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Extending Synthetic Validation Methodology to Assess Occupational Similarities Within Job Sets and to Select Classification Tests

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The primary objective of this project was to extend and evaluate the synthetic validation methodology for developing job sets and identifying appropriate tests for classifying individuals into job sets and/or within a set. This effort supports the research and development work for the Job Sets for Efficiency in Recruiting and Training (JSERT) concept. The objective of the project was accomplished in two ways: (1) by using a paper-and-pencil job analysis questionnaire and developing a PC-based technology to group similar jobs or to quantify the similarity/dissimilarity of already grouped jobs, and (2) by modifying existing synthetic validation methods to identify the most reasonable test or tests for classification/placement decisions.

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EXTENDING SYNTHETIC VALIDATION METHODOLOGY TO ASSESS OCCUPATIONAL SIMILARITIES WITHIN JOB SETS AND TO SELECT CLASSIFICATION TESTS

CONTENTS

EXTENDING SYNTHETIC VALIDATION METHODOLOGY TO ASSESS OCCUPATIONAL SIMILARITIES WITHIN JOB SETS AND TO SELECT CLASSIFICATION TESTS

Chapter 1. Introduction

This report contains a manual for the MOS Analysis Program developed as part of the project entitled "Extending the Synthetic Validation Methodology to Assess Occupational Similarities Within Job Sets and Select Classification Tests." At the end of this report, Appendix A describes an application of the system to five Army MOS.

Background. Each year, the Army enlists about 100,000 new soldiers. The Army faces a monumental task of making appropriate assignments among accessions into over 250 military occupational specialties (MOS). The Job Sets for Efficiency in Recruiting and Training (JSERT) concept has been advocated as a method for selecting and assigning individuals into MOS. It involves a two-stage process where, in the first stage, applicants are selected into a Job Set for initial training, and in the second stage, individuals are assigned to specific MOS. This two-stage process of assigning applicants to MOS may lead to significantly better job assignments than the current system of directly selecting each applicant into a specific MOS.

With the JSERT process, selection decisions can be made on the basis of the Armed Services Aptitude Battery (ASVAB) scores in the first stage. Specific assignment decisions can be deferred until more extensive information is available on each recruit from initial training performance or from additional testing beyond the ASVAB. Moreover, by having a pool of individuals already in training in a Job Set, the Army is better able to respond to surge demands from particular MOS, drawing from recruits already in training for the relevant job set. Under the current system, a much longer time is required in order to enlist additional soldiers and bring them through both Basic and Advanced Individual Training.

Two processes are critical for the JSERT concept to work. First, there must be a process for evaluating alternative ways of grouping jobs into sets. Second there must be a means of determining the best way to use information that is available at each of the two stages - the initial assignment to a job set and then assignment to a specific job within the set. The first process requires a method for determining the extent to which MOS are similar, and indeed similar enough that recruiting and training for the MOS could be conducted simultaneously. The second process requires the selection of predictors for an MOS for which validity data do not exist, but for which job description data are available.

The primary objective of this project was to evaluate synthetic validation methodology (Balma, 1959; Guion, 1976; Lawshe, 1952; Wise, Peterson, Hoffman, Campbell & Arabian, 1990) for supporting the development of job sets and identifying appropriate tests for use in classification of individuals into job sets and/or into jobs within a set. Thus, this primary objective can be viewed as the evaluation of methodologies for achieving two distinct sub-objectives:

- Developing technology to cluster similar jobs or quantify the similarity/dissimilarity of already clustered jobs, and

- Developing/modifying existing synthetic validation methods for purposes of identifying the best/most efficient/practical test or tests for classification.

To accomplish these goals, we integrated research findings and techniques from the prior research on synthetic validation and developed a system for collecting and analyzing job descriptive data. The MOS Analysis Program is the core of the system. With appropriate supporting activities, it provides a practical means for reliably describing an MOS, comparing it to a set of Army MOS that represents the variety of Army jobs and have been subject to extensive research, and identifying a set or sets of predictors useful for the target MOS. In Chapter 2, we provide a general description of the MOS Analysis System. Chapter 3 contains a description of the data collection instrument and procedures used to collect data. Chapter 4 describes how to prepare a data file using SPSS/DE. Chapter 5 describes how to use the MOS Analysis System. Appendix A describes the application of the system to five MOS that were considered to make up two job sets.

Chapter 2. General Description of the MOS Analysis System

There are three major steps for using the MOS Analysis System. First, the data need to be collected using the Army Task Questionnaire. A copy of the Army Task Questionnaire, part of the Job Description Booklet, is located in Appendix B. Second, the questionnaire data are put into an electronic file using the SPSS/DE program MOSRECRD.SYS. Third, the MOS Analysis System is used to screen the data, compute statistics, compare MOS and generate test weights. In this chapter, we describe, at a general level, the instrument used to collect the job description data, how the data file is prepared using SPSS/DE, and how to use the MOS Analysis Program. Chapters 3, 4, and 5 describe each of these issues in more detail, respectively.

Collecting Data Using the Job Description Booklet

The Job Description Booklet consists of three sections. The first section contains the Privacy Act and a Background Information form for respondents to complete. Respondents are asked to list their post, unit, job title, gender, race, pay grade, time in the Army, the MOS being rated, and experience in the Army. The second section contains the Army Task Questionnaire. This is the data input to the MOS Analysis Program and is described in more detail below. The third section asks respondents to evaluate the Army Task Questionnaire for clarity of instructions and the extent to which the respondent thought that the ratings he/she provided are accurate. This section was used during the research, and is optional for future use.

The Army Task Questionnaire provides the input data for the MOS Analysis Program. This questionnaire consists of 96 task categories that describe job content in terms of the tasks performed. At the most general level, the tasks encompass four categories: (a) maintenance, (b) general operations, (c) administrative, and (d) combat. The development of the Army Task Questionnaire is described in detail in Chapter 3 of the Phase I Synthetic Validation report (Chia, Hoffman, Campbell, Szenas & Crafts, 1989).

Respondents are asked to consider the range of duty assignments for a 24 month soldier in the particular MOS being rated and to complete the questionnaire from this frame of reference. Respondents first rate how frequently, on a scale of 0 = "never" to 5 = "most often," each task is performed by a 24 month soldier. After providing frequency ratings for all items, respondents rate the importance of those tasks and/or activities identified as performed by a 24 month soldier in the MOS being rated, i.e., tasks with non-zero frequency ratings. Using a scale of 0 = "no importance" to 5 = "extremely high importance," ratings were collected for three areas of job performance: Core Technical, General Soldiering, and Overall Performance. These performance areas are defined in a handout contained in the booklet entitled Performance Area Definitions. After completing the questionnaire, SMEs are asked to write in any tasks performed by soldiers in the focal MOS that are not listed in the questionnaire.

Preparing Data Files Using SPSS/DE

There are several quality control procedures that need to be followed before the data file is created. These are listed below.

- The data should be checked for completeness. Although, this will actually be done during the data collection, it should be repeated prior to data entry.
- A unique identification code (ID) number should be assigned to each booklet.
- If more than one person is assigning ID numbers, it may be useful to record the ID numbers on a tally sheet along with the name and social security number of the respondent, and the MOS rated by the respondent.

After these procedures are followed, the data are ready to be entered using the SPSS/DE program called MOSRECRD.SYS. This program presents screens designed to look like the Job Description Booklet itself. Details about the screens and how to use them are described in Chapter 4.

Using the MOS Analysis Program

As indicated previously, the general purpose of the MOS Analysis Program is to analyze data collected using the Army Task Questionnaire. The program has six major functions as indicated below:

1. The program screens questionnaire responses. The editing rules that are part of the program are:

   a. If there is no frequency rating, it is assumed to be zero.

   b. An error is registered for an item when:

      - one or more of the four variables is out of range (0 - 5),
      - a logical inconsistency exists in the item response:
        - frequency is zero (or missing) when any of the three importance ratings is not zero and not missing,
        - frequency is greater than zero and any importance rating is missing.

   c. All data for an item is set to missing if any error occurs for the item.

d. The number of items which have one or more errors is counted for each respondent or case.

If there are any missing items, the program asks if the case should be used for analysis. The recommended screening rule has been: if less than ten percent of the data are missing for any one case (about 9 tasks), then it is appropriate to use the data.

2. The MOS Analysis Program computes means and standard deviations for task ratings and the degree of agreement between raters.

3. The program adds data for new MOS to the existing database (mean ratings and agreement indexes are added, standard deviations are not added).

4. Mean task ratings of MOS are compared, using correlation and d-squared statistics.

5. Synthetically derived weights for an operational set of predictor measures, including the ASVAB and Project A predictors, are computed.

6. The MOS Analysis Program also allows the identification of least squares weights, obtained for MOS included in Project A research, to be identified for possible use with new MOS. This is done by identifying the Project A MOS that the new MOS is most similar to, via the correlation and d-squared statistics. Then the least squares prediction equation for that Project A MOS can be produced by the program for use with the new MOS.

Chapter 3. Collecting the Data

This chapter describes activities to be performed prior to and during the data collection. Before the data collection, logistics must be arranged and the qualifications of the respondents (i.e., familiarity of the respondent with the MOS being rated) must be ensured. During the data collection, certain procedures are recommended to ensure quality data. These are described in more detail below.

Preparing for the Data Collection

Once the point of contact at the site has been established and clearance to go to the data collection site has been obtained, the time and place for the data collection need to be arranged. The room in which the respondents complete the booklet needs to have adequate lighting and a classroom type of set up is preferred. The respondents need to have a desk to write on and enough space to lay the Job Description Booklet open and refer to the handout of Performance Area Definitions. Sessions should be scheduled for two hours, though most soldiers will complete their work in less time than that.

It is very important that the respondents be qualified to rate the MOS they have been assigned to rate. In order to provide accurate ratings, the respondents should have relevant experience with the MOS, either as a soldier in the MOS, as a supervisor of soldiers in the MOS, or as a trainer of soldiers in the MOS. The respondents should have enough experience with the MOS to be considered knowledgeable and the experience should be recent (within the past year).

In preparing for the data collection session, it is important to have enough booklets, one for each participant for each MOS rated (i.e., if a participant is rating two MOS, two booklets will be needed). It is a good idea to bring a camera-ready copy of the complete booklet in case there are more respondents than anticipated. If this happens, copies of the booklet can be made at the data collection site.

Conducting the Data Collection

There are several procedures that should be followed at the time of the data collection to ensure quality data. If more than one MOS is to be rated, a tally sheet should be kept of the numbers of respondents rating each MOS. This tally sheet can be used to ensure that there are an adequate number of ratings for each MOS. Create the tally sheet by recording the MOS the respondents are to rate when they come into the room, or by asking for a show of hands when everyone is seated. If more than one session is conducted for an MOS, keep a running tally across all sessions.

Once it is determined that all the respondents have arrived, the Job Description Booklets may be distributed. It is extremely useful to give a brief overview of the project and to read the instructions to the respondents. While it may appear unnecessary to read the instructions, we have found that most respondents will not read them unless they are reading along with the

survey administrator. A brief overview of a project should correspond to the following description, suitably modified, of course, for the purposes of the research:

> Hello. My name is <give your name> and I am working with the Army Research Institute on a project known as JSERT. This stands for Job Sets for Efficiency in Recruiting and Training. The purpose of this project is to determine if there are MOS that are sufficiently similar that recruiting and training efforts may be combined across different MOS. I am here to collect judgments about <fill in number> Army MOS using JSERT methods and you have been assigned to rate one of these MOS. This procedure has been used for over 20 jobs. The Job Description Booklet on your desk is a standard instrument designed to provide information to determine the similarities and differences among Army MOS in terms of tasks performed. For example, if the same tasks are performed as part of different MOS, these tasks could be trained at the same time for the different MOS. Does anyone have any questions? <Answer any questions respondents may have.>
>
> The Job Description Booklet is divided into three sections. The first section contains the Privacy Act and a Background Information Form. Please read the Privacy Act and fill out the Background Information Form now and wait for further instructions.

After the respondents have completed the Background Information form, have them turn to Section 2, and rip the Performance Area Definitions out of the booklet. Then, read the instructions aloud, stressing they are to complete the ratings for the MOS they have been assigned, which may not be their MOS. Also, emphasize that they are to think about soldiers who have about 24 months of service, after Basic and AIT, in the MOS they are rating. Respondents will need to be reminded that if the Frequency rating for a task is zero, Importance ratings for that task are not needed.

As respondents are making their ratings, walk around the room to make sure that they are providing complete data and that they are filling out the questionnaire correctly. When their ratings are complete, instruct them to go on to Section 3. Before each respondent leaves, check the booklet to make sure that the data are complete. On the Background Information form, it is very important that they indicate the MOS they are rating (Item 11). If this is missing, the data are not usable. This may take some extra time at the end of the session, but once the respondents leave, it will be difficult, if not impossible, to ask them to return.

