEMENT SUBCATEGORY

SPECIFIC ELEMENT

ELEMENT COMPONENT

Personal
Characteristics

Empathy

Empathy for people who have
not adjusted to society

Empathy for prison inmates

Empathy for juvenile delinquents

Empathy for employment problems
of Black Americans

Empathy for employment
problems of minority
groups

Empathy for employment problems
of Mexican Americans

Reliability

Reliable work attendance

Punctuality

Minimum absenteeism

Reliable enough to main-
tain efficient work pattern
with a minimum of super-
vision

Reliable in performing work
that needs to be done

Reliable in carrying out
instructions and directions

APPENDIX C
SUGGESTED INTERVIEW PRACTICES

POSITION CLASSIFICATION INTERVIEW PROCEDURE GUIDEA. PREPARATION

Obtain a completed position description questionnaire. This is part of the information gathering process. Adequate preparation reduces the time for interviews to a minimum. If the position description questionnaire is clear and complete and no verification is needed, unnecessary time is not spent discussing these things at the time of the interview. Attempt to find out what you are going to look for before you go to the department.

1. Review the questionnaire and accompanying correspondence—identify the nature of any special problems.
 - (a) Determine inconsistencies or matters requiring additional information or clarification and make a note of them if necessary.
2. Identify and review pertinent occupational class specifications.
 - (a) Distinguishing features for various occupational classes.
 - (b) Typical duties and level at which they are performed.
 - (c) Go out with an open mind. Preconceived notions as to what the proper classification should be are discouraged.
3. Review pertinent materials.
 - (a) Other studies in same organizational unit, particularly similar jobs, or earlier studies of same position, and superior or subordinate positions.
 - (b) Occupational information.
 - (1) Professional journals are helpful, particularly for training and experience requirements and terminology.
 - (c) Related jobs in other departments.
 - (d) Organization charts.
 - (e) Other individuals who are familiar with the position, job, or occupational area.
 - (f) Annual reports, Charter, or legal references.

4. Make necessary departmental clearances (Personnel Manager or Department Head, Division Head, etc.) and make appointment.
 - (a) Select appropriate and convenient time for department.
 - (b) Select time when the employee is actually performing job (this is an important factor in recurring rather than continuous operations), but not when so busy that they can't take time to talk. Observation period may be needed in difficult situations in addition to interviewing employees.
 - (c) Ask department to notify the employee that you will be coming out to conduct the classification interview, and at what time.

B. CONDUCTING INTERVIEW

1. Introduce yourself where necessary.
2. Discourage supervisor from participating in interview (if necessary), even if employee is unfamiliar with duties; talk to supervisor later.
3. Put the employee at ease—let him know why you are there.
 - (a) Avoid "third degree" methods.
 - (b) Avoid challenging questionnaire or other statements directly—can frequently be avoided by asking for examples and judging them on their own merits.
 - (1) If employees cannot remember examples of what they do, ask them to keep a record for the next few days.
 - (c) Make opening questions the type that can be easily answered.
4. Organize and direct the interview—usually in terms of what is easiest for the employee. (Chronological order of day's activities, following through a single operation to completion, etc.).
 - (a) Attempt to follow outline on questionnaire. This also helps when dictating interview notes.
 - (b) Try to keep the incumbents from going off on tangents.
 - (c) If the employees cannot explain why they are doing something, ask them to pretend that they are teaching a new employee the work.
 - (d) You may have to explain to the employees that classification interviews are only for the purpose of clarifying questionnaire, and you are therefore not covering every little point.

5. Observe work samples and operations whenever possible. Watching an employee do something is more enlightening than having him tell you about it; e.g., reports and correspondence prepared, records posted and forms from which postings are made.
 - (a) Identify type and complexity of tools, equipment and machinery operated by the incumbent.
 - (b) Identify type of information handled and what is done with it; what kind of information they get and how they get it.
6. Obtain the employee's idea of how he fits into unit—work flow—what is done before and after to information or material handled, records processed, etc.
7. Obtain the employee's idea of type of instructions received and the amount of review.
8. New procedures.
 - (a) Whose idea? How far did he go on his own? How far can he go on his own initiative?
9. Review the regulations, procedural manuals, policy statements, etc. covering work to determine the amount of judgment and initiative required.
10. Discuss specific examples wherever possible. Have employees go through operations wherever possible.
11. Attempt to clarify conflicts in duties.
12. Obtain specific information on borderline tasks and how they are performed.
13. Keep in mind the analysis to be made and reports to be prepared by you upon return, and be sure to obtain adequate information for them.
14. Clarify information on time percentages. Review those shown on the questionnaire in terms of:
 - (a) How frequently tasks occur—daily, weekly, monthly.
 - (b) How long, on the average, it takes each time.
 - (c) How many a day, week or month?

15. Who else in the office or unit performs the same work? Is it the incumbent's regular job and others help when necessary or vice versa?
 - (a) If you have a group of similar positions and you are doing only a sampling, make certain that incumbents whom you do not interview don't feel that they are being slighted. Seniority is a good excuse to use for talking to only certain employees.
 - (b) Effect of volume and frequency on complexity of work in terms of amount of assistance that can reasonably be expected from supervisor.
 - (c) Don't let an employee say "we" or "our"; have him identify his own duties.
16. Utilize a supervisory or specialized check sheet where applicable.
17. Be sure you know any professional terms you use. Use them correctly.
 - (a) Keep a balance between "knowing it all" and having no familiarity with an occupational area.
 - (b) If you don't know what an employee is talking about, ask him.

C. DISCUSSION WITH SUPERVISOR

1. Give him opportunity to express himself.
2. Verify amount of supervision, instruction and review of incumbent's work only. Do not reveal any information given to you in confidence.
3. Clarify organizational relationships, similar jobs, etc.
4. If the incumbent was uncooperative, the best thing to do is go back to the supervisor and try to get more information; otherwise, explain that you'll have to base your findings on your interpretation of the questionnaire.

D. THINGS TO AVOID

1. Don't make an effort to hide notes that you take.
2. Don't put words in an employee's mouth; avoid questions that can be answered only "yes" or "no".

3. Don't attempt to take privileges that the employees in the operating department do not have.
4. Don't suggest to the incumbent or supervisor what the final position classification allocation will be.
5. Don't promise any particular classification actions to any incumbent.
6. Don't accept any special favors from anyone in the department.

APPENDIX D
QUESTIONNAIRE FORMS

POSITION DESCRIPTION QUESTIONNAIRE

IOWA MERIT EMPLOYMENT DEPARTMENT

POSITION NUMBER

Payroll Number	Class Code	Sequence No.
Position Allocation Approved:		Date
		By

Type of review: Audit Questionnaire

TO BE COMPLETED BY THE AGENCY PERSONNEL OFFICE

(a) Action Requested (Check appropriate box) <input type="checkbox"/> Establishment of a new position. M-5 No. <input type="checkbox"/> Review of existing position. <input type="checkbox"/> Updating of existing questionnaire. <input type="checkbox"/> Other	1. Name of <input type="checkbox"/> Incumbent <input type="checkbox"/> Previous Incumbent <input type="checkbox"/> Vacant
(b) Position number and class title of existing position	2. Agency, Commission, Board
(c) Classification requested	3. Department, Division, Institution (if any)
	4. Section, Unit (if any)
	5. Place of work (address)

TO BE COMPLETED BY INCUMBENT IN POSITION, IF POSITION IS VACANT, TO BE COMPLETED BY THE APPROPRIATE SUPERVISOR

6. What are your hours of work; are there any unusual conditions about shifts, rotation of shifts, travel, etc.?	7. Is your work <input type="checkbox"/> Full time? <input type="checkbox"/> Part time? If part time, state amount of time worked.
8. Have additional duties been given since position was last classified? <input type="checkbox"/> Yes <input type="checkbox"/> No. If Yes, place an "X" beside new duties or responsibilities as described below.	9. Name and class title of your immediate supervisor:

10. **DESCRIPTION OF WORK:** Describe below in detail the work you do. Use your own words and make your description so clear, that by reading this form, anyone can understand exactly each duty and responsibility. NOTE: In time column, indicate % of time or hours of average work week spent on each duty. List most important duties first.

TIME	WORK PERFORMED

Describe any occasional and/or limited assignments given to you.

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

11. Give the name and class of position over which direct supervision is exercised. If more than five (5) employees, give classification and number in each class. If none, write "none".

12. How long have duties been the same as described above?

13. List any office or field equipment and machinery which is operated, or used by you in your work. Give percent of time spent in operation of each.

14. What decisions are you permitted to make without reference to higher authority; what aspects are checked or reviewed by others; by whom?

15. What kinds of errors in judgment or performance can you make in your work; what happens if you make such an error or mistake.

16. What, in your opinion, is the most difficult part of your work?

17. What, in your opinion, is the most important part of your work?

18. Briefly, what is the general purpose of your work?

19. What in your opinion are the disagreeable features of your work or surroundings?

20. What is the extent of your contact with the general public or other agency personnel?

21. Roughly what proportion of your time is spent in Standing % Sitting % Moving about % Other %

22. Indicate the supplies, uniform or equipment or other items, if any, which you furnish while performing the duties of your position at your own expense.

23. List the allowances, if any, which you receive in addition to your base salary. If none, state none.

24. (a) In your opinion, what education, special courses, subjects or other formal training are needed to start in this position?

(b) What previous experience should a person have had to start to perform the duties of your position?

(c) What additional working knowledge, in your opinion, must be acquired on the job by a person before he performs the duties of your position?

(d) List the schooling and/or education you have.

SPECIAL NOTE: Describe any other phase or features of this position supplementing the information included in this questionnaire. Include such comments on a supplementary record to be attached to this questionnaire.

I certify that I have read the instructions and that the answers are my own and are accurate and complete.

Signed _____

(Signature of Employee)

(Date)

SUPERVISOR REVIEW OF JOB DESCRIPTION FOR POSITION REQUIREMENTS OR FOR CLASS REQUIREMENTS

1. _____ 2. _____
(Employee's name: last, first, middle) (Class -- Code No.)

3. _____
(Department, Board, Commission or Institution) (Division) (Section) (Work Unit)

4. Indicate in what respects, if any, the statements of the specific duties, responsibility, supervision and requirements are not correct, insufficiently or inaccurately described by the incumbent under the existing organization and procedures.

5. EDUCATION, EXPERIENCE AND TRAINING REQUIREMENTS:

- (a) Minimum Education _____
- (b) Specialized Training _____
- (c) Experience: _____
- (d) Knowledges and skills required: _____
- (e) Licenses, certificates or registration required: _____
- (f) Training period required: _____
- (g) Other abilities required _____

6. SUPERVISION RECEIVED:

7. FUNCTIONAL ASSISTANCE PROVIDED:

8. RESPONSIBILITIES:

- (a) Supervision exercised:

- (b) Materials and products:

NOTE: Please fill out reverse side:

(c) Machinery and equipment:

(d) Money:

(e) Records and reports:

(f) Personal Contacts:

(g) Policy and methods:

9. SKILL AND PHYSICAL REQUIREMENTS:

(a) Mental skill:

(b) Manual skill:

(c) Physical requirements:

10. WORKING CONDITIONS:

(a) Surroundings and conditions:

(b) Job hazards:

11. Indicate sources of entry to this class, promotion to this class or promotion from this class.

12. _____
Signature and title of immediate supervisor _____ Date _____

STATEMENT OF DEPARTMENT HEAD AND/OR ADMINISTRATIVE OFFICER

Comment on the above statements and indicate any inaccuracies or statements with which you may disagree.

Date _____ Signature _____ Title _____

Date _____ Signature _____ Title _____

ILLINOIS

JOB ANALYSIS QUESTIONNAIRE
 FOR PREPROFESSIONAL, AND PARA-
 PROFESSIONAL JOB CLASSIFICATIONS
 RESEARCH AND TEST DEVELOPMENT DIVISION
 DEPARTMENT OF PERSONNEL
 504 STATE OFFICE BUILDING
 217/525-5601

The information you provide on this questionnaire will be used to determine testing and selection requirements for this title. It will also aid in the description of the duties and responsibilities of the title. Therefore, it is very important that the information you give is complete and accurate. You are to analyze the position in question, not the person occupying the position.

Title to be analyzed:	Filled out by (Name):	Date:
Agency:	Division or Institution:	

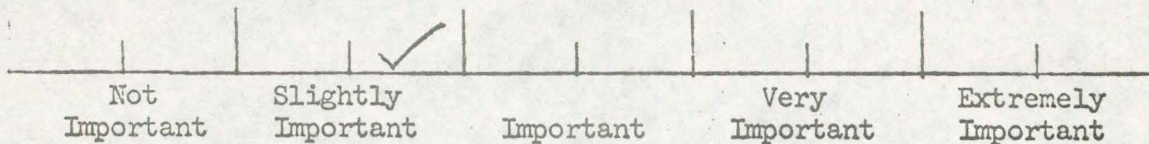
RATING INSTRUCTIONS

For many of the following job elements, you should indicate the extent to which each is important or present to the job.