Chapter 4. Preparing the Data File Using SPSS/DE

After the data are reviewed for completeness and accuracy and ID numbers are assigned, the data are ready to be entered using SPSS/DE. The SPSS/DE, short for data entry, is a system for entering data into a computer. The data entry program is already prepared and it is called MOSRECRD.SYS. This program must be used in order to use the MOS Analysis System. MOSRECRD.SYS is designed so that a clerk can enter the data. Once the programs have been installed on the computer in the appropriate subdirectory, several commands must be issued to get into the program the first time. They are as follows:

1. At the C prompt, type SPSS/DE: start the program
2. Shift F2 for Files: moves into files menu to select file
3. F2 for Get Files: tells program you wish to retrieve a file
4. <enter> for SPSS/PC: specifies the type of file
5. MOSRECRD.SYS: specifies the file name containing data entry screens to create SPSS file
6. <space>: to verify the retrieval of MOSRECRD.SYS
7. Shift F5 for Data: to start data entry
8. F6 for Add Cases: to add cases to the file

After these commands, the cursor should be on ID number. Shown below is the list of variables in the order in which they should be entered. Number of characters in each variable, the type of variable (numeric or string), limitations on the values that can be input for each variable and the definition of the variable are displayed. The program will indicate when data are being entered incorrectly. We include this table for documentation purposes only.

Variable Name	Number of Characters	Type of Variable	Limitations	Definition of Variable
ID	2	Numeric	(1-99)	ID Code #
Name	30	Numeric		Respondent's name
SSN	11	String	xxx-xx-xxxx	Respondent's SSN
Date_day	2	Numeric	(1-31)	Date of data collection
Day_mo	2	Numeric	(1-12)	Month of data collection
Day_yr	2	Numeric	("91" only)	Year of data collection
Post	30	String		Respondent's post
Unit	20	String		Respondent's unit
Position	20	String		Respondent's position
Sex	1	Numeric	1 = Male 2 = Female	Gender of job expert

Variable Name	Number of Characters	Type of Variable	Limitations	Definition of Variable
Race	1	Numeric	1 = Black 2 = American Indian 3 = Hispanic 4 = White 5 = Other	Race of job Expert
Paygrade	5	String		
Tim_yrs	2	Numeric	(1-40)	Time in the Army (years)
Tim_mos	2	Numeric	(1-11)	Time in the Army (months)
MOS	3	String		MOS being rated
Exper_yrs	2	Numeric	(1-40)	Exper in MOS (years)
Exper_mos	2	Numeric	(1-11)	Exper in MOS (months)
FREQ1	1	Numeric	(0-5)	Frequency rating for Task 1
CTIMP1	1	Numeric	(0-5)	Importance for CTP-Task 1
GSIMP1	1	Numeric	(0-5)	Importance for GSP-Task 1
OPIMP1	1	Numeric	(0-5)	Importance for OP-Task 1

Note that when zero is entered as the Frequency rating for a particular task, the cursor will skip to the next Frequency rating, not allowing you to enter Importance ratings for that task. This is in concert with the directions in which respondents should not make Importance ratings for tasks with Frequency ratings of zero. Also, values greater than 5 cannot be entered as ratings.

After the data are entered, the file should be saved. The commands to do this are:

1. Shift F2 for Files
2. F3 for Save Files
3. <enter> for SPSS/PC as the record type
4. <filename>.SYS to specify the name you desire
5. SPSS/DE asks if you wish to save the file in compressed mode. The answer depends on the available memory on your computer. Answer either Y or N and hit <enter> and the file will be saved.

Remember that <filename.SYS> is now the file that you should use for the duration of the data entry for the project, which is likely to include more than one MOS. Use this name in

Step 5, on page 8, rather than MOSRECRD.SYS. (Use MOSRECRD.SYS when you wish to start a new data file.) Also, <filename.SYS> is the input file for the MOS Analysis Program.

Chapter 5. Using the MOS Analysis Program

Background

The information used by the MOS Analysis Program was developed as part of two major projects sponsored by the Army Research Institute: Project A and the Synthetic Validity project (SynVal). The purpose of Project A was to validate the ASVAB and new predictors for 19 representative MOS. Results showed that the ASVAB and the new predictors have significant validity for job performance measures. These results are documented in Personnel Psychology (Summer, 1990) and in ARI Technical Reports 739, 746, 813101 and 1597. The purpose of the Synthetic Validity project was to try various methods of extending Project A results to other MOS. Results showed that "synthetic" equations and least squares equations for "most similar" Project A MOS worked well. These results are documented in ARI Technical Reports 845, 892, and 992.

The following is a list of MOS studied as part of Project A and SynVal.

11B Infantryman -- Leads, supervises and serves as a member of an infantry activity involving machine guns and other weapons in offensive and defensive combat operations. Duty is to destroy enemy personnel, weapons and equipment.

12B Combat Engineer -- Commands, serves or assists as a member of a team, squad, section or platoon engaged in providing combat engineering support to combat forces. Performs combat construction, demolitions and related duties.

13B Cannon Crewman -- Supervises or serves as a member of field artillery cannon unit. Participates in emplacement, laying, firing and displacement of field artillery cannons.

16S Man Portable Air Defense System (MANPADS) Crewman -- Supervises or serves as a member of MANPADS missile unit by preparing and firing MANPADS missile.

19K Armor Crewman -- Leads, supervises or serves as a member of M60 armor unit in offensive and defensive combat operations. Loads and fires tank main gun.

27E TOW/Dragon Repairer -- Supervises or performs direct and general support maintenance on the TOW and DRAGON missile systems, trainers, nightsights, battery chargers and system peculiar test and check-out equipment.

29E Electronics Radio Repairer -- Installs, performs and/or supervises unit, intermediate DS/GS and depot level maintenance on radio receivers, transmitters, and associated equipment.

31C Single Channel Radio Operator -- Operates single channel radio, radio teletype and satellite equipment.

51B Carpentry/Masonry Specialist -- Performs general and heavy carpentry and masonry duties in fabrication, erection, maintenance and repair of wooden and masonry structures and articles.

54E Chemical Operations Specialist -- Performs nuclear, biological and chemical (NBC) reconnaissance and operates and maintains identification/detection and decontamination equipment.

55B Ammunition Specialist -- Supervises, performs or assists in storage, receipt issue, stock control, accounting and maintenance operations involving ammunition, ammunition components and explosives.

63B Light Wheel Vehicle Specialist -- Performs and supervises organizational maintenance and recovery operations on light wheel vehicles (prime movers designated as five ton or less and their associated trailers). Troubleshoots and performs unit maintenance on internal combustion engines and accessories, powertrain and chassis components.

67N Utility Helicopter Repairer -- Supervises, inspects or performs maintenance on utility helicopters, excluding repair of systems components. Assists in organizational, direct and general support (aviation unit, intermediate and depot) maintenance of utility helicopters.

71L Administrative Specialist -- Supervises or performs administrative, clerical and typing duties.

76Y Unit Supply Specialist -- Supervises or performs duties involving request, receipt, storage issue, accounting for and preservation of individual, organizational, installation, and expendable supplies and equipment in a unit.

88M Motor Transport Operator -- Supervises or operates wheel vehicles to transport personnel and cargo.

91A Medical Specialist -- Supervises dispensary or field medical facilitates, administers emergency medical treatment to battlefield casualties, assists with in-patient and out-patient care and treatment, and assists with technical and administrative management of medical treatment facilities.

94B Food Service Specialist -- Supervises or prepares and cooks food in field, garrison or central food preparation activities.

95B Military Police -- Supervises or provides law enforcement activities, preserves military control, controls traffic, quells disturbances, protects property and personnel, handles prisoners of war, refugees or evacuees, and investigates incidents.

96B Intelligence Analyst -- Supervises or participates in collection management, analysis, processing and dissemination of combat strategic and tactical military intelligence.

We collected Army Task Questionnaire data for an additional MOS, 31D Mobile Subscriber Equipment Transmission System Operator, as part of the Synthetic Validity project. However, we could not include this MOS in the verification of validation equations because it was added to the Army enlisted MOS after Project A was well underway. For this reason, no job performance data were collected as part of Project A for 31D.

One of the main purposes of the Synthetic Validity project was to obtain and evaluate synthetic prediction equations. Three steps were necessary to accomplish this goal. First, the Army Task Questionnaire was developed and evaluated for reliability and user-acceptance. It was used by Army SMEs to provide frequency and importance ratings for 96 Army task categories for 21 MOS. Second, predictors were linked via expert judgment to the job components by psychologists. Specifically, the psychologists estimated the correlations between 31 personnel attributes and 96 task categories. These 31 attributes are named in Table 1. Also shown in Table 1 are the 26 attributes for which actual Project A measures had been developed. These variables are defined in the Concurrent Validation Codebooks for each MOS in the introductory pages (Young, Austin, McHenry, & Wise, 1987). Only those 26 attributes were included in Synthetic Validation analyses.

Table 1. Synthetic validity attribute names, reference numbers for synthetic validity ratings, reference numbers for Project A measures, and concurrent validation (Project A) variables in operational composites used to create prediction equations.

Attribute Name	SynVal Rating Number	Project A Measure Number	Project A Operational Composite Name
Verbal Ability	1	1	A1AVERBAL
Reasoning	2	2	B3PCREAS
Number Ability	3	3	A1AQUANT+B3CCNMSA
Spatial Ability	4	4	B3PCORNT+B3PCSCAN
Closure	5	-	
Mental Info Process	6	5	100-B3CSCRDT-B3CSSRDT+B3CSCRHT+B3CSSRHT

Table 1. (Continued)

Attribute Name	SynVal Rating Number	Project A Measure Number	Project A Operational Composite Name
Percept Speed & Accuracy	7	6	100-B3CST1DT+ B3CSPSHT+B3CST1HT
Memory	8	7	50-B3CSSMDT+ B3CSTSDT
Mechanical Comprehension	9	8	A1ATECH
Eye-Limb Coordination	10	9	100-B3CSTDL- B3CSTSDT
Precision	11	10	100-B3CST1DL- B3CST2DL
Movement Judgment	12	11	50-B3CSCSTS
Hand & Finger Dex.	13	12	50-B3CSRTMT
Physical Strength	14	-	A1PULHN2+A1PULHN3
Physical Endurance	15	-	A1PULHN1
Balance & Flexibility	16	-	
Involvement in Athletics	17	13	B3TSCOND
Work Orientation	18	14	B3TCSURG+B3TSCOOP+ B3TCADJU
Sociability	19	-	B3ISLEAD
Cooperation/ Stability	20	15	B3TSSTAB+B3TSCOOP+ B3TCADJU
Energy	21	16	B3TSENER

Table 1. (Continued)

Attribute Name	SynVal Rating Number	Project A Measure Number	Project A Operational Composite Name
Conscientiousness	22	17	B3TCDEPN
Dominance/Confidence	23	18	B3TSESTM+B3TSDOMN
Interest in Tools	24	19	B3ISMECH+B3ISCONS+
Interest in Rugged Activities	25	20	B3ISINDI+B3ISARMS+ B3ISCOMB
Interest in Protective Service	26	21	B3ISLAWE+B3ISFIRE
Interest in Technical Act.	27	22	B3ISECOM+B3ISDRAF+ B3ISAUDI
Interest in Science	28	23	B3ISMER+B3ISMATH+ B3ISSCIE+B3ISCOMP
Interest in Leadership	29	24	B3ISLEAD
Interest in Artistic Act.	30	25	B3ISAEST
Interest in Efficiency	31	26	B3ISFSRP+B3ISFSRE+ B3ISCLER+B3ISSHIP

The third step involved investigating methods for generating prediction equations, using Army Task Questionnaire and validity judgment data. "Full" equations employing all 26 predictors were created by combining the psychologist and Army SME judgments. Methods for reducing the synthetic validity equations were: 1) using stepwise regression against the original "full" equation to compute weights for a reduced set of predictors that correlate no less than .95 with the full equation, and 2) threshold weighting, a method in which only attributes with mean validity ratings greater than 3.5 were weighted and only task categories with mean ratings greater than 3.5 were weighted. Attributes and tasks lower than these thresholds were not weighted.

How to Use the MOS Analysis Program

Setup. In order to use the MOS Analysis System, you need the following files in your directory:

ANLYZMOS.EXE	the executable program
ATTRIBS.NAM	short names and index numbers of the attributes
JS_DATA.NRM	norms for SynVal MOS already analyzed (Ns, means and reliabilities)
<XXXX.SYS>	input data file prepared using the data entry package (see Chapter 4)
KSAS.NAM	full names of the attributes
RXX.DAT	means, standard deviations and correlations of 26 Project A measures
SYNVAL.BTA	least squares equations for MOS studied in Project A and SynVal project
TASKS.NAM	names of the 96 task categories
VALTSK.DAT	mean validity ratings by psychologists from SynVal project
JS_DATA.NDX	norms for all MOS analyzed with Army Task Questionnaire and screened for inclusion in norms (binary file)

Running the MOS Analysis System. When the MOS Analysis System executes, it looks for .SYS files. Only files that have been prepared as described in Chapter 4 are usable by the MOS Analysis System. If there is more than one .SYS file, the program asks the user to choose one.

To invoke the program, type ANLYZMOS. The opening screen, shown in Figure 1 describes the general purpose and major functions of the program. Further information about the supporting research, how to obtain and prepare input data, keyboard use instructions, and naming output files can be found in the Information options.

When the option "Go to Analysis Operations" is chosen, the screen shown in Figure 2 appears in which one must choose between using input data or only the normative data. Choose "Operations using input data" when you have a file of new data to be processed, otherwise, choose "Operations using only normative data." First, we will discuss the options available for the input data, then we will describe those available for the normative data.

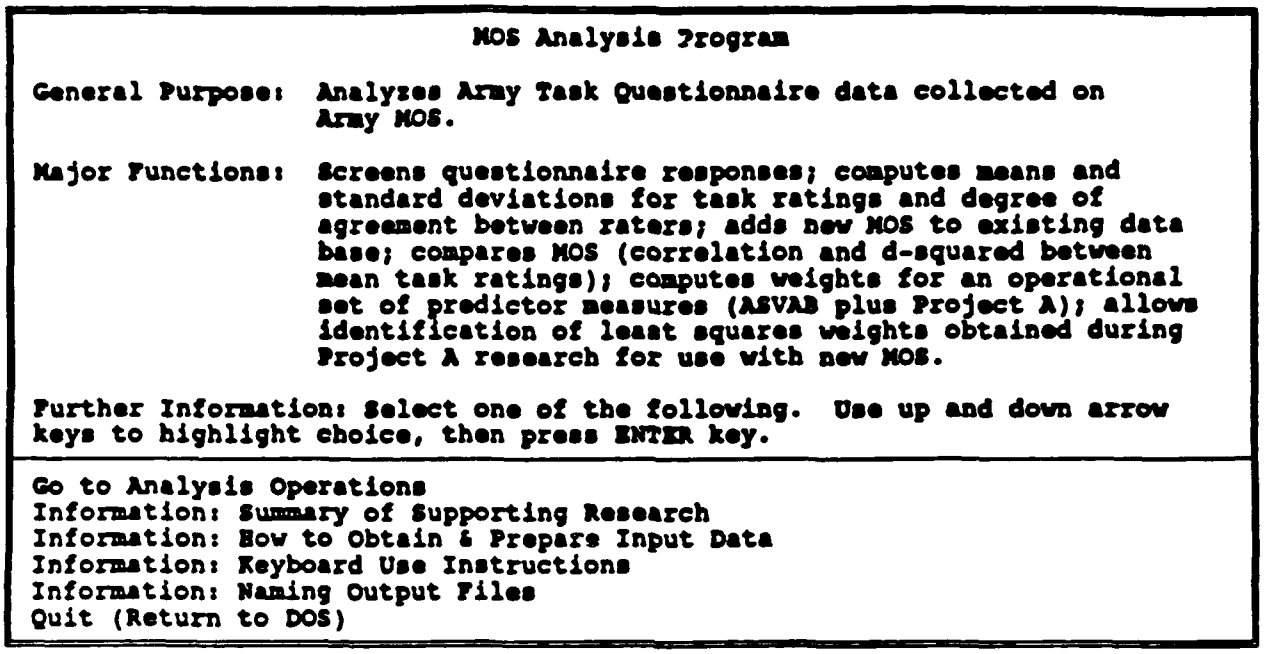

Figure 1. Opening screen

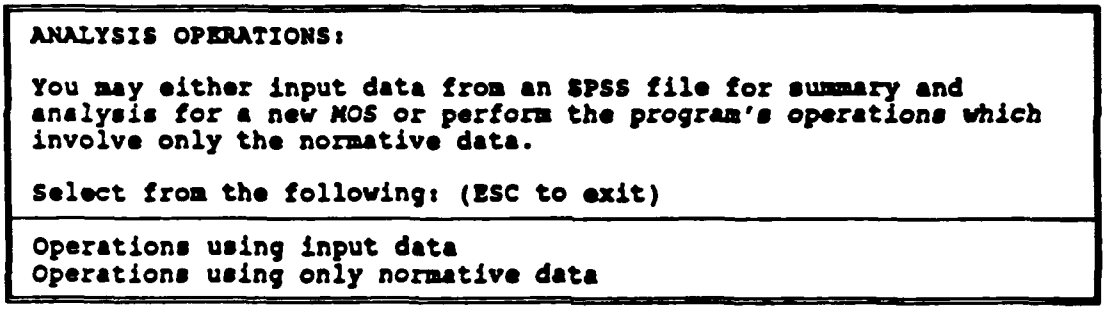

Figure 2.

Input Data

As part of the project, we collected questionnaires and prepared input data for MOS 41C, 45B, 45G, 45K, and 45L and this data file is used for illustration. (These data have already been added to the normative data base, which also contains the MOS studied in the Synthetic Validity project.) If the option "Operations using input data" is selected, then the particular MOS of interest must be selected, as shown in Figure 3. Only one MOS is processed at a time. The program will run through the data and identify cases with errors/missing values. When these are found, the program will ask if the case is to be included in subsequent analyses. An example of this kind of message is shown in Figure 4. As indicated in Chapter 2, and advised in the

displayed screen, if less than ten percent of the data are missing for any one case (about 9 tasks), then it is appropriate to use the data. Otherwise, the case should be deleted by hitting N for no.

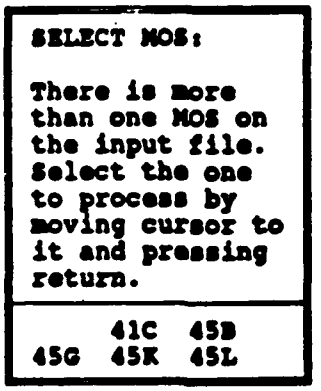

Figure 3.

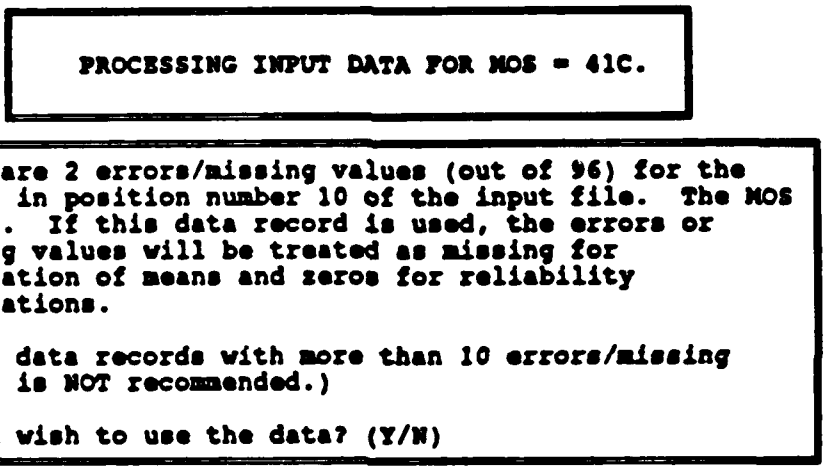

Figure 4.

After all errors are found, there are four options from which to choose as shown in Figure 5.

Output statistical item summary. First, a statistical item summary can be produced, as shown in Figure 6. This report can be displayed on the screen or written to a file; the choice is made using the menu shown in Figure 7. The report consists of sample sizes, means, and standard deviations of task ratings for the four scales. Also included in the report is the N-rater (called Hoyt) and single rater reliabilities. This option contains a help screen that provides access to explanations of the column headings, definitions of the performance areas (i.e., core technical, general soldiering, and overall performance), definitions of the frequency and importance scales, and an explanation of Hoyt reliability. The screen showing these options is shown in Figure 8.

Data for MOS, 41C, has been processed. Choose one of the following (ESC to quit):

Output statistical item summary
Output comparisons to normative records
Compute synthetic validity weights
Add its data to normative data file

Figure 5.

REPORT FOR JOB ANALYSIS ITEMS: MOS=41C

Task	n	Frequency Mean	Frequency S.D.	Core Tech. Mean	Core Tech. S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
1	10	3.40	1.43	2.50	1.43	3.70	1.10	3.30	1.27
2	11	2.00	1.54	1.91	1.98	2.82	1.85	2.73	1.76
3									1.72
4	Perform Operator Maintenance Checks and Services								1.83
5									1.75
6	11	1.27	1.76	1.27	1.71	1.09	1.50	1.27	1.71
7	11	.36	.48	.73	1.05	.64	1.07	.64	1.07
8	11	.73	.86	1.55	1.78	1.18	1.47	1.45	1.67
9	11	.27	.62	.45	.99	.45	.99	.45	.99
10	11	1.27	1.14	1.91	1.56	1.64	1.55	1.55	1.50
11	11	.73	.96	1.09	1.38	1.09	1.50	1.27	1.60
12	11	.18	.39	.27	.62	.45	.99	.45	.99
13	11	0	0	0	0	0	0	0	0
14	11	0	0	0	0	0	0	0	0
15	11	0	0	0	0	0	0	0	0
16	11	2.00	1.41	2.27	1.60	2.64	1.67	2.64	1.67
Hoyt Reliab			.8490		.8025		.8526		.8446
Sngle Rater			.3383		.2698		.3446		.3307

No. of raters = 11. (Missing data set to 0's for reliabilities.)

Text is displayed for marked item.

Use ARROW keys, PgUp, and PgDn to move.

Press F1 for additional info.

Press ESC to quit.

Figure 6.

SUMMARY REPORT DESTINATION:

You may either obtain a report on the screen or write it to a file.

Select from the following: (ESC to exit)

Display report on the screen
Write report to file

Figure 7.

REPORT FOR JOB ANALYSIS ITEMS: MOS=41C

Task	n	Frequency Mean	Frequency S.D.	Core Tech. Mean	Core Tech. S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
13	11	0	0	0	0	0	0	0	0
14	11	0	0	0	0	0	0	0	0
15	11	0	0	0	0	0	0	0	0
16	11	2.00	1.41	2.27	1.60	2.64	1.67	2.64	1.67
Hoyt Reliab		.8490		.8025		.8526		.8446	
Sngle Rater		.3383		.2698		.3446		.3307	

No. of raters = 11. (Missing data set to 0's for reliabilities.)

Descriptive Statistics and Reliabilities for Army Task Questionnaire Job Analysis

Select one of the following:

Explanation of column headings
Definitions of Core Technical, General Soldiering, Overall Perf.
Definitions of Frequency and Importance Scales
1 Explanation of Hoyt Reliability
1 Return to Job Analysis Report
1

d p, to for additional info.

Press ESC to quit.

Figure 8.

Output comparisons to normative records. Second, the output can be compared to the MOS in the normative records. The program will ask you to choose the scale on which the comparisons are to be made, as shown in Figure 9. Figure 10 shows the comparisons of mean task rating profiles between 41C and the normative MOS using correlation and d^2 statistics. To see the comparisons of mean task ratings between two MOS, the user can hit <enter> and select one of the options shown in Figure 10. *The item-by-item comparison listing* between 41C and 96B is shown in Figure 11. Note also that F1 can be pressed to display explanations of the information presented on the screen (e.g., for r, d^2, etc.).

Select one of the 4 scales upon which to perform comparisons (ESC to quit):

Frequency Scale
Core Technical Scale
General Soldiering Scale
Overall Performance Scale

Figure 9.

COMPARISONS OF MEAN TASK RATING PROFILES OF 41C
on Frequency Scale to MOS on Normative Data File.

No.	MOS	r	D-sqr	n	rel	Source
1	41C	1.00	0	11	.85	JSERT
2	63B	.83	68.0	50	-	SYNVAL
3	67N	.83	72.8	58	.99	SYNVAL
4	45L	.81	64.9	12	.90	JSERT
5	45B	.79	41.2	13	.91	JSERT
13	19K	.65	166.8	52	.98	SYNVAL
14	76Y	.64	105.0	50	.98	SYNVAL
15	94B	.64	58.3	43	.97	SYNVAL

Use ARROW keys, PgUp, and PgDn to move.

Choose one:

Item-by-item comparative listing
Sorted item-by-item comparative listing
SYNVAL equations not available for either MOS

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Press F1 for information

Press ESC to quit.

Figure 10.

COMPARISONS OF MEAN TASK RATING PROFILES OF 41C
Item-by-item Comparisons of Mean Ratings on Overall Performance Scale
For MOS 41C with 96B, Intelligence Analyst.

Itm	41C	96B	Item Text
1.	3.30	3.31	Perform Operator Maintenance Checks and Services
2.	2.73	3.72	Perform Operator Checks and Services on Weapons
3.	1.55	.23	Troubleshoot Mechanical Systems
4.	1.45	.20	Repair Weapons
5.	2.50	.53	Repair Mechanical Systems
6.	1.27	.76	Troubleshoot Weapons
7.	.64	2.51	Install Electronic Components
8.	1.45	.31	Inspect Electrical Systems
9.	.45	.26	Inspect Electronic Systems
10.	1.55	0	Repair Electrical Systems
11.	1.27	.08	Repair Electronic Components
12.	.45	1.83	Pack and Load Materials
13.	0	.13	Prepare Parachutes
14.	0	.26	Prepare Equipment and Supplies for Air Drop
15.	0	0	Operate Power Excavating Equipment
16.	2.64	3.46	Operate Wheeled Vehicles
17.	.82	1.98	Operate Track Vehicles
18.	0	.01	Operate Boats

Figure 11.