SAMPLE RATINGS

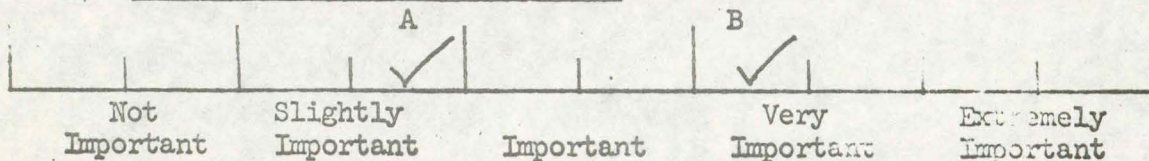
To rate a job element, place a check mark along the horizontal line below it. Do not place the check mark on the vertical lines. The rating below has been done correctly.

Example: Knowledge of Simple Arithmetic



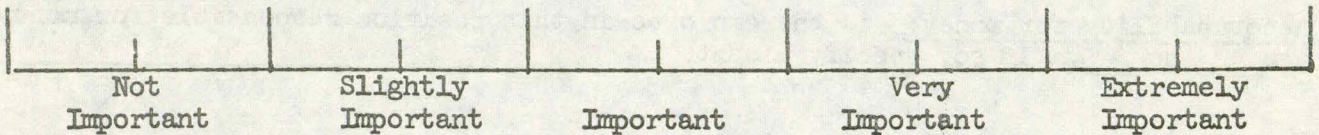
NOTE: The farther towards the right the higher the importance of the job element - in the example below, rating B is a higher rating than A.

Example: Knowledge of Simple Arithmetic

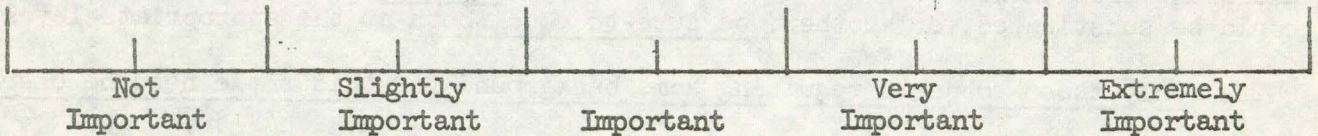


Spatial & Mechanical Skills

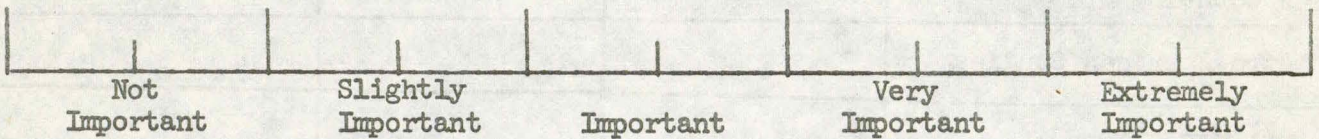
1. The estimation of the size of objects: refers to that ability of estimating how large (long, wide, voluminous, etc.) an object is by seeing it but not exactly measuring it. Will an object fit in a space of a certain size? A glazier may estimate that a certain pane of glass may fit into a certain space. This is a gross judgment. Exact measurement is another ability.



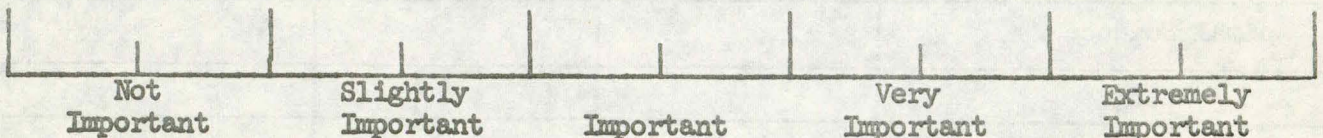
2. Perceive the form of objects: this is the ability to perceive differences and details in shapes of things. It may involve seeing how parts are related to each other, as in seeing just where they are attached, or seeing which part is shaped wrong. It may be necessary to see the precise form of an object that is to be duplicated or inspected. We perceive forms of objects by eyesight, by touch, or through the use of mechanical aids. Sometimes a worker who is looking at an object must translate that object into a blueprint or vice versa. Then he uses form perception in seeing the form of the object.



3. Understanding mechanical devices: is the kind of ability required of a machinist, for example: The complexity of the device should be considered, and also whether the worker must be able to repair and make adjustments. Should the worker be sufficiently aware of the workings of the device to prevent its being misused during his ordinary handling of the device in his everyday work?



4. Ability to estimate quality of objects: refers to ability to estimate not only how good but how bad the object is by looking or making gross measurements. How much work would be required to bring it up to a certain standard?



48. Accountability for maintenance: is the employee in this position responsible for the maintenance of equipment or materials? yes ___ no ___. If so, specify.

49. Accountability for money: is the employee in this position responsible for money? yes ___ no ___. If so, specify amount. _____

Education and Technical Training

Following is a list of common college, technical school and business school curricula. Please use the columns under the given codes to indicate by a check mark (✓), the minimum level you feel an applicant should have in each subject to be a suitable prospect for employment in this title.

Please note that for many jobs the qualifications of a job applicant will be different from those possessed by an experienced employee. If a given subject could be substituted for another, be sure to check both at the appropriate level.

NOTE: Only those subjects requiring some background for this title need be checked.

	High School Course	Elem. College/ or Technical Course	2 yr. Tech School; A. A. Degree; Colleger Minor; or 2 yr. College
50. Accounting			
51. Afro-American Studies			
52. Agriculture			
53. Air Conditioning			
54. Allied Health			
55. Animal Science			
56. Arc Welding			
57. Architectural Drafting			
58. Architecture			
59. Art			
60. Audiovisual Instruction			

ILLINOIS
 JOB ANALYSIS QUESTIONNAIRE
 FOR PROFESSIONAL JOB CLASSIFICATIONS
 RESEARCH AND TEST DEVELOPMENT DIVISION
 DEPARTMENT OF PERSONNEL
 504 STATE OFFICE BUILDING
 217/525-5601

The information you provide on this questionnaire will be used to determine testing and selection requirements for this title. It will also aid in the description of the duties and responsibilities of the title. Therefore, it is very important that the information you give is complete and accurate. You are to analyze the position in question, not the person occupying the position.

Title to be analyzed:	Date:
Filled out by (Name):	Title of person who fills this out:
Agency:	Division or Institution:

RATING INSTRUCTIONS

For many of the following job elements, you should indicate the extent to which each is important or present to the job.

SAMPLE RATINGS

To rate a job element, place a check mark in the appropriate box along the horizontal line. Do not place the check mark on the vertical lines. The rating below has been done correctly.

Example: Knowledge of Simple Arithmetic

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not Important		Slightly Important		Important		Very Important		Extremely Important	

NOTE: The farther towards the right the higher the importance of the job element - in the example below, rating B is a higher rating than A.

Example: Knowledge of Simple Arithmetic

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not Important		Slightly Important		Important		Very Important		Extremely Important	

1. Work rapidly: this element is important when a position involves a large volume of work.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not Important	Slightly Important	Important	Very Important	Extremely Important	

2. Learning ability: this refers to the ability to learn quickly or learn complex processes.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not Important	Slightly Important	Important	Very Important	Extremely Important	

3. The estimation of the size of objects: refers to that ability of estimating how large (long, wide, voluminous, etc.) an object is by seeing it but not exactly measuring it.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not Important	Slightly Important	Important	Very Important	Extremely Important	

4. Estimate the quantity of objects: this element is the ability to estimate quantity of a certain thing without counting.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not Important	Slightly Important	Important	Very Important	Extremely Important	

5. Perceive the form of objects: this is the ability to perceive differences and details in shapes of things.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not Important	Slightly Important	Important	Very Important	Extremely Important	

6. Ability to work with details: refers to both memory for and attention given to details.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not Important	Slightly Important	Important	Very Important	Extremely Important	

Codes:

- 1 - No background in this subject required.
- 2 - Minimal exposure in this subject required.
- 3 - Only an elementary college course in this subject required.
- 4 - A college minor or equivalent in this subject required.
- 5 - A college major or equivalent in this subject required.
- 6 - A graduate school degree in this subject required.

NOTE: You may leave the first (1) column blank where applicable. Only those subjects requiring some background for this title need be checked.

	1	2	3	4	5	6
	No Back-ground	Minimal Exposure	Elem. College Course	College Minor	College Major	Graduate School Degree
Accounting						
Afro-American Studies						
Agriculture						
Animal Science						
Anthropology						
Architecture						
Art						
Art History						
Astronomy						
Audiovisual Instruction						
Bacteriology						
Biology						
Botany						
Business Administration						
Business Education						
Business Law						
Chemistry						
Classics						

Position Analysis Questionnaire (PAQ)

Occupational Research Center
Department of Psychology
Purdue University

Ernest J. McCormick, Ph.D.; P. R. Jeanneret, Ph.D.; and Robert C. Mecham, Ph.D.

General Purpose

This questionnaire is used for describing certain job activities and certain aspects of situations in which jobs are performed. Before beginning a job analysis using this questionnaire, carefully read the explanatory material which follows. Once you have the instructions clearly in mind, read through the remainder of the questionnaire to familiarize yourself with its contents.

After you understand what is required, you should familiarize yourself with the job you are going to analyze (in the event this has not already been done). In this connection, it is suggested that you talk to the worker and/or supervisor about what the worker does, and watch him perform as many aspects of the job as possible. In addition you may find it helpful to ask the worker and/or his supervisor questions similar to those found in the questionnaire.

Organization of the Questionnaire

The questionnaire is divided into the six major divisions listed below. In addition to the division titles, a "question" is included which you can keep in mind when going through each division.

DIVISIONS:

1. Information Input (Where and how does the worker get the information that he uses in performing his job?) Pages 1-4
2. Mental Processes (What reasoning, decision-making, planning, and information processing activities are involved in performing the job?) Pages 5-8
3. Work Output (What physical activities does the worker perform and what tools or devices does he use?) Pages 8-13
4. Relationships With Other Persons (What relationships with other people are required in performing the job?) Pages 14-17
5. Job Context (In what physical and social contexts is the work performed?) Pages 18-20
6. Other Job Characteristics (What activities, conditions, or characteristics other than those described above are relevant to the job?) Pages 20-25

Prepared under provisions of Office of Naval Research Contract Nonr 1100 (28),
Purdue Research Foundation Contract No. 4497.

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(Form B, 5-69)

POSITION ANALYSIS QUESTIONNAIRE (PAQ)

Occupational Research Center
 Department of Psychology
 Purdue University

Job Title(s) _____ Organization _____

Name of Employee (optional) _____ Department/Unit _____

Person Completing Questionnaire _____ Title _____ Date _____

1 INFORMATION INPUT

1.1 Sources of Job Information

Rate each of the following items in terms of the extent to which they are used by the worker as sources of information in performing his job.

Code	Extent of Use (U)
—	Does not apply
1	Nominal/very infrequent
2	Occasional
3	Moderate
4	Considerable
5	Very substantial

1.1.1 Visual Sources of Job Information

- 1 Written materials (books, reports, office notes, articles, job instructions, signs, etc.)
- 2 Quantitative materials (materials which deal with quantities or amounts, such as graphs, accounts, specifications, tables of numbers, etc.)
- 3 Pictorial materials (pictures or picture-like materials used as sources of information, for example, drawings, blueprints, diagrams, maps, tracings, photographic films, X-ray films, TV pictures, etc.)
- 4 Patterns/related devices (templates, stencils, patterns, etc., used as sources of information when observed during use; do not include here materials described in item 3 above)
- 5 Visual displays (dials, gauges, signal lights, radar scopes, speedometers, clocks, etc.)
- 6 Measuring devices (rulers, calipers, tire pressure gauges, scales, thickness gauges, pipettes, thermometers, protractors, etc., used to obtain visual information about physical measurements; do not include here devices described in item 5 above)
- 7 Mechanical devices (tools, equipment, machinery, and other mechanical devices which are sources of information when observed during use or operation)
- 8 Materials in process (parts, materials, objects, etc., which are sources of information when being modified, worked on, or otherwise processed, such as bread dough being mixed, workpiece being turned in a lathe, fabric being cut, shoe being resoled, etc.)

Prepared under provisions of Office of Naval Research Contract Nonr 1100 (28),
 Purdue Research Foundation Contract No. 4497.
 PAQ (Form B, 5-59)

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APPENDIX E
WORK DIARY FORM

WORK LOG

Your Name: _____

Your Merit Classification: _____

How Long Have You Been
 in This Classification: _____

Date and Time
 Log Began _____

Date and Time
 Log Concluded _____

Date	Time	Activity (Write Down Exactly What You Did During This Period of Time)
	8:00 A.M.	
	8:15 A.M.	
	8:30 A.M.	
	8:45 A.M.	
	9:00 A.M.	