Compute synthetic validity weights. Third, the synthetic validity weights can be computed. We recommend that the user use Core Technical Importance ratings for computing synthetic validity weights, although the program can compute weights using any of the ratings. The synthetic validity research showed these ratings to be most useful for computing weights.

Prior to calculating the synthetic validity weights, the program asks for two decisions. First, it asks for a cut-off for the Task by Attribute ratings. The cut-off of 3.50 is strongly recommended since this was the cut-off used for the weighting method validated in the supporting research (Wise, Peterson, Hoffman, Campbell & Arabian, 1990). Another reason for using this cut-off is that there is little or no research on the characteristics of synthetic equations computed using different cut-offs. Next, the programs asks for a cut-off for the task ratings. Here again, the options are to include tasks with means greater than 3.50, all tasks, or to set a cut-off different than 3.50 (see Figure 12). We recommend using cut-offs less than 3.50, if 3.50 or "all tasks" is not chosen. If a cut-off greater than 3.50 is chosen, very few or no tasks may fall above the cut-off. (Figure 13 shows the screen used to choose a cut-off value.)

If any cut-off value is invoked, the program checks to see how many tasks will be included and displays the number of selected tasks. The program then asks if "that is okay," as shown in Figure 14. You should not proceed if no tasks are selected using the present cut-off value. Instead, answer "N" for No, and set the cut-off value lower, or use all tasks.

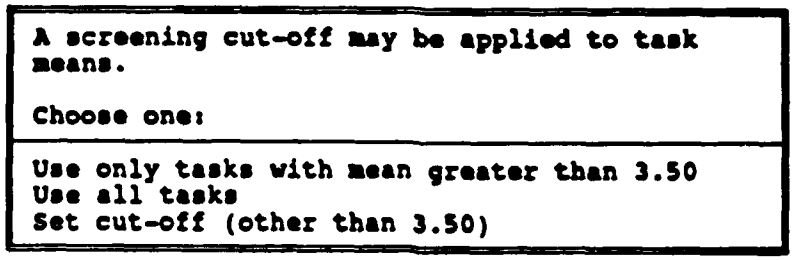

Figure 12.

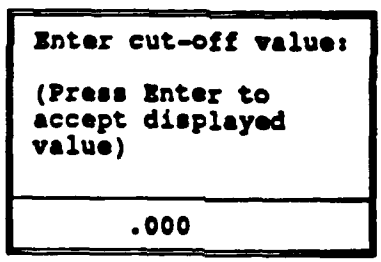

Figure 13.

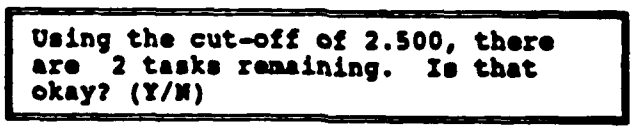

Figure 14.

Figure 15 shows the display of synthetic validity and reduced equation weights. Note that pressing F1 causes the display of definitions of the columns in the table and the correlation of the reduced equation with the full equation. There are several modifications that can be requested after the synthetic validity weights are computed. Pressing <enter> makes these

options available. They are shown in Figure 15, in the box on the right. Note that HELP can be displayed to explain the various options. Variables can be added to the program to maximize the multiple correlation. Variables can be removed by the program that will minimally reduce the multiple correlation. Variables can be directly or manually forced into (or out of) the equation by the user. Figure 15 shows the synthetic equation for 41C where no variables have been forced into the reduced equation. Figure 16 shows the reduced equation in which Variable 4 (Spatial Ability) was forced in. Forced variables have an asterisk beside the reduced weight. Notice also that the multiple correlation between the full and reduced equations increases with the addition of another variable.

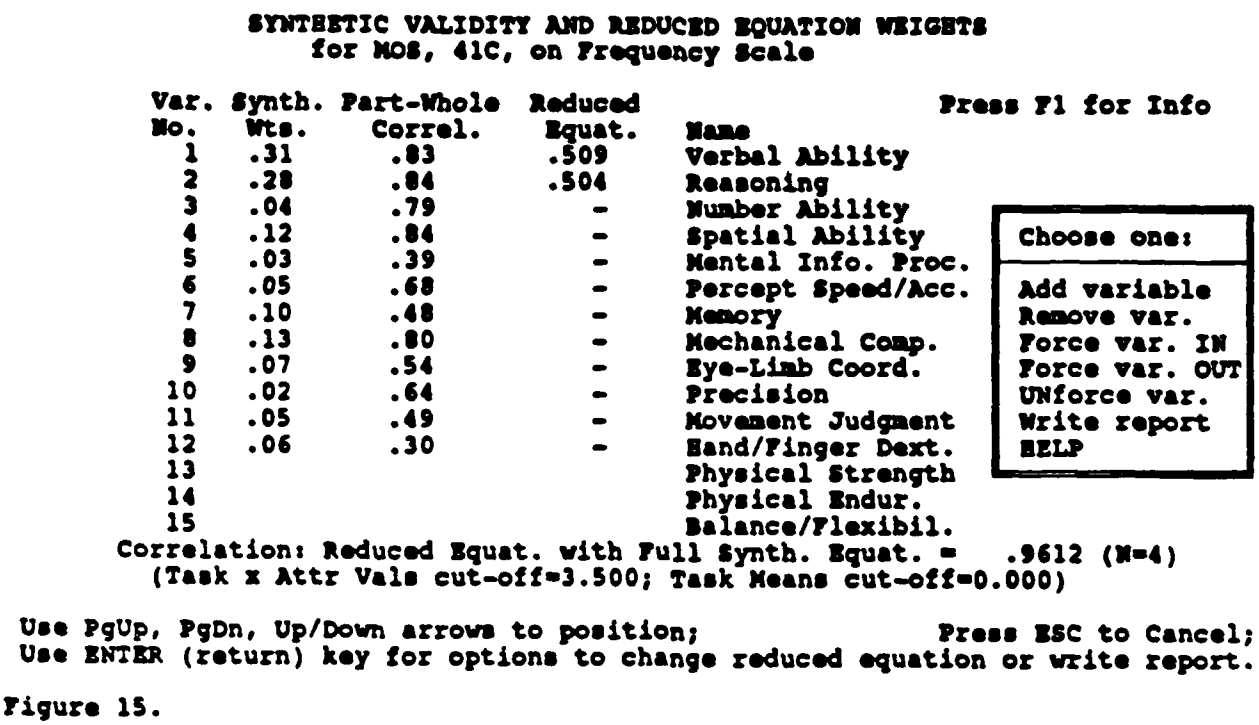

Figure 15.

```
SYNTHETIC VALIDITY AND REDUCED EQUATION WEIGHTS
    for MOS, 41C, on Frequency Scale

Var.  Synth.  Part-Whole  Reduced                    Press F1 for Info
No.   Wts.    Correl.     Equat.    Name
  1   .31     .83         .429      Verbal Ability
  2   .28     .84         .357      Reasoning
  3   .04     .79           -       Number Ability
  4   .12     .84         .253*     Spatial Ability
  5   .03     .39           -       Mental Info. Proc.
  6   .05     .68           -       Percept Speed/Acc.
  7   .10     .48           -       Memory
  8   .13     .80           -       Mechanical Comp.
  9   .07     .54           -       Eye-Limb Coord.
 10   .02     .64           -       Precision
 11   .05     .49           -       Movement Judgment
 12   .06     .30           -       Hand/Finger Dext.
 13                                  Physical Strength
 14                                  Physical Endur.
 15                                  Balance/Flexibil.
  Correlation: Reduced Equat. with Full Synth. Equat. =   .9728 (N=5)
    (Task x Attr Vals cut-off=3.500; Task Means cut-off=0.000)
Use PgUp, PgDn, Up/Down arrows to position;          Press ESC to Cancel;
Use ENTER (return) key for options to change reduced equation or write report.
```

Figure 16.

Add its data to the normative file. Fourth, the data that has been processed can be added to the normative data. This process is menu-driven and the commands are self-explanatory. However, new data should only be added by knowledgeable individuals who are responsible for adding data to the file.

Persons responsible for adding data for a new MOS to the normative database should consider several factors. First, there should be very little missing data encountered in processing the SME's questionnaires. Recall that the MOS Analysis Program identifies missing data and inconsistent responses (collectively called "errors") for each respondent and then displays the number of errors for each respondent or case. If a respondent has more then 9 "errors," we have recommended their data not be used (a ten percent "bad" data rule). Only a small proportion of respondents should be so excluded in order for the MOS data to be included in the normative data base (no more than 1 or 2 respondents in a group of ten to fifteen). If several SMEs have greater than ten percent "errors," then one must question the care with which the data were collected. Second, the Hoyt reliability coefficient should be at least .80 if ten or more knowledgeable SMEs are used to provide questionnaire ratings. (This standard can be relaxed in special cases, e.g., when an MOS is newly developed, less well defined, and very few subject matter experts exist to provide ratings on the questionnaire.)

Normative Data

There are four actions that can be taken using normative data only. These are shown in the screen in Figure 17. First, one can compare the mean task rating profiles of any one MOS to the MOS in the normative file. An example of the initial output for this option is shown in Figure 18. Note that this output is identical to that described in the section "Output comparisons

to normative records" under Input data. Note also that the empirical, least squares regression equation for similar Project A MOS is obtained through this option. Simply highlight the most similar MOS and press "return" to obtain a menu that provides an option to write the equation to a separate file.

Second, one can compute synthetic weights for an MOS in the normative file. An example is shown in Figure 19. This display and the available options are identical to the "Compute synthetic validity weights" operation under Input data.

```
Choose an operation to perform using the
normative data base:

Compare one MOS to other MOS
Compute Synthetic validity weights for an MOS
Output Means and/or Matrices to a file
Delete record(s) from the normative file
```

Figure 17.

COMPARISONS OF MEAN TASK RATING PROFILES OF 12B
on Frequency Scale to MOS on Normative Data File.

No.	MOS	r	D-sqr	n	rel	Source
1	12B	1.00	0	81	.99	SYNVAL
2	11B	.88	39.7	88	-	SYNVAL
3	16S	.87	44.0	90	.99	SYNVAL
4	54B	.85	50.6	67	.98	SYNVAL
5	95B	.79	77.6	74	.99	SYNVAL
6	51B	.79	78.7	80	.99	SYNVAL
7	88M	.76	97.6	49	.98	SYNVAL
8	55B	.72	99.6	61	.98	SYNVAL
9	13B	.69	102.5	73	.99	SYNVAL
10	19K	.69	100.1	52	.98	SYNVAL
11	31C	.66	116.4	76	.99	SYNVAL
12	63B	.59	125.8	50	-	SYNVAL
13	91A	.59	120.5	59	.98	SYNVAL
14	31D	.58	148.4	17	.95	SYNVAL
15	67N	.57	136.7	58	.99	SYNVAL

```
Use ARROW
keys, PgUp,
and PgDn to
move.

For chosen
MOS, Press
RETURN to
obtain item
comparisons
or SYNVAL
weights.

Press F1 for
information

Press ESC to
quit.
```

Figure 18.

```
SYNTHETIC VALIDITY AND REDUCED EQUATION WEIGHTS
    for MOS, 12B, on Frequency Scale

Var.  Synth.  Part-Whole  Reduced                    Press F1 for Info
No.   Wts.    Correl.     Equat.   Name
  1   .26      .81        .433     Verbal Ability
  2   .23      .82        .444     Reasoning
  3   .04      .78          -      Number Ability
  4   .16      .85          -      Spatial Ability          Choose one:
  5   .05      .41          -      Mental Info. Proc.
  6   .05      .69          -      Percept Speed/Acc.       Add variable
  7   .11      .50          -      Memory                   Remove var.
  8   .12      .80          -      Mechanical Comp.         Force var. IN
  9   .12      .59        .226     Eye-Limb Coord.          Force var. OUT
 10   .03      .67          -      Precision                UNforce var.
 11   .06      .52          -      Movement Judgment        Write report
 12   .05      .32          -      Hand/Finger Dext.        HELP
 13                               Physical Strength
 14                               Physical Endur.
 15                               Balance/Flexibil.
Correlation: Reduced Equat. with Full Synth. Equat. =   .9545 (N=4)
  (Task x Attr Vals cut-off=3.500; Task Means cut-off=0.000)

Use PgUp, PgDn, Up/Down arrows to position;          Press ESC to Cancel;
Use ENTER (return) key for options to change reduced equation or write report.
```

Figure 19.

Third, one can output the means or selected matrices to a file. This operation should be used to form subgroups of MOS for purposes of ascertaining their degree of similarity. When this operation is selected, the user first chooses which scale to use to compare MOS (Task Frequency or Importance of task for Core Technical, General Soldiering, or Overall Performance). Generally speaking, Core Technical should be chosen since this scale is the one that will most differentiate MOS. The user is then asked to choose the group of MOS that will be compared to each other (see Figure 20). This selection is guided solely by the user's research or practical concerns.