APPENDIX F
READABILITY INDICES

THE SMOG METHOD

Level of Reading Ability

For many positions there are standard forms, booklets, or journals that an incumbent must be able to read and comprehend. In the course of a job analysis, samples of these forms should be obtained. McLaughlin (1969) has proposed a simple readability formula called SMOG grading. Applying this method to a sample of material that must be read by an employee in this position makes it possible to determine the grade level of reading comprehension required to perform the necessary tasks. The SMOG index is computed as follows:

1. Count 10 consecutive sentences near the beginning of the test to be assessed - 10 in the middle and 10 near the end. Count as a sentence any string of words ending with a period, question mark, or exclamation point.
2. In the 30 selected sentences, count every word of three or more syllables. Any string of letters or numerals beginning and ending with a space or punctuation mark should be counted if you can distinguish at least three syllables when you read it aloud in context.
3. Estimate the square root of the number of polysyllabic words counted. This is done by taking the square root of the nearest perfect square. For example, if the count is 95, the nearest square is 100 which yields a square of 10. If the count lies roughly between two perfect squares, choose the lower number. For instance, if the count is 110, take the square root of 100 rather than that of 121.
4. Add three to the approximate square root. This gives the SMOG Grade, which is the reading grade that a person must have reached if he is to understand fully the text assessed.

It is to be understood that SMOG Grades 13-16 indicate the need for college education; 17-18, the need for graduate training; and 19 and above, the need for a higher professional qualification. Test content or educational requirements should not exceed those required by the job.

THE FLESCH METHOD¹

(Based on the average sentence length and word length to determine reading ease.)

The formula used in the Flesch procedure:

$$\begin{aligned} \text{R.E.} &= 206.85 - .846 w_1 + 1.0155 s_1. \\ w_1 &= \text{the number of syllables per 100 words.} \\ s_1 &= \text{the average sentence length.} \\ \text{R.E.} &= \text{reading ease.} \end{aligned}$$

1. Determine average sentence length. Count the total number of sentences and the total number of words. Divide the total words by the total sentences. Count complete thoughts as sentences. Consider phrases separated by colons or semi-colons as sentences.

If the exam is too long, pick three samples at the beginning, middle, and end of the exam. Make samples as close to 100 words as possible, but only include complete sentences. Divide the total number of words in the three samples by the total number of sentences therein.

2. Determine word length. Count the number of words and then the number of syllables. Divide the number of syllables by the total number of words and multiply by 100.

Count syllables as they are pronounced, e.g., "\$" = two syllables, "1968" = five, "two and one-half" = four. Exams with excessive numerical components will over-emphasize the reading complexity; therefore, in samples with large amounts of numbers, eliminate the numerical terms and replace them with an appropriate number of words. Always maintain samples with 100 words or terms.

If the exam is long, use samples of 100 words. Add the number of syllables in each sample and divide that total by the number of samples. The final result will be the number of syllables per 100 words.

3. Plug the results of sentence length and word length into the formula to find the reading ease score.

Reading ease will be a score ranging from 0 (very difficult) to 100 (very easy). Using the following table, the reading ease score can be converted into a grade level score.

<u>READING EASE SCORE</u>	<u>GRADE LEVEL</u>
90 - 100	5
80 - 90	6
70 - 80	7
60 - 70	8 & 9
50 - 60	10 & 12
30 - 50	13 & 15 College
0 - 30	College Graduate

¹ Rudolf Flesch, Art of Readable Writing, (Collier Books: New York), 1949.

THE FORBES & COTTLE METHOD²

Forbes' method uses the Thorndike Century Junior Dictionary as a standard for the measure of vocabulary difficulty. The Dictionary rates words on the basis of their usage.

Procedure:

1. Choose three 100 word samples as in the Flesch system. The examiner must use his discretion and look up any word he deems difficult. Any word to which the dictionary assigns a weight of four or above, must be counted as a difficult word and the weight recorded. Words with weights below four are "easy" and need not be recorded.
2. Add the total of all the weights for each 100 word sample. Add the totals for each sample together and divide by 300. This gives an average weight for the words in the samples.
3. Convert the average from step two to a grade level score by using the following table.

<u>INDEX OF VOCABULARY DIFFICULTY</u>	<u>GRADE LEVEL</u>
1.4510 and up	College
1.2510 - 1.4509	12
1.0510 - 1.2509	11
.8510 - 1.0509	10
.6810 - .8509	9
.4510 - .6509	8
.2510 - .4509	7
.0510 - .2509	6
.0509 and below	5

² Fritz W. Forbes and William C. Cottle, "New Methods of Determining Readability of Standardized Tests," Journal of Applied Psychology, 1953, Volume 37, pp. 185-190.

APPENDIX G
SOURCE MATERIALS

POSITION DESCRIPTION
QUESTIONNAIRE

POSITION NUMBER

IOWA MERIT EMPLOYMENT DEPARTMENT

Payroll Number 150-775-2200	Class Code 00804-	Sequence No. 001
Position Allocation Approved: Mangover Specialist I		Date By 5/21/73

Type of review: Audit Questionnaire

TO BE COMPLETED BY THE AGENCY PERSONNEL OFFICE

(a) Action Requested (Check appropriate box) <input checked="" type="checkbox"/> Establishment of a new position. M-5 No. 23-135 <input type="checkbox"/> Review of existing position. <input type="checkbox"/> Updating of existing questionnaire. <input checked="" type="checkbox"/> Other	1. Name of <input checked="" type="checkbox"/> Incumbent <input type="checkbox"/> Previous Incumbent <input type="checkbox"/> Vacant Dianne K. Boggess
	2. Agency, Commission, Board Iowa Employment Security Commission
(b) Position number and class title of existing position 150-775- Employment Interviewer Aide 2200-00802-00	3. Department, Division, Institution (if any) Iowa State Employment Service
	4. Section, Unit (if any)
(c) Classification requested Manpower Spec. I 00804	5. Place of work (address) 703-B North Main, Charles City, Iowa 50616

TO BE COMPLETED BY INCUMBENT IN POSITION, IF POSITION IS VACANT. TO BE COMPLETED BY THE APPROPRIATE SUPERVISOR

6. What are your hours of work; are there any unusual conditions about shifts, rotation of shifts, travel, etc.? Hours Worked: 8:00 AM to 4:30 PM Monday thru Friday	7. Is your work <input checked="" type="checkbox"/> Full time? <input type="checkbox"/> Part time? If part time, state amount of time worked.
8. Have additional duties been given since position was last classified? <input type="checkbox"/> Yes <input type="checkbox"/> No. If Yes, place an "X" beside new duties or responsibilities as described below.	9. Name and class title of your immediate supervisor: Mike Millard, Manager I
10. DESCRIPTION OF WORK: Describe below in detail the work you do. Use your own words and make your description so clear, that by reading this form, anyone can understand exactly each duty and responsibility. NOTE: In time column, indicate % of time or hours of average work week spent on each duty. List most important duties first.	

TIME	WORK PERFORMED
25%	Application Taking: This involves showing individuals how to fill out applications and in some cases filling out the application. When checking over the application obtain such information as education, training, skills, knowledges and abilities, work experience, etc. Check for special information such as physical disabilities, date of incurrence, cause, whether condition is progressive or static, physical limitations. Record type of work wanted or any they would be willing to accept, hours they are available (full time, part time), what area they prefer work in etc. After recording all necessary information assign a D.O.T. title and code in the field or fields they want to work. Check local file and clearance orders for openings in their field. If during the interview I feel they need counseling, training, etc., I would refer or set the applicant up with an appointment to see another person who could handle the situation. It may be necessary to refer a person to another agency.
8%	Renewals: Record any changes on application such as address and telephone change, training, education, etc. Change D.O.T. title and code if necessary.
3%	Job Bank Book: Show applicant Job Bank book which has listings of jobs in our area. Check with central control before referring anyone to make sure order is still open. If open, make out referral card and give to applicant.
15%	Order Taking: Work with employers who call in an order or come directly to the office. Obtain necessary information such as employers or company name, address, person to see, telephone number, how to get to employers place of business, when to apply and job summary. The job summary includes a description of work to be performed, equipment operated, working conditions. Job summary also includes physical requirements, education and training required, experience needed, rate of pay, hours of work and benefits the employer has, etc. After this information is obtained a D.O.T. title and code is applied to the order. The order is written up and transmitted to Waterloo to be put out in the area thru job bank.

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

FEB 14 1970

**SUPERVISOR REVIEW OF JOB DESCRIPTION
FOR POSITION REQUIREMENTS OR
FOR CLASS REQUIREMENTS**

1. Dianne K. Boggess 2. Interviewer Aide
(Employee's name: last, first, middle) (Class - - Code No.)

3. Iowa Employment Security Commission, Iowa State Employment Service, Charles City
(Department, Board, Commission or Institution) (Division) (Section) (Work Unit)

4. Indicate in what respects, if any, the statements of the specific duties, responsibility, supervision and requirements are not correct, insufficiently or inaccurately described by the incumbent under the existing organization and procedures.

Statements are correct.

5. EDUCATION, EXPERIENCE AND TRAINING REQUIREMENTS:

- (a) Minimum Education H.S. graduate plus business college or experience
- (b) Specialized Training Courses in statistics, sociology, psychology, human personality, business machines, would be useful.
- (c) Experience: 6 months public relations experience
- (d) Knowledges and skills required: Typing
- (e) Licenses, certificates or registration required: None
- (f) Training period required: 6 months
- (g) Other abilities required Ability to cooperate, prepare reports, meet the public, accept change and organize work.

6. SUPERVISION RECEIVED: Supervision- generally at staff meetings on goals and objectives of agency. Employee performs ~~has~~ work well and decisions include selection and referral of applicants to jobs. Position is reviewed and evaluated on an annual basis.

7. FUNCTIONAL ASSISTANCE PROVIDED: Administrative training for new programs or techniques implemented. Local office training usually monthly on current or updated information on programs.

8. RESPONSIBILITIES:

- (a) Supervision exercised: None
- (b) Materials and products: Is responsible for ordering and keeping inventory of supplies.

NOTE: Please fill out reverse side:

nist; monogram-machine operator. Operates machine to embroider or stitch lettering, emblems, and signs on knitted garments or material: Dips piece of ric, similar to cheesecloth, into acid. Places paper linked design on fabric and rubs with stick to transfer design from paper to fabric pattern. Selects and color of thread. Places embroidery design pattern on garment or material to be decorated and embroiders through fabric pattern onto garment. Scorches ric pattern with hot iron and peels it from embroidered article. Inscribe names freehand on garments 1 stitches over markings. Sews patches, insignias, letters on clothing, according to customers' orders. Is designated according to type of work done as OTHER NUMBERER (textile); FULL-FASHIONED-HOSE BROODERER (hosiery); LETTERER (garment). When operating embroidery machine to sew tape or brading garment to form embroidery design, may be designated BONNAZ-MACHINE OPERATOR (garment; trim, & imp. art goods); CORDER (garment; trim, & stamp, goods).

CLOCK - MACHINE OPERATOR (hosiery) **clocker; clocking-machine operator; clock tender.** Operates machine similar to sewing machine to sew clock (decorative design or strip) on side of men's socks: Turns sock inside out and folds it where clock is to be sewed. Inserts folded sock into feeding mechanism and depresses pedal to start machine that feeds sock through sewing mechanism. Cuts thread to remove sock. Replaces spools of thread and threads needle of machine.

EMBROIDERY-MACHINE OPERATOR (garment) **under SEWING-MACHINE OPERATOR, SPECIAL EQUIPMENT.**

— (knit goods) *see under* SEWING-MACHINE OPERATOR, SPECIAL EQUIPMENT (any ind.).

EMBROIDERY-MACHINE-OPERATOR HELPER (any ind.) 787.886. *swiss-machine-operator helper.* Assists EMBROIDERY-MACHINE OPERATOR by arranging stockings or other articles to be embroidered on special forms: Replaces and threads needles of machine when necessary. Removes embroidered pieces from forms and bundles them according to size. Performs other duties as described under HELPER.

EMBROIDERY PATTERNMAKER (ret. tr.; whole.) 782.381. Draws designs on tracing paper and transfers them onto cloth to provide guide for embroidery: ketches patterns with pencil, selecting or creating designs approved by customer. Guides pattern under needle of machine that perforates pattern lines. Rubs wax, powder, or charcoal over perforated lines with wet brush or pouncer to transfer pattern outline to cloth, providing a guide for embroidery.

EMBROIDERY SEWER (textile) *see under* SEWING-MACHINE OPERATOR, REGULAR EQUIPMENT (any ind.).

EMERGENCY-CREW FOREMAN (light, heat, & power) *see* LINE FOREMAN.

EMERGENCY-DETAIL DRIVER (gov. ser.) *see* DETAIL DRIVER.