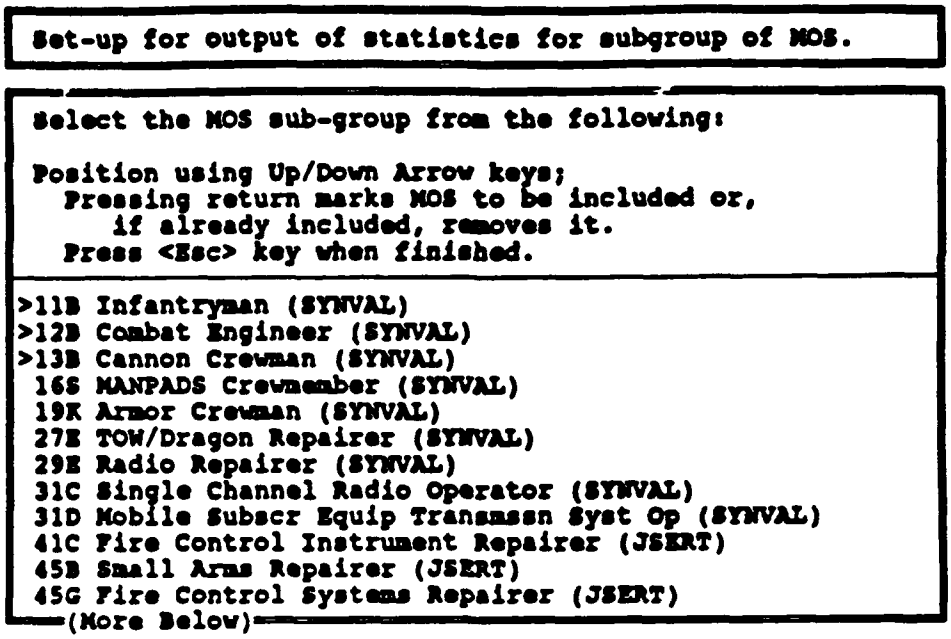

Figure 20.

Once the subgroup of MOS is selected, the user is asked to select the output desired: mean vectors (mean ratings on the scale selected for each of the MOS in the subgroup); a correlation matrix computed using the profiles of the 96 task mean ratings for each MOS; or a matrix of squared distances also computed using the task mean ratings. These outputs cannot be displayed to the screen, but are written to ASCII files that can later be printed or displayed on the screen using the DOS "type" command or a word processor. Therefore, it is probably best to obtain all three types of output and decide later if all are needed.

Figure 21 shows the matrix of similarities (correlations) between task means for three MOS. Figure 22 shows the matrix of squared distances between task means for three MOS.

MATRIX OF SIMILARITIES (CORRELATIONS) BETWEEN TASK MEANS (Page 1 of 1)
SCALE: Frequency Scale

MOS	11B	12B	13B	Name
11B	1.0	.88	.78	Infantryman
12B	.88	1.0	.69	Combat Engineer
13B	.78	.69	1.0	Cannon Crewman

Figure 21.

```
MATRIX OF SQUARED DISTANCES BETWEEN TASK MEANS          (Page 1 of 1)
SCALE: Frequency Scale

MOS   11B    12B    13B   Name
--- ------ ------ ------ ------------------------------------
11B       0   39.7   71.0 Infantryman
12B    39.7      0  102.5 Combat Engineer
13B    71.0  102.5      0 Cannon Crewman
--- ------ ------ ------ ------------------------------------
```

Figure 22.

These matrices show that 11B and 12B have the highest correlation (.88) and the lowest squared distance (39.7). Thus, they are the most similar in the group. We note that the squared distance is defined as the sum, across all 96 task categories, of the squared differences between the mean task category ratings for the two MOS. Thus, if all means were identical, the squared distance would be zero. If all means were one point different, the squared distance would be 96. Thus, 11B and 12B have mean differences, on average, of about .65 of a point, while 11B and 13B differ, on average, about one full point.

Fourth, one can delete records from the normative file. This operation is menu-driven and the commands are self-explanatory. Again, this operation should only be done by knowledgeable individuals who are responsible for the contents of the normative file. If an MOS is deleted from the normative file, it can only be restored by finding the file containing its input data and re-processing it using the Input data operations.

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Appendix A

Application of the MOS Analysis System

Method

JSERT data were collected for two sets of MOS: (1) 41C, 45G, 45B, 45K, and 45L and (2) 76C, 76Y, 76V, 76P, and 76X. Data collection for the first set of MOS was conducted in two sessions at the Aberdeen Proving Grounds in Aberdeen MD. The data collection sessions were about two to three hours in length. The goal was to collect data on at least ten respondents in each MOS. The first session, conducted on 6 March 91, included 36 respondents. Since there was an insufficient number of respondents in the first session, a second session was conducted on 20 March 91. Thirty respondents participated in the second session. All respondents were male NCOs in the five MOS studied. Data collection for the second set of MOS was conducted in one session at Ft. Lee on 10 June 91. Since there were an insufficient number of SMEs for several MOS, copies of the Job Description Booklet were left with our point of contact who administered them at a later date. Results are reported for the first set of MOS since only data on these MOS were analyzed.

Description of the Sample

The numbers of respondents in each MOS are as follows:

Military Occupational Specialty	Number of Respondents
Fire Control Instrument Repairer (41C)	11
Fire Control Systems Repairer (45G)	16
Small Arms Repairer (45B)	13
Tank Turret Repairer (45K)	14
Artillery Repairer (45L)	12
TOTAL	66

Military Occupational Specialty	Number of Respondents
Equipment Records and Parts Specialist (76C)	9
Materiel Control and Accounting Specialist (76P)	10
Materiel Storage and Handling Specialist (76V)	8
Subsistence Supply Specialist (76X)	10
Unit Supply Specialist (76Y)	34
TOTAL	71

Procedures and Instrument

Data Collection Sessions

Part of the intent of this project was to determine if the instruments could be mailed out to respondents, rather than administered to a group of respondents in person. For this reason, extensive instructions were not provided by session administrators in the first session. For the first set of MOS, a short introduction was given describing the project and the instruments to be completed. Respondents were told that data were being collected about five Army MOS using a procedure that has been implemented for over 20 other MOS. It was explained that the instrument was designed to provide information to determine the similarities and differences among Army MOS concerning tasks performed and abilities needed, for the purposes of determining which jobs can be grouped together for various programs (e.g., training). The respondents were given Job Description Booklets (to be described later) and were told to raise their hands if they had any questions. The booklets contained Privacy Act statements for them to read, and Background Information sheets to be completed by each respondent.

During the first administration, it was clear that all respondents did not carefully read the instructions. When completing the Army Task Questionnaire, respondents often began making ratings without finding the handout describing Core Technical Proficiency and General Soldiering Proficiency. Therefore, during the second administration, more guidance was provided by administrators. Respondents were told that for Frequency ratings of 0, they were not to make Importance or Difficulty ratings, and that there were handouts in the back of the Job Description Booklet that they need to read before making their ratings. As a result of our observations in these sessions, we considered these instruments inappropriate for mailing to respondents. All data should be collected in a supervised setting with administrators reading the instructions to the respondents and monitoring the completion of the questionnaires.

Army Task Questionnaire

The Army Task Questionnaire contains 96 task statements intended to cover most enlisted jobs. At the most general level, the tasks cover four categories: (a) maintenance, (b) general operations, (c) administrative, and (d) combat. The participants are required to make five ratings for each task. The ratings are:

- Frequency of performance, relative to other tasks,
- Importance for Core Technical Proficiency (tasks that are "central" to the MOS and represent the core of the job),
- Importance for General Soldiering Proficiency (tasks that individuals in all MOS are responsible for performing--"Common Tasks"),

- Importance for Overall Job Performance (referring to all areas of job performance, including Core Technical and General Soldiering), and
- Difficulty.

First, the relative frequency of each task was rated. After completing the Frequency ratings for all 96 tasks, participants made the three Importance ratings and the Difficulty rating for all tasks with Frequency ratings greater than zero. The development of the Task Questionnaire is described in detail in Chapter 3 of the Phase I Synthetic Validation report (Chia, Hoffman, Campbell, Szenas, & Crafts, 1989).

After making all the ratings, respondents were asked to write in any tasks performed by soldiers in the MOS that were not covered in the questionnaire.

Data Entry

The data from both administrations were entered using SPSS Data Entry software. The data entry screens were designed to minimize keypunching errors. For example, when entering the data, only values between 0 and 5 could be entered. Also, if a Frequency rating of 0 was entered, the program skipped to the next task Frequency rating, since importance and difficulty ratings were not made if the Frequency ratings was 0.

The Army Task Questionnaire allowed each respondent to provide 384 responses (4 ratings for each of 96 tasks). These data were proofed to ensure that the error screens were accurate. The responses of 12 randomly selected individuals, out of the 66 respondents, were proofed (4608 data points), and 36 errors were found, resulting in an error rate of .8%.

Results

For four of the five MOS, all the cases were accepted and the data were added to the normative file. For 45K, one case was deleted since there were 11 errors/missing values and this exceeds the 10 percent limit. The remaining data were added to the normative file. Table A-1 shows the matrix of similarities (correlations) among task means for the first five MOS. Table A-2 shows the matrix of squared distances between task means.

Table A-1. Correlations of five MOS

MOS	41C	45G	45B	45K	45L	Name
41C	1.0	.76	.78	.83	.83	Fire Control Instrument Repairer
45G	.76	1.0	.64	.87	.75	Fire Control Systems Repairer
45B	.78	.64	1.0	.80	.84	Small Arms Repairer
45K	.83	.87	.80	1.0	.88	Tank Turret Repairer
45L	.83	.75	.84	.88	1.0	Artillery Repairer

Table A-2. d^2 values for five MOS

MOS	41C	45G	45B	45K	45L	Name
41C	0	70.0	55.1	118.0	73.4	Fire Control Instrument Repairer
45G	70.0	0	83.3	47.1	64.5	Fire Control Systems Repairer
45B	55.1	83.3	0	75.6	45.3	Small Arms Repairer
45K	118.0	47.1	75.6	0	43.1	Tank Turret Repairer
45L	73.4	64.5	45.3	43.1	0	Artillery Repairer

If the Army is proposing to cluster these five MOS into two clusters, one being a "fire control" cluster (41C and 45G) and the other being an "artillery" cluster (45B, 45K, 45L), one can look at average correlations and d-squared values "across" and "within" clusters. The average "within cluster" d^2 is 58.5 and the average "across cluster" d^2 is 73.5. The fact that the average within cluster d^2 is smaller than the across cluster d^2 suggests that this grouping of MOS is supported by the data. The average "within cluster" r is .82 and the average "across cluster" r is .78. Again, the fact that the average correlation within cluster is higher than the average across cluster correlation also suggest that the data support this grouping of MOS.

The "best" cluster (i.e., most highly correlated and lowest d^2 value) of two MOS is 45K and 45L (d^2 = 43, r=.88) which means that the best cluster of three MOS is 45B, 41C, and 45G (average d^2 = 69.3, average r = .73). The "best" cluster of three MOS is 45B, 45K, and 45L (average d^2 = 51.6, average r = .83). This means that the remaining two MOS, 41C and 45G, are the best cluster of two MOS, after the best three are clustered. These "best cluster" analyses, then, also support the proposed clustering of 41C and 45G, and of 45B, 45K, and 45L -- since the "best" cluster of three corresponds to the proposed cluster of three, thus leading also to the same cluster of two as proposed. The "best" cluster of two is a subset of the proposed cluster of three and, thus, does not contradict the proposed clustering.

For documentation purposes, Tables A-3 to A-7 show the means, standard deviations, and reliabilities for the five MOS. Tables A-8 to A-12 show the synthetic equations derived for these jobs using the ratings of importance for Core Technical Proficiency for all job tasks.