EMERGENCY-ENTRANCE ATTENDANT (medical tr.) 355.878. *ambulance-room attendant.* Assists persons entering hospital through emergency entrances: recognizes emergency situations and summons professional assistance or clears elevator for quick removal of person to designated floor. Assists sick and injured persons into wheelchairs or onto carts, and pushes them in elevator, office, or to assigned room. May receive patients' packages and deliver to designated floor.

EMERGENCY LINEMAN (light, heat, & power) *see* TROUBLE MAN II.

EMERGENCY MAN (r.r. trans.) 910.281. Restores street railway service after power failures, accidents, and equipment breakdowns, working as member of crew: Drives to scene in truck equipped with tools and materials. Diagnoses cause of difficulty to facilitate restoration of service. Repairs or replaces parts or materials, such as trolley wire, insulators, conductor-bar assemblies, and lighting fixtures [LINEMAN, STREET RAILWAY]. Repositions derailed cars on tracks with aid of other workers and mechanical hoisting equipment. Erects portable structures at scene of fire to enable fire hose to be laid across street, allowing streetcars and trolleys to pass underneath. Raises or disconnects trolley wires to facilitate house-moving operations. May repair half-ton streetcar units at scene where towing to repair barn is not feasible. May repair or replace track, switches, and accessories to facilitate temporary service.

EMERY-WHEEL DRESSER (any ind.) *see* GRINDING-WHEEL DRESSER.

EMERY-WHEEL MOLDER (abrasive & polish, prod.) *see* ABRASIVE-WHEEL MOLDER.

EMPLOYEE-OPERATIONS EXAMINER (r.r. trans.) 166.268. *rules examiner; systems-rules examiner.* Interprets and explains railroad rules, regulations, and procedures to railroad employees to keep them abreast of additions, deletions, and amendments. Conducts classroom discussions to encourage employee participation. May administer and grade promotional examinations.

EMPLOYEE-SERVICE OFFICER (profess. & kin.) *see* DIRECTOR, WELFARE.

EMPLOYEE-SERVICE SUPERVISOR (any ind.) *see* BENEFITS-AND-SERVICE-RECORDS SUPERVISOR.

EMPLOYEE-UTILIZATION OFFICER (profess. & kin.) *see* MANAGER, EMPLOYMENT.

EMPLOYMENT CLERK (clerical) 205.368. *interviewer; reception interviewer.* Interviews applicants for employment and processes application forms: Interviews applicants to obtain information, such as age, marital status, work experience, education, training, and occupational interest. Informs applicants of company employment policies. Refers qualified applicants to employing official. Writes letters to references indicated on application or telephone agencies, such as credit bureaus and finance companies. Files applications forms. Compiles reports for supervisors on applicants and employees from personnel records. May review credentials to establish eligibility of applicant in regard to identification and naturalization. May telephone or write applicant to inform him of acceptance or rejection for employment. May administer aptitude, personality, and interest tests. May compile personnel records [PERSONNEL CLERK].

EMPLOYMENT INTERVIEWER (profess. & kin.) I. 166.268. *employment representative; job interviewer; personnel interviewer.* Interviews job applicants in employment agency and refers them to prospective employers for consideration: Records and evaluates such information as job experience, education and training, skills, knowledge and abilities, physical and personal qualifications, and other data pertinent to classification, selection, and referral. Searches application files, notifies selected applicants of job openings, and refers qualified applicants to prospective employers. Contacts employers to verify referral results and records data. May render special services to applicants needing assistance from other agency units, such as counseling and testing. May visit employer establishments to solicit job orders and labor market information, and to offer other agency services. May counsel applicants and administer tests.

— (profess. & kin.) II. 166.288. *interviewer.* Interviews applicants to determine their suitability for employment with company: Records information and impressions gained from applicants and evaluates information to determine suitability for employment. Administers tests and interprets results. Prepares rating on applicants and makes recommendations for future consideration of those not immediately employed. Supplies such information to applicants as company and union policies, duties, responsibilities, working conditions, hours and pay, and promotional opportunities. Prepares and maintains records of those interviewed, accepted or rejected, and those declining appointment. Discusses hiring activity with supervisors to determine adequacy of selection techniques or recruitment program. Observes jobs to obtain firsthand information of job requirements and needs.

PERSONNEL RECRUITER (profess. & kin.) *recruiting representative.* Travels to areas geographically distant from company operations and interviews applicants for position openings. Gives prospective employees information about climate, available housing, schools, and cultural, recreational, and business activities in firm's area. May exercise hiring authority. May arrange for transportation of selected applicants.

PRISONER-CLASSIFICATION INTERVIEWER (profess. & kin.). Interviews new prison inmates to obtain social and criminal histories to aid in classification and assignment of prisoners to appropriate work and other activities: Gathers data, such as work history, school, criminal, and military records, family background, habits, religious beliefs, and prisoner's version of crime. Analyzes prisoner's social attitudes, mental capacity, character, and physical capabilities.

EMPLOYMENT INTERVIEWER (profess. & kin.) II—Continued

titles and prepares admission summary based on data obtained. Explains prison rules and regulations.

EMPLOYMENT REPRESENTATIVE (profess. & kin.) *see* EMPLOYMENT INTERVIEWER I.

EMPLOYMENT SUPERVISOR (profess. & kin.) *see* MANAGER, EMPLOYMENT.

EMPTY-HOGSHEAD WEIGHER (tobacco) 224.587. Weighs empty hogshead or tobacco boxes and records weight on container or ticket: Pushes or lifts empty containers onto scales and reads weight indicator to determine weight. Records weight on containers or ticket. Staples ticket onto container. May line containers with paper [PACKAGER, HEAD (any ind.)].

EMULSIFICATION OPERATOR (oils & fats) *see* CHEMICAL OPERATOR (chem.) II.

EMULSION OPERATOR (chem.) *see* MAKE-UP MAN.

EMULSION OPERATOR, FIRST (chem.) *see* CD-STORAGE-AND-MATERIALS-MAKE-UP OPERATOR, HEAD.

ENAMEL BURNER (turn.) *see* OVEN TENDER.

ENAMEL CRACKER (jewelry) *see* PULVERIZER.

ENAMEL DIPPER (any ind.) *see* DIPPER.

ENAMEL DRIER (plumb. supplies) *see* ENAMELER.

ENAMELER (boot & shoe) *see* INKER.

— (jewelry) 740.884. Applies decorative enamel to jewelry articles, such as pins, earrings, insignias, and award medals, using handtools and electric oven: Cleans jewelry in baths of acid and water, and scrubs surfaces with brush. Mixes ground colored enamel and distilled water, according to specifications. Applies enamel of various colors to designated areas of jewelry to form specified design, using spatula or pick. Places metal tray containing jewelry in electric oven to melt and fuse enamel to jewelry. Immerses jewelry in baths of acid and water to remove oxide scale. Rubs enameled surfaces with abrasive stone to smooth and remove excess enamel. Reheats enamel in oven to produce luster.

— (leather mfg.) *see* LEATHER COATER.

— (plumb. supplies) 505.884. *enamel drier.* Sprays finish coat of enamel onto castiron sanitary units, such as bathtubs and sinks, and bakes unit to provide permanent finish: Preheats unit by wheeling it into furnace, using steel fork mounted on overhead conveyor. Observes color of unit through window in furnace to determine when desired temperature has been reached. Removes unit from furnace and sprays powdered enamel over it, using pneumatic gun. Returns unit to furnace to fuse and glaze enamel, repeating heating and enameling process until unit is coated without discolorations, blisters, or pinholes.

— (pottery & porc.) *see* PAINTER, SPRAY (any ind.) I.

ENAMEL-MACHINE OPERATOR (elec. equip.) *see* IMPREGNATING-TANK OPERATOR (any ind.) I.

ENAMEL PULVERIZER (jewelry) *see* PULVERIZER.

ENAMEL SHADER (paint & varn.) *see* TINTER.

ENAMEL SPRAYER (any ind.) *see* PAINTER, SPRAY I; PAINTER, SPRAY II.

ENAMELWARE DIPPER (stamp & enamel ware) *see* DIPPER (any ind.).

ENCAPSULATOR (aircraft mfg.) 556.884. *molder, resin.* Encases magnetic, electrical, and mechanical aircraft and missile control units in plastic to protect them from vibration and moisture: Mixes specified amounts of resins, curing agents, and fillers in container, according to formula, using paddle. Positions units in molds and pours mixture from container into molds. Places molds in preset oven for specified time to harden mixture around units. May spray mechanical units with resins or dip them in resin vat to form protective coating.

— (elec. equip.; electronics) 726.887. *sealer; tanker.*

Encapsulates electrical and electronic components, such as coil cases, transformers, capacitors, semiconductors and modules with material, such as tar, plastic, or epoxy to protect components from humidity and vibration by any of following methods: (1) Positions module or transformer case under outlet of tank containing encapsulating fluid. Moves controls to force preset amount of fluid through opening in module or transformer case. (2) Places components on rack, dips rack in encapsulating fluid, and hangs rack on drying frame or in oven to harden sealing compound. (3) Fills capacitor shells or semiconductor caps with encapsulating fluid or paste, using eye dropper or applicator. May heat components before encapsulating to remove moisture. May inspect encapsulation for defects, such as chips and pin holes. May stamp encapsulated components with color code

INTERVIEWING, INFORMATION-GIVING, AND RELATED WORK (VOCATIONAL, EDUCATIONAL, AND RELATED ACTIVITIES)

.168; .268

Work Performed

Work activities in this group primarily involve interviewing individuals in order to gather pertinent information and evaluate the information and/or the individual's qualifications for a variety of considerations; and dispensing information usually relative to the correct interpretation of rules and regulations governing such matters as insurance, education, or housing.

Worker Requirements

An occupationally significant combination of: Verbal facility to converse with people at varied levels; ability to deal tactfully with people to put them at their ease and gain their confidence; numerical ability and clerical perception to avoid errors in recordkeeping and referral to written matter; ability to reason analytically and organize facts when asking and answering questions; and a neat appearance, poise, and composure.

Clues for Relating Applicants and Requirements

Part-time job as information clerk in hotel during summer months.

Expressed preference for public contact work.

Neat appearance, poise, and good verbal expression demonstrated in an interview.

Training and Methods of Entry

A college education is becoming increasingly important for entrance into work of this nature. Courses in personnel management, business administration, liberal arts, applied psychology, and sociology frequently will enable the applicant to obtain successful employment. Often, however, companies will fill positions by offering on-the-job training to personnel already employed who are familiar with company procedures.

RELATED CLASSIFICATIONS

Customer Service Work, n.e.c. (.468; .478) p. 501
 Information Gathering, Dispensing, Verifying, and
 Related Work (.368) p. 258
 Consultative and Business Services (.168; .268) p. 248

QUALIFICATIONS PROFILE

GED:	5	4		
SVP:	7	5		
Apt:	GVN	SPQ	KFM	EC
	223	442	443	55
	12	3	4	
		4		

Int: 2 6
 Temp: 5 9
 Phys. Dem: S

Test Title: Manpower Specialist I
 Class Code: 0804
 Test Code: H-71-20-a

IV.	Iowa Merit System: Developed by L.B.P. - Source Residences of Girls Training School, Mitchelville, Ia.		
	<u>Questions</u>	<u>Present Number</u>	<u>Total</u>
		91-93.	
			3
V.	Commonwealth of Kentucky - Housing Specialist, Junior Human Rights Representative and Human Rights Representative.		
	a. (005)		
	97	72.	
	88	8.	
			2
VI.	Iowa Merit System.		
	a. C-72-18-a (Social Worker I)		
	51	40.	
			1
			<u>100</u>
		Total	

<u>PROFILE</u>		
<u>Areas</u>	<u>Question Numbers</u>	<u>Total</u>
Social, Economic & Labor Conditions Effecting E.S. Program	1-31	31
Interviewing & Occupational Knowledge	32-62	31
Minority Group & Human Relations Knowledge	63-80	18
Employment Office Procedures, Operations, & Communication	81-100	<u>20</u>
	Total	100

REPORT OF POSITION AUDIT

Date of Report: <u>3/2/73</u> Date of Audit <u>2/27/73</u>	LOCATION OF POSITION:
POSITION DATA: From: <u>Administrative Assistant</u> (Present Classification of Position)	<u>Department of Social Services</u> (Department - Board - Commission - Institution)
To: <u>Administrative Officer I</u> (Recommended Classification of Position)	<u>Family and Children's Services</u> (Division or Department)
Position No. <u>472-030-0111-00708-001</u>	<u>Training School for Boys</u> (Section)
Incumbent in Position: <u>Glen Dole</u>	<u>Eldora, Iowa 50627</u> (Working Unit)
Basis of Audit: <u>MED Study</u> (Appeal - Letter of Request - Contested Allocation - New Position - Reallocation, etc.)	
Purpose of Audit: <u>Verification of Position</u> (Verification of Position - Verify Class Concept in Specification, etc.)	
Auditing Technician: <u>D. Lundquist</u>	Approving Technician <u>[Signature]</u> Date _____ Approving Technician <u>[Signature]</u> Date _____

AUDIT MEMORANDUM

This position is presently classified as an Administrative Assistant I at the Iowa Training School for Boys. The incumbent is performing duties and responsibilities in the Business Office and is functioning in a work capacity as an assistant business manager.