Table A-3. REPORT ON JOB ANALYSIS ITEM RATINGS FOR MOS, 41C: (Page 1 of 2)
TITLE: Data Collected in Spring, 1991 at Aberdeen

Task	n	Frequency Mean	Frequency S.D.	Core Tech. Mean	Core Tech. S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
1	10	3.40	1.43	2.50	1.43	3.70	1.10	3.30	1.27
2	11	2.00	1.54	1.91	1.98	2.82	1.85	2.73	1.76
3	11	1.55	1.92	1.45	1.83	1.27	1.54	1.55	1.72
4	11	1.27	1.42	1.55	1.92	1.27	1.76	1.45	1.83
5	10	3.10	1.70	2.80	1.66	1.90	1.58	2.50	1.75
6	11	1.27	1.76	1.27	1.71	1.09	1.50	1.27	1.71
7	11	.36	.48	.73	1.05	.64	1.07	.64	1.07
8	11	.73	.86	1.55	1.78	1.18	1.47	1.45	1.67
9	11	.27	.62	.45	.99	.45	.99	.45	.99
10	11	1.27	1.14	1.91	1.56	1.64	1.55	1.55	1.50
11	11	.73	.96	1.09	1.38	1.09	1.50	1.27	1.60
12	11	.18	.39	.27	.62	.45	.99	.45	.99
13	11	0	0	0	0	0	0	0	0
14	11	0	0	0	0	0	0	0	0
15	11	0	0	0	0	0	0	0	0
16	11	2.00	1.41	2.27	1.60	2.64	1.67	2.64	1.67
17	11	.82	1.47	.73	1.48	.73	1.42	.82	1.47
18	11	0	0	0	0	0	0	0	0
19	11	.18	.57	.18	.57	.18	.57	.18	.57
20	11	.55	.78	1.00	1.60	1.09	1.68	1.09	1.68
21	11	.18	.39	.27	.62	.36	.88	.36	.88
22	11	0	0	0	0	0	0	0	0
23	11	0	0	0	0	0	0	0	0
24	11	0	0	0	0	0	0	0	0
25	11	0	0	0	0	0	0	0	0
26	11	.09	.29	0	0	0	0	.09	.29
27	11	.09	.29	.27	.86	.36	1.15	.27	.86
28	11	.55	.89	.55	1.16	.64	1.23	.82	1.53
29	11	0	0	0	0	0	0	0	0
30	11	.18	.39	.18	.39	.27	.62	.27	.62
31	11	.36	1.15	.36	1.15	.18	.57	.18	.57
32	11	.18	.39	.18	.57	.55	1.16	.55	1.16
33	11	0	0	0	0	0	0	0	0
34	11	.45	.78	.55	1.16	.55	.99	.64	1.07
35	11	0	0	0	0	0	0	0	0
36	11	0	0	0	0	0	0	0	0
37	11	.36	.64	.36	.88	1.00	1.65	1.00	1.65
38	11	.09	.29	0	0	.09	.29	.09	.29
39	11	.45	.50	.45	.89	1.55	1.78	1.55	1.78
40	11	0	0	0	0	0	0	0	0
41	11	0	0	0	0	0	0	0	0
42	11	0	0	0	0	0	0	0	0
43	11	.18	.39	.09	.29	.18	.39	.18	.39
44	11	1.45	1.62	1.45	1.67	1.00	1.28	1.27	1.54
45	11	.45	.66	.82	1.19	.91	1.38	1.09	1.50
46	11	.64	.98	.91	1.24	.73	1.05	.82	1.11
47	11	.64	.77	.64	.77	1.00	1.35	1.00	1.35
48	10	3.10	1.81	3.20	1.72	2.80	1.54	3.00	1.61
49	11	1.55	.99	2.18	1.59	2.82	1.40	2.82	1.40
50	11	.91	1.00	1.00	1.54	2.00	1.86	2.00	1.86

REPORT ON JOB ANALYSIS ITEM RATINGS FOR MOS, 41C: (Page 2 of 2)
TITLE: Data Collected in Spring, 1991 at Aberdeen

Task	n	Frequency Mean	Frequency S.D.	Core Tech Mean	Core Tech S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
51	11	.73	1.05	.36	.77	.91	1.24	.91	1.24
52	11	0	0	0	0	0	0	0	0
53	11	1.73	1.71	1.45	1.78	1.45	1.78	1.55	1.83
54	11	.09	.29	.09	.29	.45	1.44	.45	1.44
55	11	0	0	0	0	0	0	0	0
56	11	.82	1.19	.91	1.50	1.00	1.48	1.09	1.62
57	11	.27	.86	.36	1.15	.18	.57	.27	.86
58	11	.18	.57	0	0	.36	1.15	.36	1.15
59	11	0	0	0	0	0	0	0	0
60	11	.27	.86	.27	.86	.27	.86	.27	.86
61	11	1.73	1.35	2.09	1.68	2.00	1.54	2.09	1.62
62	11	1.09	1.56	1.36	1.67	1.36	1.72	1.55	1.92
63	11	.18	.39	.36	.77	.36	.77	.36	.77
64	11	0	0	0	0	0	0	0	0
65	11	0	0	0	0	0	0	0	0
66	11	0	0	0	0	0	0	0	0
67	11	.18	.57	.18	.57	.18	.57	.18	.57
68	11	0	0	0	0	0	0	0	0
69	11	0	0	0	0	0	0	0	0
70	11	0	0	0	0	0	0	0	0
71	11	1.27	1.48	.73	1.35	1.91	1.68	1.82	1.70
72	10	2.50	1.28	2.00	1.73	3.60	1.20	3.30	1.42
73	11	0	0	0	0	0	0	0	0
74	11	.18	.39	.09	.29	.36	.88	.36	.88
75	11	2.00	1.41	1.73	1.71	3.09	1.68	3.00	1.71
76	11	.82	1.47	.82	1.59	1.18	1.75	1.18	1.75
77	11	1.45	1.62	.91	1.56	1.73	1.81	1.73	1.81
78	11	.82	.94	.82	1.40	2.09	2.02	1.91	2.02
79	11	1.82	1.40	1.82	1.95	3.18	1.80	3.00	1.91
80	11	1.18	1.53	1.18	1.80	1.91	1.98	2.00	2.04
81	11	.18	.57	.09	.29	.09	.29	.09	.29
82	11	.45	.99	.45	1.16	.45	1.16	.45	1.16
83	11	.18	.57	.09	.29	.09	.29	.09	.29
84	11	.64	.98	.82	1.40	1.36	1.87	1.36	1.87
85	11	.18	.57	.09	.29	.09	.29	.09	.29
86	10	1.50	1.36	1.60	2.06	3.00	1.84	2.80	1.94
87	11	.64	1.15	.55	.99	1.36	1.97	1.36	1.97
88	10	.80	1.54	.80	1.54	1.10	1.81	1.20	1.99
89	11	.73	1.48	.73	1.48	1.00	1.76	1.09	1.93
90	11	1.27	1.66	1.36	1.87	1.55	1.92	1.64	2.06
91	11	1.55	1.78	1.36	1.61	1.91	1.88	2.00	2.00
92	11	2.36	1.97	2.09	1.93	2.36	1.77	2.64	1.77
93	11	2.00	2.00	1.91	2.02	1.82	1.80	1.91	1.83
94	11	1.91	1.68	2.27	1.91	2.36	1.77	2.45	1.88
95	11	1.82	1.95	2.00	2.00	1.82	1.80	1.82	1.80
96	11	.82	1.40	.82	1.34	.82	1.34	.82	1.34

No. of raters = 11. (Missing data set to 0's for reliabilities.)
Hoyt reliability (FREQUENCY)= .8490; r11= .3383
Hoyt reliability (CORE TECH.)= .8025; r11= .2698
Hoyt reliability (GEN'L SOL.)= .8526; r11= .3446
Hoyt reliability (OVR'L PERF)= .8446; r11= .3307

Table A-4 REPORT ON JOB ANALYSIS ITEM RATINGS FOR MOS, 45G: (Page 1 of 2)
TITLE: Data Collected in Spring, 1991 at Aberdeen

Task	n	Frequency Mean	Frequency S.D.	Core Tech. Mean	Core Tech. S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
1	15	3.73	1.24	3.13	1.75	3.47	1.59	3.33	1.53
2	16	1.81	1.67	1.88	1.87	2.69	2.14	2.38	1.96
3	16	2.13	2.09	2.19	2.19	1.88	1.93	2.19	2.07
4	16	.56	1.22	.81	1.70	.75	1.60	.75	1.60
5	16	2.25	1.98	2.44	2.12	2.13	2.03	2.50	2.15
6	16	.94	1.68	1.13	1.93	.75	1.44	1.13	1.87
7	16	2.63	2.06	2.81	2.21	1.63	1.69	2.63	2.09
8	16	3.63	1.62	3.75	1.60	1.69	1.65	3.63	1.49
9	16	3.81	1.47	4.00	1.46	1.81	1.67	3.56	1.58
10	16	3.69	1.49	4.00	1.41	1.81	1.63	3.50	1.58
11	15	3.53	1.59	3.87	1.50	1.87	1.63	3.33	1.81
12	15	1.80	1.17	2.07	1.44	2.80	1.64	2.80	1.56
13	16	0	0	0	0	0	0	0	0
14	16	0	0	0	0	0	0	0	0
15	16	.06	.24	.25	.97	.25	.97	.25	.97
16	16	2.44	1.50	2.25	1.89	2.63	1.83	2.50	1.80
17	16	1.19	1.33	1.38	1.62	1.38	1.80	1.50	1.77
18	16	0	0	0	0	0	0	0	0
19	16	.13	.33	.31	.85	.25	.66	.19	.53
20	16	.94	1.09	1.06	1.39	1.25	1.39	1.25	1.35
21	15	.80	.98	1.13	1.45	1.20	1.42	1.07	1.44
22	16	0	0	0	0	0	0	0	0
23	16	.19	.73	.31	1.21	.31	1.21	.25	.97
24	16	0	0	0	0	0	0	0	0
25	16	0	0	0	0	0	0	0	0
26	16	0	0	0	0	0	0	0	0
27	16	0	0	0	0	0	0	0	0
28	16	1.81	1.70	1.88	1.76	1.69	1.72	2.06	1.89
29	16	0	0	0	0	0	0	0	0
30	16	1.19	1.63	1.19	1.55	1.13	1.58	1.13	1.49
31	16	1.06	1.60	.88	1.45	.81	1.42	.88	1.49
32	15	2.33	1.70	2.53	1.78	1.47	1.45	2.60	1.78
33	15	0	0	0	0	0	0	0	0
34	16	1.06	1.52	1.38	1.83	.94	1.56	1.44	1.90
35	16	0	0	0	0	0	0	0	0
36	16	0	0	0	0	0	0	0	0
37	16	.75	1.03	.81	1.47	1.50	2.00	1.38	1.83
38	16	0	0	0	0	0	0	0	0
39	16	1.44	1.27	1.31	1.69	2.31	1.89	2.19	1.88
40	16	.19	.73	.31	1.21	.31	1.21	.31	1.21
41	16	.25	.75	.31	1.21	.38	1.22	.38	1.22
42	16	.38	.99	.44	1.27	.31	1.21	.56	1.50
43	16	.81	1.51	.63	1.36	.81	1.59	.81	1.59
44	16	2.13	1.69	2.38	1.83	1.75	1.64	2.50	1.87
45	15	1.20	1.22	1.13	1.41	1.13	1.36	1.40	1.50
46	15	1.60	1.50	1.93	1.53	1.33	1.25	2.13	1.71
47	16	1.25	1.20	1.19	1.51	2.19	2.01	2.00	1.87
48	16	4.00	1.22	4.13	1.22	3.50	1.32	4.06	1.20
49	16	1.94	1.25	2.06	1.78	3.25	1.79	3.25	1.71
50	16	1.81	1.51	1.94	1.85	3.00	1.90	2.81	1.81

REPORT ON JOB ANALYSIS ITEM RATINGS FOR MOS, 45G: (Page 2 of 2)
TITLE: Data Collected in Spring, 1991 at Aberdeen

Task	n	Frequency Mean	Frequency S.D.	Core Tech. Mean	Core Tech. S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
51	16	1.63	1.17	1.31	1.26	2.38	1.73	2.19	1.67
52	16	0	0	0	0	0	0	0	0
53	16	1.69	1.89	1.75	2.05	1.94	1.92	2.06	2.01
54	16	.25	.56	.50	1.06	.44	.93	.50	1.06
55	16	.31	.77	.31	.77	.44	.93	.50	1.06
56	16	1.19	1.67	.94	1.75	1.63	2.15	1.63	2.15
57	16	.44	1.00	.50	1.32	.63	1.36	.63	1.36
58	16	.56	1.12	.81	1.59	1.06	1.85	1.06	1.89
59	15	.20	.75	.20	.75	.20	.75	.20	.75
60	16	.06	.24	.31	1.21	.31	1.21	.31	1.21
61	16	2.06	1.39	2.31	1.72	2.31	1.61	2.69	1.72
62	16	1.06	1.25	1.50	1.80	.63	1.11	1.25	1.52
63	16	.88	1.49	1.00	1.66	1.63	2.20	1.38	1.87
64	16	.13	.33	.31	.85	.31	.85	.31	.85
65	16	.06	.24	.13	.48	.13	.48	.13	.48
66	16	0	0	0	0	0	0	0	0
67	16	.13	.33	.31	.85	.44	1.17	.38	.99
68	16	.69	.98	1.25	1.71	.75	1.09	1.06	1.56
69	16	0	0	0	0	0	0	0	0
70	16	0	0	0	0	0	0	0	0
71	16	1.25	1.20	1.06	1.43	2.44	2.06	2.13	1.80
72	16	2.88	1.36	3.00	1.80	4.00	1.66	3.81	1.63
73	16	.13	.33	.25	.75	.38	.99	.38	.99
74	16	.69	.77	.75	1.35	1.56	1.77	1.56	1.80
75	16	2.75	1.20	2.56	1.97	4.31	1.26	3.81	1.42
76	16	1.19	1.33	1.06	1.56	1.81	1.91	1.81	1.88
77	16	1.44	1.58	1.56	1.77	2.13	2.03	1.94	1.89
78	16	1.56	1.50	2.31	2.05	3.00	2.00	2.94	1.92
79	16	1.69	1.61	1.88	2.03	2.88	2.09	2.75	2.08
80	16	1.25	1.25	1.31	1.49	2.94	1.89	2.63	1.80
81	16	0	0	0	0	0	0	0	0
82	16	0	0	0	0	0	0	0	0
83	16	0	0	0	0	0	0	0	0
84	16	.94	1.43	1.19	1.94	1.56	2.09	1.44	2.03
85	16	0	0	0	0	0	0	0	0
86	16	2.38	1.49	3.06	1.75	3.94	1.56	3.94	1.56
87	16	1.50	1.66	1.81	1.98	2.06	2.01	2.06	2.14
88	16	.88	1.11	1.00	1.41	1.56	1.69	1.56	1.84
89	16	.88	1.11	.63	1.32	1.75	2.05	1.75	2.05
90	16	1.69	1.49	2.13	1.87	2.63	2.09	2.69	2.17
91	16	1.63	1.62	1.69	2.05	2.56	2.29	2.69	2.39
92	16	2.44	1.90	2.56	2.09	2.94	2.11	3.06	2.16
93	16	1.69	1.69	1.75	2.11	2.63	2.34	2.56	2.29
94	16	2.06	1.92	1.75	2.05	2.50	2.24	2.50	2.24
95	16	1.44	1.37	1.88	1.76	2.44	2.21	2.31	2.11
96	16	1.06	1.25	1.38	1.69	1.63	1.90	1.69	1.96