The incumbent is supervised by the Business Manager of the institution, an Administrative Officer II. Supervision is exercised by conference and by direct observation of results as daily contact is extensive.

SUMMARY OF MAJOR DUTIES AND RESPONSIBILITIES

Duties and responsibilities of the incumbent are no longer performed as described on the questionnaire. Duties and responsibilities have been reorganized since this questionnaire was written. This occurred approximately two years ago slightly after the present Business Manager began working at the institution.

Duties now performed by the incumbent include:

- (1) Direct line supervision of six positions in four work areas of the institution.
 - (a) These include two Custodial Workers responsible for the cleaning of the Administration Building, the research portion of the Cooper Hospital, both Chapels and the Volunteer Center. The incumbent contacts the cottages to

MANPOWER SPECIALIST I

DEFINITION

Under immediate to general supervision, performs technical employment service work in local offices involving the interviewing, classification, and placement of applicants; performs related work as required.

ILLUSTRATIVE EXAMPLES OF WORK PERFORMED

Interviews job applicants to determine occupational qualifications and classifications. Analyzes work experience, education, performance on various appraisal measures, personal characteristics, and other factors and evaluates this information for placement purposes. Advises applicants on labor market conditions and requirements in specific occupations or industrial fields. Informs applicants about employment service policies and procedures and offers guidance on techniques of applying for jobs.

Evaluates applicants needs for special services, such as testing, counseling, or additional training, and arranges for services to meet those needs. May administer aptitude and performance tests.

Obtains job orders from employers, and applies job analysis techniques to determine job content, skills and abilities required, and other occupational data necessary for selection of qualified workers. Discusses with employers employment service selection techniques and labor market conditions affecting specific occupations, suggesting special recruitment methods where needed. Arranges for industrial services to employers when appropriate.

Determines the suitability of applicants and refers qualified workers to employers. Contacts employers to determine results of referrals and continues follow-up with employers and applicants as necessary.

Develops job opportunities for applicants whose qualifications may be utilized immediately by specific employers, when suitable job openings are not currently listed with the office.

Develops and maintains continuing working relationships with assigned employers, by telephone contacts or personal interviews, to furnish a complete, year-round placement service.

Promotes the continuing use of the Employment Service by employers. Assists in identifying employer personnel problems and explains the specialized or technical services available to industry through the Employment Service.

KNOWLEDGES, ABILITIES, AND SKILLS

Some knowledge of the social, economic, and labor conditions affecting employment service programs.

Some knowledge of the general principles of economics.

OPTED: July 1, 1969

REVISED: March 5, 1973

CLASS CODE: 0080

MANPOWER SPECIALIST I (Continued)

Some knowledge of interviewing techniques, various occupations, and required occupational qualifications.

Ability to learn employment office procedures and the use of technical interviewing tools within a brief training period.

Ability to deal tactfully, courteously, and effectively with applicants, employees, employers, and the public.

Ability to record and evaluate a variety of information and prepare reports.

Ability to communicate effectively, orally and in writing.

EDUCATION, EXPERIENCE, AND SPECIAL REQUIREMENTS

Graduation from high school or G.E.D. and four (4) years of successful full-time paid employment in job testing, interviewing, referral and/or placement, sales representative, credit investigation, collection work or related public contact work obtaining, analyzing and/or evaluating data;

OR

substitution of one year of successful accredited college course work for one year of the required experience with a maximum substitution of four (4) years.

NOTE: At the written request of the Appointing Authority and with Merit Employment Department approval, specialized training and/or experience (i.e., Spanish linguistic skills or recent military experience) may be required in designated positions.

FOR PROMOTIONAL PURPOSES ONLY

An employee with a total of eighteen (18) months of successful full-time paid employment as a Manpower Aide III with the Employment Security Commission will be considered as qualifying.

I O W A

POSITION CLASSIFICATION STANDARD
FOR
MANPOWER SPECIALIST I

CLASS COVERAGE

An employee of this class performs interviewing work in the determination of job applicant occupational skills.

Employees work from job bank, job order or other occupational availability records to match applicant desires and qualifications with job openings. Once basic on-the-job familiarity and training have ended, an employee is expected to function independently applying discretion and judgment in the evaluation of: applicant work history, qualifications, aspirations and suitability for employment; the current labor market conditions, and other applicable placement information.

I. POLICY, METHODS, AND PROCEDURES

Work procedure and methods are well outlined through established agency policies and guidelines. Responsibilities involve carrying out, interpreting and enforcing existing methods and procedures developed by others.

II. RECORDS, REPORTS, INFORMATION AND MONEY

Positions at this level handle ordinary local office operational forms (i.e., application cards and E.S.A.R.S. forms) and are responsible for pulling application cards from central files making entries on them and returning them to the file. E.S.A.R.S. forms are filled out by the incumbent reflecting the kind of activity they engage in with clients and the outcome of that activity. No reports are required, as a general rule, of positions at this level. Positions do not have responsibility for money or for the collection, compilation, presentation and/or preservation of information.

III. PERSONAL CONTACTS

Positions at this level have general responsibility for greeting and interviewing the general public as they come into the local office seeking work. The contact may involve all classes of citizens, but most often does not include persons who formerly held positions of responsibility in private or government employment. Contacts by phone are also made with employing agency personnel representatives usually at lower levels of management in large firms or owners of small firms for the purpose of soliciting jobs, referring applicants, and follow-up on previous referrals. Purpose of the contact centers around furnishing or obtaining readily available and specific information on routine employment service matters dealing primarily with the activities of the position concerned.

STANDARD FOR MANPOWER SPECIALIST I (Continued)

IV. SUPERVISION EXERCISED

Manpower Specialist I's ordinarily will not supervise other employees.

V. MATERIAL ITEMS

Positions at this level are responsible for the care of office supplies and equipment issued to them for their work. A micro-film viewer and, in some positions, a typewriter are the kinds of equipment most often issued. Supplies involve forms, pencils and other similarly inexpensive material.

VI. SAFETY AND/OR WELFARE OF OTHERS

Positions at this level of the series do not have any responsibility for the safety and/or welfare of others.

VII. PHYSICAL DEMANDS

Work at this level of the series requires little physical exertion as work is located within an office and centered around placement activities at the desk of the Manpower Specialist I. Activities vary but most of the day is spent sitting. If lifting is required, say to move the job bank viewer, a weight of 25 lbs. is rarely exceeded.

VIII. MENTAL DEMANDS

Positions at this level require a normal degree of mental or visual attention. Some distractions and interruptions may occur. Work procedures are reasonably stable from day to day. Work procedures are varied but repetitive. Applicants are interviewed, job bank consulted for job opportunities, applicant referred, employer called to see how applicant fared, jobs solicited and the entire cycle repeated over and over again.

IX. MENTAL SKILLS

Positions at this level apply basic knowledge of professional interviewing and utilizes independent judgment and analyzes facts, problems and data to determine what action within limits of employment service and methods should be taken. Positions work under general supervision once orientation and training have been completed. Some minor variations in the method of performance are permitted with some judgment required in the processing of applicants, possible discrimination situations etc..

X. WORKING CONDITIONS

Positions work in pleasant office surroundings. Health hazards are negligible.

APPENDIX H
WEIGHTING APPROACHES

Purpose of Quantitative Analysis

The emphasis of the first three stages of staffing job analysis is on the identification of job elements. Possible job elements are evaluated only on the basis of their relevance to the occupation being studied and are not excluded from consideration by arbitrary decisions regarding their relative importance. As a result of employing this method a large number of elements which differ greatly in their significance are identified and together constitute what has been referred to as an "unweighted" list of elements. In the fourth stage of the analysis the task of evaluating the importance of the job elements is delegated to people most qualified to make this type of decision. In addition to the individual qualifications of the people who rate and rank the job elements during the Questionnaire Survey stage of the job analysis, the fact that it is their collective or average judgment which is used to determine relative importance greatly increases the reliability of the job analysis and, consequently, the validity of selection methods developed on the basis of job analysis information. In order for job analysis information to serve as a reliable basis for the development of valid selection methods the relative importance of each relevant job element must be determined.

Data Analysis

Analysis of the data provided by the existing Job Element Questionnaire is completed in stage five of this system of staffing job analysis. Raters provide two different types of data (see appendix 4):

- a) Ranks are assigned by each rater to the ten elements on the list which he considers to be most important.
- b) Raters rate each of six aspects of each job element on a three point scale.

Methods of analyzing each type of data are discussed below.

Analysis of Ranking Data

It is known that the ranks an individual assigns to items on a list are most reliable for the items ranked as most important and least reliable in the middle range of importance. In the Bureau of Personnel's job analysis system survey participants are asked to identify only the ten most important job

lements and to rank them in order of their importance. A statistic has been developed to summarize the information provided by a group of rankers who rank only a subset of a larger group of job elements. This statistic permits an exact calculation of job element "weights" which can be used to rank order job elements in order of their importance. In this way a "weighted list" of job elements is established. The logic of this statistic is briefly discussed below and sample calculations of job element weights are also provided.

For convenience, the following symbols are used:

- W - the weight of a job element
- r - a rank assigned to a job element by a survey participant
- N - the total number of people who complete job element questionnaires for a classification
- R - the total number of people who assign any rank to a job element.

The formula used in calculating W is:

$$W = \frac{(\sum 1/r)}{N} \cdot \frac{R}{N}$$

The calculation of W requires three steps. In the following paragraphs each step is explained and illustrated with examples.

Dividing each rank into "1" before adding them converts the ranks to a measure which gives a high score to low ranks and a low score to high ranks. This step makes "W" easier to interpret because it converts ranks in such a way that elements with higher "weights" are more important than elements with lower "weights." The following table can be used to make the conversions.

<u>Rank (r)</u>	<u>1/r (reciprocal of r)</u>
1	1.00
2	.50
3	.33
4	.25
5	.20
6	.17
7	.14
8	.13
9	.11
10	.10

Σ means add up all the items

After converting all the assigned ranks to their reciprocal and adding them together the next step is to divide by the total number of people who could have assigned any rank to the element. This results in an average or mean reciprocalized rank.

Example: Suppose ten people ranked a list of job elements and, of the ten, eight assigned some rank to a particular job element. If four of those eight people assigned a rank of "1" and four assigned a rank of "3" this part of the weight of the element would be:

$$\frac{(1.00 + 1.00 + 1.00 + 1.00 + .33 + .33 + .33 + .33)}{10}$$

or, $\frac{(5.32)}{10}$

or, .53

2. $\frac{R}{N}$

Since survey participants do not have as many ranks to assign as there are job elements on the list the assignment of any rank, even 10th most important, represents a choice of a job element as being more important than those not ranked anywhere in the top ten. To take this important factor into account the formula for computing "W" weights the mean reciprocalized rank computed in step 1 by the percentage of the total group of people who do assign some rank to a job element.

Example: If ten people rank a list of job elements and 8 assign any rank to an element this part of the formula is simply:

$$\frac{8}{10}$$

or .80

3. The final step in computing W is simply to multiply the two parts of the formula together.

Examples are given for two hypothetical cases to show how the formula works in practice to provide a logical measure of a job element's importance.

Example a) Ten people rank a list of job elements, nine people assign some rank to a particular element, five assigning a rank of ten and four assigning a rank of nine.

$$W = \frac{9}{10} \times \frac{.10 + .10 + .10 + .10 + .10 + .11 + .11 + .11 + .11}{10}$$

$$= (.90) \times \frac{.94}{10}$$

$$= (.90) \times (.094)$$

$$= .09$$

Example b)

Ten people rank a list of job elements, two people assign some rank, one assigning a rank of one and the other a rank of two.

$$\begin{aligned}
 W &= \frac{(2)}{10} \times \frac{(1.00 + .50)}{10} \\
 &= (.20) \times (.15) \\
 &= .03
 \end{aligned}$$

In comparing these two examples the analyst should note that if only the mean rank assigned had been used to weight the job elements the element chosen by only two out of ten people as being among the ten most important would have received a higher weight than the element ranked in the top ten by nine out ten people. Logic indicates that this would not be an accurate reflection of the element's relative importance for the job. The statistic W makes similar corrections in less obvious cases and does permit a calculation of relative importance which is compatible with logical as well as statistical principles.

Analysis of Rating Data

The analysis of the rating data is much simpler than for the ranks. It requires only an averaging of the numbers assigned to each aspect of each job element and a conversion of the average ratings to words. Table 2 contains one set of words which can be used to translate average ratings obtained with the existing rating forms.