No. of raters = 16. (Missing data set to 0's for reliabilities.)
Hoyt reliability (FREQUENCY)= .9294; r11= .4513
Hoyt reliability (CORE TECH.)= .9076; r11= .3805
Hoyt reliability (GEN'L SOL.)= .9118; r11= .3926
Hoyt reliability (OVR'L PERF)= .9173; r11= .4094

Table A-5 REPORT ON JOB ANALYSIS ITEM RATINGS FOR MOS, 45B: (Page 1 of 2)
TITLE: Data Collected in Spring, 1991 at Aberdeen

Task	n	Frequency Mean	Frequency S.D.	Core Tech. Mean	Core Tech. S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
1	13	3.23	1.25	3.46	1.39	3.00	1.36	3.54	1.15
2	13	3.77	1.31	4.00	1.04	3.54	1.28	3.85	1.03
3	13	2.46	1.95	2.92	1.82	2.69	1.73	2.69	1.86
4	13	4.31	.72	4.23	.89	3.38	1.00	3.85	.86
5	13	3.38	1.39	3.85	1.10	3.08	.92	3.46	1.08
6	13	4.46	.75	4.38	.62	3.69	.91	4.08	.73
7	13	.54	.63	1.23	1.62	1.15	1.51	1.15	1.51
8	13	.46	.63	1.31	1.73	1.23	1.62	1.23	1.62
9	13	.46	.75	1.00	1.57	.92	1.49	.92	1.49
10	13	.62	1.08	1.00	1.57	1.00	1.57	1.00	1.57
11	13	.69	.99	1.31	1.73	1.15	1.56	1.15	1.56
12	13	.85	1.41	1.00	1.62	1.08	1.64	1.00	1.62
13	13	0	0	0	0	0	0	0	0
14	13	.15	.53	.15	.53	.15	.53	.15	.53
15	13	0	0	0	0	0	0	0	0
16	13	1.31	1.68	1.62	1.98	1.69	1.98	1.62	1.98
17	13	.69	.91	.92	1.27	1.00	1.30	.92	1.27
18	13	0	0	0	0	0	0	0	0
19	13	.08	.27	.31	1.07	.31	1.07	.31	1.07
20	13	0	0	0	0	0	0	0	0
21	13	.23	.58	.23	.58	.31	.72	.23	.58
22	13	0	0	0	0	0	0	0	0
23	13	.46	.75	.85	1.46	.92	1.54	.92	1.64
24	13	.08	.27	.15	.53	.15	.53	.15	.53
25	13	0	0	0	0	0	0	0	0
26	13	.08	.27	.23	.80	.23	.80	.23	.80
27	13	0	0	0	0	0	0	0	0
28	13	.85	.95	1.23	1.48	1.31	1.49	1.23	1.48
29	13	0	0	0	0	0	0	0	0
30	13	.31	.61	.54	1.15	.54	1.15	.54	1.15
31	13	.08	.27	.23	.80	.23	.80	.23	.80
32	13	.46	.84	.69	1.32	.69	1.07	.62	1.00
33	13	0	0	0	0	0	0	0	0
34	13	.38	.84	.62	1.15	.54	1.01	.54	1.01
35	13	0	0	0	0	0	0	0	0
36	13	0	0	0	0	0	0	0	0
37	13	.15	.53	.31	1.07	.31	1.07	.31	1.07
38	13	0	0	0	0	0	0	0	0
39	13	1.08	1.59	1.31	1.98	1.54	1.99	1.46	1.95
40	13	.46	.93	.77	1.42	.77	1.42	.77	1.42
41	13	.08	.27	.23	.80	.23	.80	.23	.80
42	13	.54	1.01	.92	1.69	.92	1.69	.85	1.56
43	13	.46	1.08	.69	1.32	.69	1.32	.69	1.32
44	13	2.54	1.82	2.54	1.78	2.00	1.80	2.46	1.78
45	13	1.31	1.73	1.62	1.86	1.38	1.73	1.54	1.78
46	13	1.08	1.69	1.38	1.94	1.15	1.70	1.31	1.77
47	13	1.15	1.66	1.54	1.87	1.62	1.86	1.46	1.82
48	13	3.85	1.29	3.85	1.29	3.69	1.38	3.77	1.25
49	13	1.38	1.64	1.85	2.03	1.92	1.90	1.92	1.90
50	13	1.08	1.38	1.62	1.73	1.62	1.69	1.62	1.69

REPORT ON JOB ANALYSIS ITEM RATINGS FOR MOS, 45B: (Page 2 of 2)
TITLE: Data Collected in Spring, 1991 at Aberdeen

Task	n	Frequency Mean	Frequency S.D.	Core Tech. Mean	Core Tech. S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
51	12	1.25	1.74	1.42	1.89	1.50	1.85	1.33	1.80
52	13	.15	.53	.15	.53	.15	.53	.15	.53
53	12	1.58	1.85	1.83	2.07	1.92	2.02	1.67	1.97
54	13	.23	.58	.46	1.08	.46	1.08	.46	1.08
55	13	.38	.92	.46	1.08	.15	.53	.38	.92
56	13	1.00	1.71	1.15	1.79	1.15	1.79	1.15	1.79
57	13	.62	1.00	.85	1.41	.77	1.31	.77	1.31
58	13	.54	1.39	.69	1.64	.69	1.64	.69	1.64
59	13	0	0	0	0	0	0	0	0
60	13	0	0	0	0	0	0	0	0
61	13	1.77	1.53	2.23	1.85	1.92	1.77	2.15	1.70
62	13	1.08	1.49	1.46	1.69	1.15	1.56	1.15	1.56
63	13	.15	.36	.38	1.08	.54	1.28	.46	1.15
64	13	.31	.72	.54	1.28	.46	1.15	.54	1.28
65	13	.38	1.08	.54	1.28	.54	1.28	.31	1.07
66	13	0	0	0	0	0	0	0	0
67	13	.23	.42	.69	1.32	.62	1.27	.46	.93
68	13	.08	.27	.23	.80	.23	.80	.23	.80
69	13	.08	.27	.23	.80	.23	.80	.23	.80
70	13	0	0	0	0	0	0	0	0
71	13	1.77	1.48	2.15	1.79	2.62	1.69	2.46	1.69
72	13	2.15	1.79	2.46	1.95	2.77	1.85	2.62	1.78
73	13	.46	1.34	.46	1.34	.62	1.50	.62	1.50
74	13	.62	1.33	.92	1.64	.92	1.64	.92	1.64
75	13	3.00	1.75	2.77	1.89	3.38	1.60	3.38	1.60
76	13	1.08	1.33	1.46	1.82	1.69	1.73	1.77	1.76
77	13	1.62	1.90	1.62	1.90	1.77	1.89	1.62	1.82
78	13	1.46	1.60	1.31	1.54	1.85	1.75	1.85	1.83
79	13	2.00	1.88	2.00	1.92	2.62	1.94	2.46	1.87
80	12	1.75	1.96	1.67	1.84	1.75	1.88	1.75	1.88
81	13	0	0	0	0	0	0	0	0
82	13	0	0	0	0	0	0	0	0
83	13	0	0	0	0	0	0	0	0
84	13	.77	1.05	1.00	1.57	1.23	1.62	1.23	1.62
85	12	0	0	0	0	0	0	0	0
86	13	2.85	1.66	3.15	1.70	3.62	1.27	3.31	1.54
87	13	1.38	1.69	1.77	2.04	2.08	1.86	1.92	1.86
88	13	.77	1.12	1.15	1.61	1.00	1.41	1.00	1.41
89	13	1.08	1.59	1.15	1.79	1.38	1.82	1.23	1.76
90	13	.92	1.27	1.08	1.64	1.31	1.68	1.15	1.61
91	13	1.54	1.95	1.62	2.10	1.85	2.07	1.69	2.05
92	13	1.85	2.03	2.23	2.15	2.23	2.15	2.08	2.16
93	13	.54	1.28	.69	1.64	.69	1.64	.69	1.64
94	13	.92	1.59	1.00	1.71	1.23	1.89	1.23	1.89
95	13	.77	1.42	.92	1.54	1.00	1.52	1.00	1.57
96	13	.38	.92	.62	1.44	.62	1.44	.62	1.44

No. of raters = 13. (Missing data set to 0's for reliabilities.)
Hoyt reliability (FREQUENCY)= .9131; r11= .4468
Hoyt reliability (CORE TECH.)= .8961; r11= .3988
Hoyt reliability (GEN'L SOL.)= .8886; r11= .3803
Hoyt reliability (OVR'L PERF)= .8978; r11= .4033

Table A-6 REPORT ON JOB ANALYSIS ITEM RATINGS FOR MOS, 45K: (Page 1 of 2)
TITLE: Data Collected in Spring, 1991 at Aberdeen

Task	n	Frequency Mean	Frequency S.D.	Core Tech. Mean	Core Tech. S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
1	12	2.83	1.28	3.50	1.26	3.58	1.19	3.50	1.26
2	13	2.46	1.28	3.31	1.43	3.54	1.22	3.54	1.34
3	13	3.08	1.49	3.69	1.43	3.08	1.64	3.62	1.50
4	13	3.08	1.38	3.92	1.49	3.23	1.67	3.77	1.42
5	13	3.15	1.41	3.85	1.35	3.08	1.69	3.69	1.38
6	13	3.38	1.64	3.77	1.42	3.15	1.66	3.62	1.44
7	12	2.17	1.34	2.75	1.36	2.33	1.60	2.83	1.40
8	12	3.50	1.12	3.83	.90	3.25	1.53	3.92	.86
9	12	3.67	1.18	3.92	.95	3.17	1.52	3.92	.95
10	12	3.75	1.09	3.83	1.07	2.92	1.50	3.75	.83
11	12	3.50	1.19	4.00	.82	3.17	1.46	3.92	.64
12	13	.92	1.33	1.00	1.41	.85	1.41	1.00	1.41
13	13	.08	.27	.08	.27	.08	.27	.08	.27
14	13	.08	.27	.08	.27	.08	.27	.08	.27
15	13	0	0	0	0	0	0	0	0
16	13	2.46	1.69	2.54	1.65	2.31	1.68	2.38	1.64
17	13	1.85	1.61	2.08	1.77	1.85	1.70	2.00	1.71
18	12	0	0	0	0	0	0	0	0
19	13	.85	1.17	.77	1.12	.69	1.07	.77	1.12
20	13	.77	.97	.62	.84	.69	.82	.77	.97
21	13	.92	1.44	1.08	1.64	1.08	1.64	1.00	1.52
22	13	.08	.27	.15	.53	0	0	.15	.53
23	13	.77	1.31	.92	1.44	.62	1.27	.92	1.44
24	13	.15	.36	.31	.72	.08	.27	.46	1.15
25	13	0	0	0	0	0	0	0	0
26	13	0	0	0	0	0	0	0	0
27	13	0	0	0	0	0	0	0	0
28	13	1.69	1.49	2.00	1.96	1.92	1.64	2.00	1.75
29	13	.15	.53	.15	.53	.15	.53	.15	.53
30	13	.77	1.42	.85	1.56	.85	1.56	.77	1.42
31	13	1.00	1.30	.85	1.51	1.00	1.52	1.08	1.49
32	13	2.08	1.82	2.15	1.92	1.69	1.73	1.92	1.73
33	13	.62	1.44	.77	1.80	.62	1.50	.77	1.80
34	13	1.62	1.82	1.77	1.93	1.62	1.98	1.85	1.96
35	13	0	0	0	0	0	0	0	0
36	13	.31	1.07	.31	1.07	.31	1.07	.31	1.07
37	13	.69	1.26	.85	1.61	.92	1.73	.92	1.73
38	13	.31	1.07	.31	1.07	.31	1.07	.31	1.07
39	13	1.54	1.50	1.77	1.67	1.85	1.79	1.92	1.77
40	13	.46	1.15	.46	1.15	.54	1.28	.46	1.15
41	13	.31	.61	.46	1.08	.54	1.15	.46	.93
42	13	.15	.53	.23	.80	.23	.80	.23	.80
43	13	1.31	1.54	1.15	1.51	1.15	1.61	1.15	1.46
44	13	2.31	2.09	2.38	2.13	2.08	2.02	2.31	2.09
45	13	1.46	1.78	1.46	1.74	1.38	1.64	1.38	1.64
46	13	1.92	1.82	1.92	1.59	1.54	1.45	1.92	1.59
47	13	1.46	1.39	1.77	1.67	1.77	1.67	1.77	1.62
48	12	4.00	1.41	4.08	1.44	3.75	1.69	4.25	1.42
49	13	2.85	1.23	3.38	1.39	3.54	1.45	3.54	1.39
50	13	2.08	1.21	2.77	1.53	2.92	1.59	2.92	1.59