TABLE 2

<u>Use for Aspect(s)</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
	1.00 - 1.49	1.50 - 1.99	2.00 - 2.49	2.50 - 3.00
1 and 3	Unimportant (or) Not Expected	Desirable	Very Desirable	Essential
2a and 3a	Same	Considerable	Superior	Exceptional
2	Minimally	Somewhat	Significantly	Greatly
3b	Sometimes	Frequently	Usually	Almost Always

JOB ELEMENT QUESTIONNAIRE - 1

Your Name _____
Your Classification _____
Your Employing Unit _____
Classification You Are Rating _____

GENERAL INSTRUCTIONS

The statements on the following page(s) describe job elements (worker requirements) of the classification you are rating. The purpose of this questionnaire is to collect supplementary information about each job element. The supplementary information you provide combined with that supplied by others participating in this survey will make it possible to use job element information in making practical decisions regarding the hiring of new employes and evaluating the performance of experienced workers.

Three different questions are asked about each job element. For the sake of uniformity, it is important that you answer each question for all job elements before beginning the next.

Questions are answered by placing a number in the appropriate column next to each job element. A detailed description of the meaning of the numbers and the alternatives they represent is included in the instructions for completing each question.

Please read each set of instructions very carefully before starting to answer that question for each job element. The form is arranged in a format that will enable you to conveniently refer to the instructions and explanation as necessary while going through the list of job elements.

QUESTION A

To what extent is this job element necessary in newly hired workers and useful for evaluating the qualifications of applicants?

Answer this question for each job element by choosing one of the three alternatives listed below and writing the number of your choice in the column under "A" next to the element you are considering. It is not expected that in every case a particular choice will exactly describe how you feel about a job element. Choose the one that comes closest to describing how you feel the question should be answered.

- (1) Not necessary in newly hired workers and not useful for evaluating the qualifications of applicants because it can be acquired or developed after starting work.
- (2) Desirable in newly hired workers and useful for evaluating the qualifications of applicants because people who bring this element to the job develop into competent workers more readily than those who do not.
- (3) Essential in newly hired workers and applicants who do not possess this job element should not be hired because they cannot develop this element on the job and will not make a good employe in this classification.

QUESTION B

To what extent is this element necessary for average level work performance in this classification and useful for evaluating the performance of experienced workers?

Answer this question for each job element by choosing one of the three alternatives listed below and writing the number of your choice in the column under "B" next to the element you are considering. It is not expected that in every case a particular choice will exactly describe how you feel about a job element. Choose the one that comes closest to describing how you feel the question should be answered.

- (1) Not necessary for average level job performance and not useful for evaluating the quality of an experienced employe's work performance because an employe can be a good worker without having this job element.
- (2) Desirable for average level job performance because, in general, the better workers in this classification have more of this job element than less satisfactory workers.
- (3) Essential for average level job performance because employes who do not possess this job element make very poor workers who should never have been hired for work in this classification.

QUESTION C

Out of all the job elements on the list below, which ones are the most important for this classification?

Answer this question by rank ordering the top ten elements from 1-10 and writing the rank in the column under "C" next to those ten elements. Use the following procedure in assigning ranks:

- (a) Read through the list of job elements. Pick out the one element that in your estimation is the single most important worker requirement for this classification. Write a "1" in the column under "C" next to that element.
- (b) Read through the list again. Of those elements remaining, which one is the most important? After you have made your choice write a "2" in the column under "C" next to that element.
- (c) Now find the third most important element and place a "3" in the column under "C" next to that element.
- (d) Continue picking out the most important element from among those not yet chosen until you have identified the ten most important.
- (e) Note that when you have completed the ranking process only ten elements will have numbers in the column under "C". The rest of the elements are not among the ten most important and have no rank assigned to them.

When you have completed ranking the ten most important job elements your form will be completed. Return the data you have provided as instructed in the cover letter.

DO NOT REMOVE THIS PAGE

800-124 AA-23042

FIGURE F-2¹¹

JOB ANALYSIS BLANK FOR ELEMENT SELECTION

RATER'S
 NAME & GRADE _____
 RATER'S
 TITLE & INSTALLATION _____
 JOB _____ GRADE _____

Element No.	Barely acceptable workers	To pick out <u>superior</u> worker	Trouble likely if not considered	Practicality. Demanding this element, we can fill	SxP	Total Value S + T + SP - B - P
	+ All good ✓ Some good 0 Almost none good	+ Very important ✓ Valuable 0 Does not differentiate	+ Much trouble ✓ Some trouble 0 Safe to ignore	+ All openings ✓ Some openings 0 Almost no openings		
1						
2						
3						
4						

As Primoff explains, "Elements are rated for the following four considerations:

How important is the element for even barely acceptable work?

How important is the element for superior accomplishment?

How much trouble is likely if the element were to be ignored
in evaluating applicants?

How practical is it to expect applicants to be qualified in
the element?¹²

¹¹ Ibid., p. 14

¹² Ibid., Appendix 3, p. 19

The procedure for analyzing the information supplied by the raters is briefly outlined in Figure F-3.

FIGURE F-3¹³

"Summarizing Results for Selection of Major Elements

1. Summarizing Results for Each Rater

Count each plus as 2, each check as 1, each zero as 0.

In the narrow column "S X P," at the right of the Job Analysis Blank, note for each rater the product of "Superior times Practical" for each item. For example, if a rater marked plus for Superior and check for Practical in an item, the product is 2 x 1, or 2. If a rater marked plus for Superior and zero for Practical in another item, the product is 2 x 0, or 0.

Next, in the last column, Total Value, add the totals of Superior plus Trouble plus S X P, and subtract the values for Barely and for Practical. . . .

2. Summarizing Results for All Raters

After each rater's results are summarized, add the Total Values for each element.

The final Total Value for an element is the sum of the Total Values for all raters.

Finding the totals can be done by placing the papers of the raters one over the other, offset, so that the columns to be added are next to each other. . . .

3. Choosing Set of Elements

Choose the ten elements with highest total values. If it is obvious that two or more of the chosen elements are identical in meaning, choose the one with the highest value, eliminate the other or others, and choose additional elements so there will be ten elements in the final set."

¹³ Ibid., pp. 16-17

APPENDIX I

DISCUSSION DRAFT: UNIFORM TESTING GUIDELINES

Discussion Draft: Uniform Testing Guidelines

DISCUSSION DRAFT OF UNIFORM GUIDELINES ON EMPLOYEE SELECTION PROCEDURES BY EEO COORDINATING COUNCIL OFFICIAL TEXT)

Discussion Draft
August 23, 1973

UNIFORM GUIDELINES ON EMPLOYEE SELECTION PROCEDURES

§ 1 Statement of Purpose

a. These Uniform Guidelines on Employee Selection Procedures are issued pursuant to Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972, Executive Order 11246, as amended by Executive Order 11375, and the Intergovernmental Personnel Act. These guidelines have been developed under the auspices of the Equal Employment Opportunity Coordinating Council, established by Section 715 of Title VII of the Civil Rights Act of 1964, as amended.

b. These guidelines are based on the belief that professionally developed, standardized, job-related and validated employee selection procedures can contribute significantly to: (1) sound personnel selection and placement systems on the basis of merit, and (2) the implementation of non-discriminatory personnel practices as required by Federal law. These guidelines reflect the recognition that valid and job-related tests, when used in conjunction with other tools of personnel assessment and complemented by sound programs of job design, and training and personnel management, can significantly aid in the development and maintenance of an efficient work force and in the effective utilization of human resources.

c. These guidelines further reflect the recognition that in many instances persons are using tests as the

basis for employment decisions without sufficient evidence that they are job related and valid. Where such evidence is lacking, use of tests as a basis for employment decisions may constitute an unlawful employment practice and may be inconsistent with merit principles. A test yielding lower scores for any group, classified on the basis of race, color, religion, sex or national origin and lacking demonstrated validity may result in the rejection of many persons from such groups who may in fact be among the best qualified for successful performance of the job in question or have necessary qualifications for successful work performance. Use of tests in these circumstances constitutes a violation of merit principles and a denial of equal employment opportunity rights provided by Federal law.

d. These guidelines are designed to provide one uniform set of principles for employers, labor organizations and employment agencies subject to the requirements of Federal law in determining whether their selection procedures conform with the requirements of Federal law. These guidelines have uniform application to employers, labor organizations and employment agencies, because the obligations with respect to tests and other employee selection procedures imposed by Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972 (Pub. L. 92-261, 86 Stat. 103), by Executive Order 11246, as amended by Executive Order 11375, and other equal employment opportunity requirements of Federal law are consistent with each other and with the principles of merit selection.

e. These guidelines are designed to apply only to those tests and other selection procedures which are used operationally. It is recognized that many employers and test users may

have maintained an ongoing program of investigation into new techniques of assessment and into the theoretical bases of psychological measurement which are not used operationally. Nothing in these guidelines shall prevent the administration of tests or other assessment tools to applicants or employees for research purposes, even without evidence of their validity and job relatedness.

§2 Definition of Test and Other Terms

a. For the purpose of these guidelines, the term "test" is defined as any standardized or formal measure or combination of measures used as a basis for any employment decision, including hire, transfer, promotion, demotion, job or work assignments, membership (for example in a labor organization) training, referral, retention, licensing or certification. This definition includes, but is not restricted to any measures of: general intelligence, mental ability or learning ability; specific classes of aptitudes or abilities, such as mechanical, clerical, verbal, or numerical; dexterity and coordination, knowledge and proficiency; occupational and other interests; attitudes, personality or temperament; job skills (such as typing); and techniques for assessing job qualifications including standardized methods for evaluating the quality, amount, kind and level of knowledges, skills, and abilities acquired through training, education, and experience. The term "test" also includes educational or work history requirements, physical requirements, and all formal, scored, quantified or standardized techniques of assessing job qualifications including, in addition to the above, specific qualifying or disqualifying personal history or background requirements (except as provided in subsection b below), measures obtained from scored individual or group interviews of exercises; scored biographical information blanks, and interviewers'

rating scales. The inclusion or exclusion of a particular kind of test in this definition is not intended to suggest that it is or is not an appropriate basis for an employment decision.

b. Selection techniques other than tests, as defined above, may be improperly used so as to have the effect of discriminating against racial, ethnic or sex groups. Such techniques include, but are not restricted to, unscored or casual interviews, unscored application forms and unscored personal history and background requirements not used uniformly as a basis for selection. Where there are data suggesting employment discrimination, the employer is required to have available evidence concerning the job relatedness and validity of these procedures, the evidence being of the same types referred to in §§4 and 5 below. Data suggesting the possibility that discrimination exists include, for example, differential rates of applicant rejection from various racial, ethnic or sex groups (as disclosed by data called for by §4 below) for the same job or group of jobs, or underrepresentation of members of any racial, ethnic or sex groups among present employees in different types of jobs, as compared to the availability of such persons with requisite skills in the relevant labor market.

Background investigations of suitability of the applicant's or employee's character and relative fitness for the job in question may be utilized by the employer for selection purposes notwithstanding these guidelines (1) if the employer can demonstrate that they are required by valid provisions of Federal law; or (2) if there are no data suggesting that the investigations result in employment discrimination; or (3) if the employer as a matter of business necessity can demonstrate that the disqualifying information indicates that the applicant cannot reasonably be expected to fulfill properly the duties of the job in question.

ethnic, sex or religious group at a higher rate than individuals who are members of any other corresponding group with respect to hiring, promotion, transfer or other employment or membership opportunities, constitutes an unlawful employment practice under Title VII of the Civil Rights Act of 1964, as amended, and a violation of Executive Order 11246, as amended, unless (1) the test has been shown to be job related and validated in accordance with these guidelines and shown to be practically useful as hereinafter described, and (2) alternative hiring, promotion, transfer, or other employment or membership procedures which are substantially equally valid or more valid and which have less of an adverse impact, are unavailable. When the records and other evidence called for by § 4 below indicate that a test adversely affects members of any racial, ethnic or sex group, the employer, labor organization under Title VII and Executive Order 11246 to show that (1) and (2) above are satisfied.

§ 4 Evidence of Impact

Each employer, employment agency or labor organization using tests for any employment decision shall maintain and have available for inspection evidence that the tests are being used in accord with § 3 above. Each such person shall maintain such evidence as is appropriate, which will disclose the impact which the test has upon employment opportunities of persons by identifiable racial, ethnic or sex groups in order to determine compliance with the provisions of subsection 3b above. Based upon such evidence each such person shall determine whether there are indications of possible discrimination, such as, for example, differences in average test scores, passing rates or selection rates for minority candidates as compared to nonminority candidates. The records called for by this section are to be maintained by sex, and by ra-

cial and ethnic groups as follows: blacks (Negroes), American Indians (including Aleuts and Eskimos), Orientals and Spanish-surnamed Americans (all persons of Mexican, Puerto Rican, Cuban or Spanish origin). The classifications called for by this section are intended to be consistent with those required by the Joint Reporting Committee for the Employer Information Report (EEO-1 et seq.) series of reports.

§ 5 Minimum Standards for Validation

a. For the purpose of satisfying the requirements of these Guidelines, persons may rely on criterion-related validation, content validation, or construct validation, as these three types of validation are defined in the American Psychological Association Standards for Educational and Psychological Tests and Manuals. If other professionally acceptable means of validation are developed, studies utilizing these new techniques will be evaluated to determine their consistency with the purpose and principles of these guidelines.

b. A required element of any validation study is a systematic and comprehensive analysis of the job for which the test is to be used. The analysis must be based upon (1) the duties performed by the incumbents on the job, (2) the level of difficulty at which the duties are performed, (3) the circumstances and conditions under which the duties are performed, and (4) those duties which are critical i.e. those which must be performed competently if the job is to be performed in a satisfactory manner. The job analysis should describe on what bases any working conditions were determined to be critical, and on what bases duties were determined to be critical, such as the proportion of time spent on the respective duties, their levels of difficulty, their importance, or their frequency of performance.

If a duty which occupies a high

proportion of time is not deemed critical, the reasons therefore must be set forth. For those duties which have been determined to be critical pursuant to clause (4) above, the job analysis should be set forth which knowledge, skills, abilities and other worker characteristics are required for successful job performance.

The requirements for a job analysis set forth herein are not intended to specify a particular method of job analysis. Any professionally recognized method of job analysis is acceptable if it is comprehensive and otherwise appropriate for the specific validation strategy used. For example, it is recognized that some methods of job analysis provide direct identification of the knowledge, skills, abilities and other worker characteristics necessary for successful job performance by an analysis of work process, rather than specific job duties. In any case the factual bases for the determination of the identified knowledges, skills and abilities and other worker characteristics must be documented.

c. Tests must be administered and scored under controlled and standardized conditions, with proper safeguards to protect the security of test scores and to insure that scores do not enter into any judgments of employee adequacy that are to be used as measures in criterion-related validity studies.

d. Tests may be used to predict the performance of candidates for a job which is at a higher level than the job for which the person is being initially selected, if it is probable that the individual being selected will within a reasonable period of time progress to the higher level job. Normally, it will be considered probable that the individual will progress to the higher level job if (1) a majority of those persons initially selected who remain on the job at the end of the reasonable period of time will have progressed to the higher level job; and (2) at least one-third of those

persons who are initially selected will progress to the higher level job. A "reasonable period of time" will vary for different jobs and employment situations. However, as that phrase is used in this subparagraph, the time period will seldom be more than five years but will usually be less than five years. However, where job progression is not so nearly automatic or the time span is such that the higher level job or the employees' potential for advancement may be expected to change in significant ways, it shall be considered that candidates are being evaluated for jobs at or near the entry level. The governing principle is that the performance at a higher level job or in training for that job is a relevant criterion in validating employment tests only where there is a high probability that persons employed will in fact attain that higher level job within a reasonable period of time.

Test for higher level

e. The following minimum standards, as applicable, must be met in conducting a validation study:

(1) Criterion-Related Validity

(a) There must be a job analysis as defined above in subsection 5b above.

(b) Where a validation study is conducted in which tests are administered to applicants, with criterion data collected later, the sample subjects must be representative of the normal or typical candidates in the population, including racial, ethnic and sex groups, available for the job or jobs in question in the relevant labor market. Where a validation study is conducted in which tests are administered to present employees, the sample must be representative of the aforementioned candidate population. If there are not enough individuals from racial, ethnic or sex groups in the available candidate population or in the present workforce to make it technically feasible to conduct criterion related validation studies on a sample which is representative of the applicant population, as

Where the differential prediction is (1) originally based upon samples of sixty (60) or more for each subgroup at the .05 level of confidence, or (2) demonstrated originally in validation samples of 30 or more but less than 60 for each subgroup and is sustained at the .05 level of confidence by a cross-validation with a minimum sample of at least thirty (30) persons in each subgroup, the employer may continue to use the test operationally with appropriate revisions to insure that the selection procedure results in individuals or groups with the same probability of successful job performance having the same probability of being selected. Where conditions of (1) or (2) immediately above, the employer may not replace the test with another test which has not been validated in accordance with this § 5.

vi. Where a differential prediction study is conducted with large samples and there is a finding of differential prediction and such finding is based on the statistical significance of small differences between subgroups in means, variances, correlation coefficients, regression slopes, or intercepts, the employer labor organization or employment agency may continue to use the test without modification if he can demonstrate that such small differences have no significant differential effect on the selection of different subgroups.

(f) If the relationships between a test and a criterion measure is significant but non-linear, the test score distribution should be studied to determine the point in the distribution above or below which increased test scores do not reliably predict different levels of job performance. Where selection is to be made from the score distribution on the non-linear portion of the regression line, the test may not be used by itself to rank candidates within that portion of the distribution in which the test is not linearly related to job performance.

(2) Content Validity

(a) There must be a job analysis as defined above in subsection 5b.

(b) A test which is a representative sample of job duties that are disclosed in the job analysis to be essential and critical to successful job performance is a content valid test. A test which is a representative sample of specific job knowledges, skills, or abilities may also be content valid if the knowledges, skills or abilities being measured are actually essential and critical for successful job performance. Other knowledges, skills or abilities which are important for job performance, such as proficiency in a foreign language and other unique qualifications, may be taken into consideration in evaluating the relative assessment of candidates. A content valid test can only measure those job duties, knowledges, skills, or abilities which are required for immediate performance on the job. Thus job knowledges, skills or abilities which are to be acquired through subsequent actual work experience or on-the-job training cannot be included in such a test. If a higher score on a content valid test can be expected to result in better job performance, the test result may be used to rank persons who score above minimum levels. Content validity is not an appropriate validation strategy for intelligence, aptitude, or personality tests. Content valid tests with reliability estimates below .70 will require justification for operational use.

only test for KSA's which are not KSA's which are acquired through subsequent work experience or on-the-job training.

(3) Construct Validity

(a) There must be a job analysis as defined in subsection 5b above.

(b) A determination must be made, based upon the job analysis, that a construct is required for the satisfactory performance of essential and critical duties identified through the job analysis. The bases for this determination must be empirical in nature, quantified, documented, and subject to review.

The methods for making such a de-

Reliability

APPENDIX J
WHAT, WHERE, HOW, WHEN AND WHY
GUIDE

JOB ANALYSIS GUIDE

Introduction

This guide contains, in outline form, questions and suggested areas that should be a part of a thorough job analysis. It is based, partially, on a job analysis formula of determining the WHAT, WHERE, HOW, WHEN, and WHY of the work performed by the job's incumbent.

Since this is a guide, it is likely that as the job analyst gains experience, additions and further details will be added to this guide as appropriate. It is likely that the analyst will want to use some additional forms for recording the information suggested by the data in this guide.

The guide is meant to gain facts--not inferences from facts. The analyst will have to use his best judgment in reporting the detail of the job. Within practical and reasonable limits, adjectives should be minimized when their use would tend to cloud what is being described; e.g., Is heavy 5 pounds? 20 pounds? a ton? Is noisy 60 decibels? 100 decibels? How frequent is frequent? To circumvent this, the analyst must first describe the job. Once the facts have been gathered, such inferences may be made.

The guide is relatively thorough and should cover most of the information needs necessary for such functions as training, recruiting, selection, position classification, performance evaluation, research, etc.

A. Identifying Information

1. Name of person preparing analysis.
2. Job title and job number.
3. Organizational unit and number.
4. Location.
5. Name of person and job title to which this position reports.
6. Wage.
7. Additional compensation.
8. Number of employees on this job.

B. Job Duties

1. What are the duties of this position?
2. What proportion of the typical week is spent on these duties?
3. How are these duties performed?
4. Why are they performed? what is the purpose of each duty? the total job?

C. Problem Solving

1. What are the typical kinds of problems/decisions/judgments/recommendations, etc., encountered on the job?
2. To what extent are choices available for the solutions or recommendations?
 - a. Are there detailed rules to follow?
 - b. Routine instructions to follow?
 - c. General policies?
 - d. Broad concepts/philosophies/etc.?
 - e. How closely is the job supervised? What decisions can the employee make without referring to a higher authority?
3. Describe the kind of thinking challenge that exists in the solution to problems, etc.
 - a. Are problems routinized, repetitive?
 - b. Are there a multitude of differing facts to be considered?
 - c. Does the employee solve widely divergent problems where little precedence exists or are they generally a variety of common types of problems?
 - d. Is the employee permitted to make only slight variations in work procedure or do the problems require creative ability in developing new/revised solutions, programs, procedures with few guides or methods outlined?
4. What is the impact of errors? consider,
 - a. What is the likely dollar cost?
 - b. What is the likely frequency that errors can be made?
 - c. What is the effect of errors on self, other employees, the public?
5. Describe the nature of those duties where the employee has responsibility for the safeguarding of records, material equipment, and money. Describe these in terms of content, value amount, likelihood of misuse (the controls "built" in to the system) and level of responsibility.

6. Describe the responsibility of the position in terms of decisions and actions which may affect the safety or welfare of others. Describe the diligence and effort required, including whether actions or decisions have direct (involves their physical presence) or remote (approves policies which eventually have impact) impact.
- D. Knowledge -- Problem solutions are derived from what the employee must know. Based upon the problems, decisions made, describe:
1. The specific kinds and levels of informal or formalized bodies of knowledge (regardless of how gained) needed to solve these problems. (Do not describe level in terms of academic level but rather in terms of specific knowledges.)
 2. The specific knowledge and level necessary concerning methods, tools, equipment, materials, processes, etc.
- E. Supervisory Responsibilities -- This includes only those positions whose authority is to direct and control the activities of subordinates in such matters as work assignment, approval of work performance, job training, handling grievances or complaints, and where their recommendation or conduct directly affects tenure, promotion, salary increases, leaves of absence, etc.
1. What instruction or help (guidelines or policies, etc.) does the position have or receive as to what work is to be done or how to do it?
 2. What decisions are permitted to the position without reference to higher authority?
 3. What is the make-up of the group supervised (number and kind)?
 4. What is the scope and diversity of the work supervised? (What is the dollar impact, size of budget, nature of what is produced, nature of functions supervised, etc.?)
- F. Supervision Received -- The "freedom to act" is circumscribed by what degree of supervision?
1. Immediate close supervision of specific activities (such as methods and procedures to follow, frequent surveillance, etc.), general supervision (guidance with generally broad latitude for defining work methods, schedules, how to achieve objectives, etc.), or nominal direction (subject only to very broad policy guidelines, guiding principles, philosophies or concepts).
- G. Communications
1. Oral - Describe the importance and nature of (contents and person(s) to which directed) the oral communications on the job. Consider advising, negotiation, persuading, instructing, interviewing, exchange of routine information, non-routine exchanges, (special meetings) and public speaking. Describe

recipients, considering executives, supervisors, professional personnel, clerical, manual and staff, sales, buyers, special interest groups, customers, clients, patients, etc.

2. Other communications - Describe the nature, contents, and purpose of other communication methods. Consider written reports, signaling, code communications, entertaining, etc.

H. Sources of Job Information -- Describe the various sources of information used on the job and how they are used in solving problems. Consider:

1. Books, manuals, tables, graphs, statistics.
2. Drawings, maps, blueprints, pictures.
3. Templates, stencils, patterns.
4. Dials, gauges, signals, lights.
5. Calipers, scales, material, objects.
6. Observations (of people, events, animals, etc.), art decor, painting.
7. Requests, verbal instructions, conversations, interviews.
8. Noises, smells, horns, temperature, feelings of surfaces, etc.

I. Sensory and Perceptual Processes -- Describe the nature of and determine the amount of time and how sensory, perceptual or estimating activities facilitate the duties of the job. Consider:

1. Seeing differences in details of an object both within and outside arms reach.
2. Judging distance to or between objects.
3. Differentiating objects, materials or details on the basis of color, appearance, or outline.
4. Recognizing different sound patterns or sequences of sound (e.g., heart beat, engines, etc.).
5. Sound changes in terms of loudness, pitch, tone or quality.
6. Sensing or recognizing body movements in direction or speed, position and balance.
7. Estimating speed of moving objects or parts in relation to a stationary or moving reference.
8. Estimating the speed of an on-going process.
9. Estimating quantity, weight or volume of objects.
10. Estimating dimensions of length, thickness or height of objects.
11. Estimation of time between events.
12. Differentiating by tasting and smelling materials or objects.

J. Physical Demands -- Describe the actual necessary expenditure of energy and physical demands of the position by describing in frequency, weight and distance, the amount of lifting, climbing, kneeling, walking, standing, stooping, crouching, traveling, hauling, crawling, reaching, pushing, and pulling.

K. Physical Coordination and Dexterity -- Describe, where appropriate,

4
those actions requiring fingering, eye-hand coordination, speed of arm movements, speed of finger movements, eye-hand-foot coordination, hand-ear coordination, etc.

L. Working Conditions -- This consists of hazards and surroundings. Describe:

1. Hazards - consider the frequency of exposure to and severity of the accidents/illnesses encountered by the typical employee on this job. Describe:
 - a. First aid cases (minor injuries which typically result in a day or less of "lost" time).
 - b. Temporary disability (injuries or illness which prevent the worker from performing his job but do not result in permanent disability).
 - c. Permanent permanent impairment (injuries or illnesses resulting in the amputation or loss of use of any body member or part or impairment of body functions).
 - d. Permanent total disability or death.
2. Environmental Conditions - Determine the average amount of time the typical employee is exposed to:
 - a. Outdoors or changing weather.
 - b. High temperature.
 - c. Low temperature.
 - d. Air contamination (dust, fumes, odors, poor ventilation, etc.).
 - e. Vibration.
 - f. Poor lighting.
 - g. Dirty environment (the worker and his clothing become dirty).
 - h. Awkward or confining work space.
 - i. Noise intensity.
 - j. Rotating work schedules/night work.
 - k. Travel from "home base."

M. Social and Personal Aspects -- Most jobs have varying social and personal aspects that become a "part" of the job either because it can't be avoided or because it will likely facilitate carrying out the job's mission. Describe those aspects of the job where

1. Social or civic obligations are assumed in the community.
2. Attempts to deal with problems or reach objectives are hindered or obstructed and thus contribute to frustrations to a greater degree than normal.
3. Dealing with groups or individuals will likely result in unpleasant or stressed situations.
4. Personal sacrifices, while being of service to people or objectives of the organization, normally go beyond involvement or interest.
5. Inevitable differences in objectives or opinions between incumbent and other persons will "set the stage" for conflict.
6. Informal non-job required social contacts with others is likely to aid in implementing the job (e.g., barber, taxi driver, receptionist, etc.).

- N. Special or Unique Requirements -- Different jobs have certain requirements derived from custom, policy, statute that the employee is required to have or possess. Describe. Consider:
1. Licenses, certificates, "state boards."
 2. Tools, equipment or vehicles.
 3. Special clothing and/or uniforms.
- O. Job Demands -- The job situation may impose varying requirements to which the incumbent must adapt to perform the work satisfactorily. Consider the following, describing those that apply:
1. Specified, continuous work pace over which the incumbent has little or no control.
 2. Repetitive activities (repeated mental or physical activities repeatedly without interruption for periods of time).
 3. Cycled activities - (a set schedule on a daily, hourly or weekly basis).
 4. Following set procedures (requirements to follow a very set check list or procedure).
 5. Time pressure (deadlines, rush hour traffic).
 6. More than normal precision.
 7. Attention to detail.
 8. Recognition of objects, events, processes through sight, sound, touch, smell, etc.
 9. Vigilance - infrequent events. Deals with a search for infrequently occurring but relevant events such as a forest lookout, etc.
 10. Vigilance - continuous changing events - those situations where awareness of continuous variations of a process or flow occur such as driving, watching continuous changing gauges or dials.
 11. Working under distractions such as phone calls, interruptions from others, etc.
 12. Contemporization - job knowledge requirements are changing continuously.
- P. Substantiating Data
1. Obtain copies of forms, procedures and other documentation to corroborate and clarify above data.
 2. Diagrams, flow charts, current job description drawings, written instructions, etc., should also be collected.

APPENDIX K
JOB ANALYSIS REPORT
DOCUMENT

JOB ANALYSIS DOCUMENT
 Research and Test Development Division
 Department of Personnel

Communications Dispatcher		Charles Brunk, Steve Nettles			4-1-73 To 6-1-73
Class Title		Analyst			Dates of Project
08	3500	08860	114	24	Law Enforcement Transportation
Pay Grade	Spec Code	Pcs Code	Incumbents	Hires (6 mo)	Primary Agency of Use

REASON FOR JOB ANALYSIS: A request was made by agency to review present exam. No previous empirical data was available. No recent job analysis was performed. It was felt by the agency that the present exam was not testing the relevant areas since the job underwent significant changes.

METHODS OF ANALYSIS AND RESOURCES: JAQ's, PDQ's Interview - Observation, Job element group interview, specification, D.O.T.

PRIMARY RESOURCE PERSONS: (Names, Position, Credentials)

Rollie C. Brooks, Communications Equipment Technician, State Police Communications
 Elmer Eymann, Communications System Administrator II, Department of Law Enforcement
 J. A. Geiger, Captain - State Police
 Henry A. Trapp, Communication System Administrator, Department of Law Enforcement

NARRATIVE OF JOB ANALYSIS ACTIVITIES AND RESULTS:

An initial meeting was held with Ray Stroh, P.O. for Law Enforcement and the above named consultants. The old exam was reviewed and several inadequacies were pointed out. Arrangements were made to collect P.D.Q.'s and to distribute J.A.Q.'s. A performance test used by the State of New Mexico for a similar title was reviewed. This exam was used in part on a qualifying basis for those applicants appearing for the employment interview.

Twenty-eight J.A.Q.'s were returned for analysis. The following elements were rated from very important to extremely important: Work rapidly, do repetitive tasks, reference books, concentration amidst distraction, attention to details, spelling, typing ability, memory of details, ideas and directions, accuracy, adaptability/changing priorities, clear voice, operating radio equipment, from the P.D.Q., the following elements concurred with the J.A.Q.: establishing priorities of messages, typing log sheets, good speaking voice, operating radio equipment, preparing and maintaining records.

The D.O.T. indicated that the Communications Dispatcher position fell in the realm of personal services.

NARRATIVE (continued)

The second meeting consisted of the job element generating session. The sample elements were generated and defined from the JAQ and the PDQ. At this session, other elements were generated which resulted in the following 16 elements.

1. typing - ability to transcribe oral messages as they are received.
2. record keeping - legibly maintaining log sheets, identification forms, inter-office records, etc.
3. voice quality - no speech impediments or accents affecting intelligibility.
4. memorizing - aptitude to learn codes, geographic areas, trooper status, computer formats, police procedures.
5. organizing priorities - determines priorities and messages.
6. following directions - ability to follow oral and written directions.
7. map reading - ability to locate specific points on a map.
8. arithmetic - ability to do simple addition, subtraction, multiplication, and division.
9. trainability - aptitude for learning and adapting to situational requirements.
(test aptitudes)
10. spelling - accuracy equivalent to twelfth grade level.
11. grammar - ability equivalent to twelfth grade level.
12. concentration amidst distraction - including stress conditions.
13. initiative - ability to take action.
14. anticipation - aptitude for perceiving (roles, procedures, etc.)
15. comprehension conveyance - ability to convey meaningful messages.
16. using communication equipment

The interview-observation session took place at the State Police District 9 headquarters, Springfield. The following elements which earlier were indicated to be important were observed and discussed with the supervisor; operation of radio equipment; concentration amidst distraction; typing; establishing priorities, maintaining records and reports; and the operations of teletype terminals.

DISCUSSION OF FINDINGS:

The ten most important elements from the 16 generated are as follows:

1. trainability
2. voice quality
3. typing
4. initiative
5. concentration
6. comprehension
7. following directions
8. record keeping
9. memorizing
10. organizing priority

From these ten elements, the top four testable elements were selected to be included in the examination. They are trainability, typing, comprehension, and concentration. Because the agency thought that a performance test could better assess some aspects of the job performance, the combination written performance test was agreed upon.

WEIGHTS AND METHODS OF MEASUREMENT: The Validity of Occupational Test, Chiselli, 1966, indicated that general intelligence test use valid predictors of trainability. Thus, 40 pre-tested questions from verbal and numerical aptitude tests were chosen to comprise the trainability section of the written test.

For the performance test, three elements were tested. The first of these, comprehension, was tested through a mental recall section. This section tested an applicants ability to comprehend and recall information. The next element, concentration, was tested by a mental recall amidst distraction section. Because it was observed that a dispatcher must work with various distractions, such as constant radio transmissions and data terminal operations, an informative paragraph and radio transmission were simultaneous recorded from which the applicant recalls the important aspects of the paragraph.

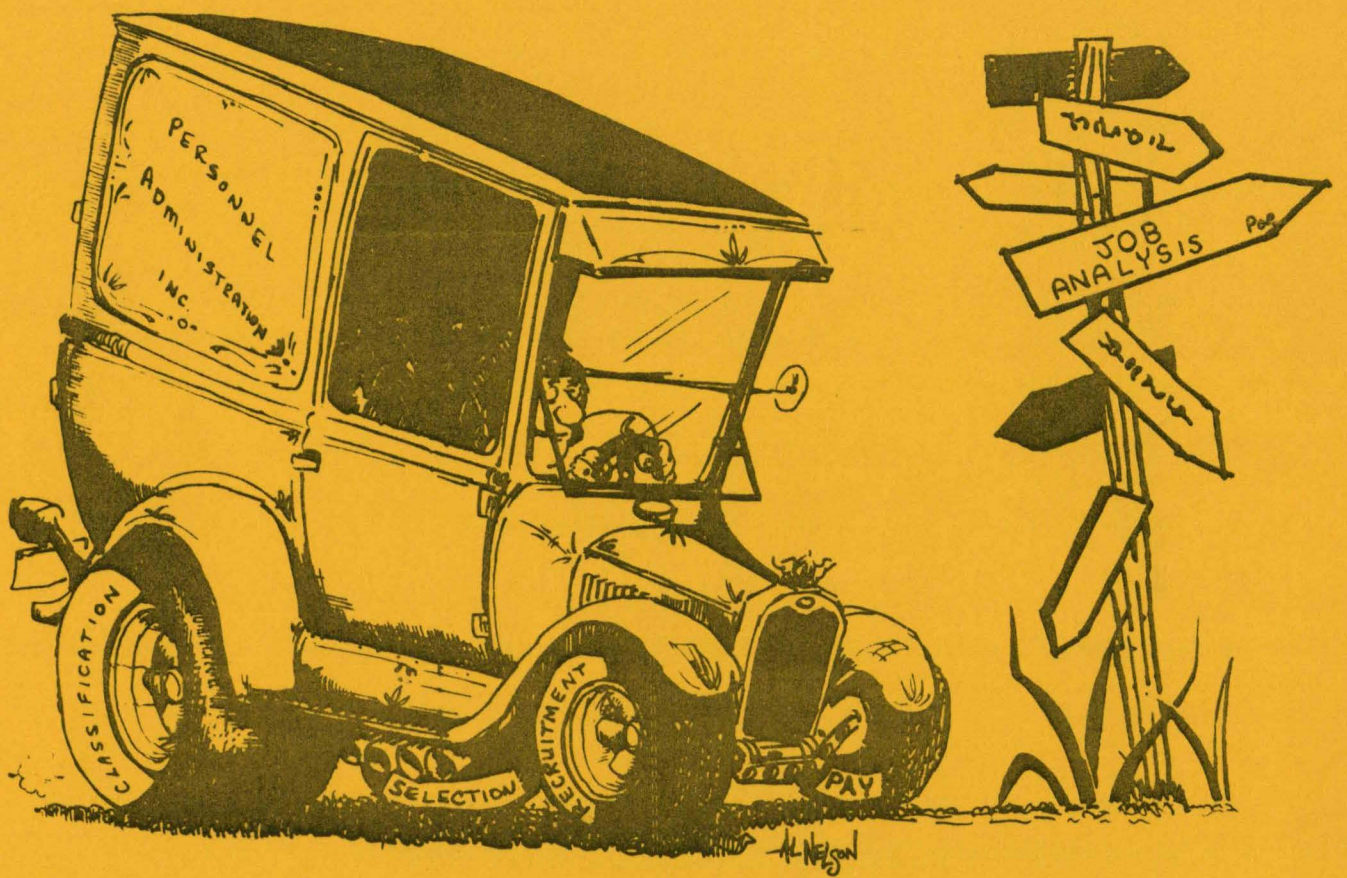
The last section of the performance exam tested the typing element. Since conveyance of the intended message is more important than speed and accuracy for this title, a conventional typing test would not serve the purpose. As a result, a specially designed typing test was constructed consisting of four radio dispatches. Thus, the format of the completed test is as follows:

1. written
 - a. verbal aptitude 20 pts.
 - b. numerical aptitude 20 pts.
2. performance
 - a. comprehension (mental recall) 6 pts.
 - b. concentration (mental recall amidst distraction) 7 pts.
 - c. typing 10 pts. a total of 60 pts.

[REDACTED] The completed exam was then presented to the consultants for recommendations and approval. They indicated that the typing section needed more time in between each dispatch.

This final copy of the test was then taped. Three more tapes were made for examining purposes.

REMARKS AND RECOMMENDATIONS: We recommend that the test be considered one written and performance test until cut-off scores can be determined. Once cut-off scores have been established, we can decide whether or not to keep the test considered as one test comprised of a written and performance sections, or divided into a written and performance section weighing each part separately. Our recommendation that voice quality be determined at the time of the employment interview was accepted.



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