REPORT ON JOB ANALYSIS ITEM RATINGS FOR MOS, 45K: (Page 2 of 2)
TITLE: Data Collected in Spring, 1991 at Aberdeen

Task	n	Frequency Mean	Frequency S.D.	Core Tech. Mean	Core Tech. S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
51	13	1.92	1.33	2.08	1.49	2.15	1.70	2.00	1.71
52	13	0	0	0	0	0	0	0	0
53	13	2.62	1.94	2.23	1.93	2.23	1.93	2.23	1.80
54	13	.92	1.54	1.23	1.97	1.00	1.66	1.08	1.73
55	13	.08	.27	.08	.27	.08	.27	.08	.27
56	13	1.69	1.94	1.85	2.07	1.85	2.07	1.77	2.01
57	13	1.08	1.69	.85	1.56	.85	1.56	.85	1.41
58	13	1.15	1.29	1.92	2.13	1.62	2.02	1.77	2.04
59	13	0	0	0	0	0	0	0	0
60	13	.15	.53	.23	.80	.23	.80	.23	.80
61	13	2.31	1.38	2.69	1.38	2.23	1.53	2.69	1.38
62	13	1.69	1.73	1.69	1.64	1.23	1.42	1.69	1.64
63	13	1.23	1.12	2.00	1.71	2.31	2.01	2.23	1.93
64	13	0	0	0	0	0	0	0	0
65	13	.46	1.08	.69	1.64	.69	1.64	.62	1.50
66	13	0	0	0	0	0	0	0	0
67	13	.85	1.17	1.08	1.64	1.23	1.72	1.08	1.64
68	13	.31	.72	.46	1.08	.38	.92	.46	1.08
69	13	.23	.80	.31	1.07	.31	1.07	.23	.80
70	13	0	0	0	0	0	0	0	0
71	13	1.62	1.39	2.00	1.57	2.77	1.76	2.38	1.73
72	13	3.08	1.27	3.38	1.44	3.92	1.44	3.54	1.60
73	13	.31	.61	.38	.84	.62	1.27	.62	1.27
74	13	.62	.74	.77	1.25	1.38	1.60	1.31	1.59
75	13	2.92	1.27	2.85	1.70	3.62	1.27	3.46	1.34
76	13	1.31	1.49	.92	1.49	1.46	1.78	1.38	1.82
77	13	1.85	1.29	1.69	1.49	2.46	1.60	2.00	1.62
78	13	2.15	1.29	2.46	1.65	3.08	1.69	3.00	1.57
79	13	2.23	1.42	2.31	1.77	2.92	1.86	2.77	1.76
80	13	1.54	1.65	1.69	1.77	2.15	2.03	2.00	1.88
81	13	.85	1.17	1.23	1.76	1.15	1.79	1.23	1.76
82	13	.77	1.05	1.31	1.86	1.23	1.89	1.23	1.76
83	13	.62	1.15	.69	1.32	.92	1.73	.85	1.56
84	13	1.85	1.83	2.08	2.02	2.15	2.03	2.23	2.08
85	13	.31	.82	.46	1.34	.46	1.34	.46	1.34
86	13	2.54	.93	3.38	1.69	4.00	1.11	3.92	1.14
87	13	1.31	1.07	1.92	1.69	2.54	1.82	2.31	1.90
88	13	.69	.99	.85	1.35	1.15	1.51	.92	1.44
89	13	1.23	1.42	1.38	1.69	1.54	1.74	1.62	1.78
90	13	2.00	1.71	2.23	1.89	2.46	2.02	2.46	2.02
91	13	2.46	1.91	2.46	2.02	2.54	2.06	2.54	2.06
92	12	2.92	2.14	2.83	2.07	3.00	2.16	3.00	2.16
93	13	2.15	2.03	2.31	2.13	2.69	2.16	2.69	2.20
94	13	3.08	1.69	3.15	1.70	3.62	1.64	3.62	1.64
95	13	1.85	1.83	2.23	2.15	2.38	2.24	2.38	2.24
96	13	1.62	1.90	1.69	1.90	1.69	1.94	1.77	1.97

No. of raters = 13. (Missing data set to 0's for reliabilities.)
Hoyt reliability (FREQUENCY)= .9078; r11= .4310
Hoyt reliability (CORE TECH.)= .9059; r11= .4255
Hoyt reliability (GEN'L SOL.)= .8973; r11= .4018
Hoyt reliability (OVR'L PERF)= .9073; r11= .4294

Table A-7 REPORT ON JOB ANALYSIS ITEM RATINGS FOR MOS, 45L: (Page 1 of 2)
TITLE: Data Collected in Spring, 1991 at Aberdeen

Task	n	Frequency Mean	Frequency S.D.	Core Tech. Mean	Core Tech. S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
1	12	3.33	1.70	2.75	1.48	2.75	2.01	3.17	1.52
2	12	2.92	1.89	2.83	1.99	2.50	2.06	2.83	1.99
3	12	3.83	.99	3.92	.86	2.58	1.55	3.92	.76
4	12	4.25	1.30	3.67	1.37	2.75	1.83	4.00	.91
5	12	4.17	1.28	3.75	1.42	2.92	1.75	4.08	.86
6	12	4.17	.99	4.17	.90	3.25	1.92	4.33	.75
7	12	1.25	1.48	1.83	2.07	1.17	1.62	1.67	1.80
8	12	3.25	1.53	3.75	1.42	2.67	1.97	3.75	1.36
9	12	1.67	1.97	1.83	1.99	.83	1.21	1.75	1.88
10	12	3.00	1.78	3.00	1.78	1.92	1.66	3.08	1.66
11	12	1.83	1.99	1.83	1.99	1.00	1.53	1.92	2.02
12	12	.67	1.03	.58	1.19	.83	1.34	.83	1.34
13	12	0	0	0	0	0	0	0	0
14	12	.08	.28	.33	1.11	.17	.55	.25	.83
15	12	.17	.55	.25	.83	.08	.28	.17	.55
16	12	2.17	1.82	2.42	1.89	1.67	1.80	2.42	1.93
17	12	1.75	2.09	1.75	2.09	1.42	1.93	1.92	2.10
18	12	0	0	0	0	0	0	0	0
19	12	.42	.95	.42	.95	.58	1.32	.50	1.12
20	12	.58	.76	.42	.64	.25	.43	.50	.65
21	12	1.92	1.75	2.17	1.99	1.75	2.01	2.08	1.98
22	12	.17	.55	.17	.55	.17	.55	.17	.55
23	12	.33	.85	.33	.85	.25	.83	.33	.85
24	12	0	0	0	0	0	0	0	0
25	12	.75	1.69	.67	1.55	0	0	.50	1.38
26	12	0	0	0	0	0	0	0	0
27	12	0	0	0	0	0	0	0	0
28	12	1.92	1.50	2.00	1.53	1.67	1.75	2.08	1.50
29	12	0	0	0	0	0	0	0	0
30	12	0	0	0	0	0	0	0	0
31	12	.08	.28	.08	.28	.08	.28	.08	.28
32	12	.75	1.30	.50	.96	.83	1.34	.83	1.34
33	12	0	0	0	0	0	0	0	0
34	12	.08	.28	.17	.55	.17	.55	.17	.55
35	12	0	0	0	0	0	0	0	0
36	12	0	0	0	0	0	0	0	0
37	12	.42	.95	.33	1.11	.75	1.69	.83	1.86
38	11	.36	1.15	0	0	.45	1.44	.45	1.44
39	12	1.58	1.61	1.25	1.53	2.00	2.00	2.25	2.01
40	12	0	0	0	0	0	0	0	0
41	12	.08	.28	.08	.28	0	0	.08	.28
42	12	.17	.55	.17	.55	.17	.55	.17	.55
43	12	.33	.85	.42	.95	.42	.95	.42	.95
44	12	2.17	1.52	2.58	1.75	1.50	1.85	2.75	1.92
45	12	1.33	1.43	1.00	1.29	1.25	1.48	1.33	1.49
46	12	1.00	1.41	1.00	1.35	1.08	1.44	1.08	1.44
47	12	2.92	1.44	3.42	1.55	2.75	1.96	3.50	1.61
48	12	4.67	.47	4.75	.43	4.17	1.40	4.42	.95
49	12	2.75	1.16	3.33	1.75	3.75	1.48	3.67	1.49
50	12	1.00	.82	1.58	1.55	1.92	1.71	2.00	1.83

TITLE: Data Collected in Spring, 1991 at Aberdeen

Task	n	Frequency Mean	Frequency S.D.	Core Tech. Mean	Core Tech. S.D.	Gen'l Sol. Mean	Gen'l Sol. S.D.	Ovr'l Perf Mean	Ovr'l Perf S.D.
51	12	1.67	1.70	2.17	1.95	2.25	2.01	2.33	2.05
52	12	.42	1.38	.42	1.38	.42	1.38	.42	1.38
53	12	2.33	2.17	2.33	2.09	2.58	2.25	2.75	2.35
54	12	.67	1.55	.67	1.55	.67	1.55	.67	1.55
55	11	0	0	0	0	0	0	0	0
56	12	1.17	1.77	1.42	2.06	1.08	1.93	1.42	2.06
57	12	.42	1.38	.42	1.38	.42	1.38	.42	1.38
58	12	.67	1.18	.50	1.38	1.33	2.13	1.67	2.36
59	12	.08	.28	0	0	.08	.28	.08	.28
60	12	0	0	0	0	0	0	0	0
61	12	1.17	1.40	1.00	1.35	1.50	1.85	1.50	1.66
62	12	1.42	1.71	1.83	2.11	.50	1.38	1.83	2.11
63	12	.92	1.19	1.00	1.47	1.50	1.85	1.58	1.93
64	12	0	0	0	0	0	0	0	0
65	12	.25	.60	.17	.55	.50	1.12	.33	.75
66	12	0	0	0	0	0	0	0	0
67	12	.42	1.11	.50	1.38	.67	1.55	.50	1.38
68	12	.58	1.32	.50	1.12	.58	1.32	.58	1.32
69	12	0	0	0	0	0	0	0	0
70	12	0	0	0	0	0	0	0	0
71	12	1.17	.80	1.50	1.85	3.08	1.93	2.92	2.02
72	12	2.50	1.44	3.00	2.16	4.33	1.43	4.25	1.48
73	12	.42	.64	.75	1.53	1.42	2.06	1.17	1.91
74	12	.67	.75	1.25	1.74	1.92	2.06	2.00	2.16
75	12	2.17	1.21	2.67	1.93	4.00	1.41	3.83	1.40
76	12	1.08	1.19	1.50	1.85	1.92	2.06	1.75	1.92
77	12	1.00	.82	1.50	1.71	2.58	2.02	2.58	2.02
78	12	1.42	1.19	1.58	1.66	3.00	1.91	2.67	1.80
79	12	1.58	1.44	1.83	2.07	2.75	2.13	2.67	2.09
80	12	1.08	1.11	1.67	1.93	2.33	2.09	2.33	2.02
81	12	.50	.96	.92	1.71	.50	1.19	.92	1.71
82	12	.08	.28	.42	1.38	.42	1.38	.42	1.38
83	12	.92	1.85	.83	1.86	.83	1.86	.83	1.86
84	12	1.17	1.34	1.17	1.62	1.83	1.99	1.92	2.10
85	12	.42	1.38	.42	1.38	.42	1.38	.42	1.38
86	12	1.83	1.07	2.83	2.03	4.00	1.47	3.83	1.46
87	12	.92	1.04	1.25	1.53	2.17	1.99	2.00	1.83
88	12	.50	1.12	.58	1.44	.83	1.86	.67	1.55
89	12	.67	1.18	.92	1.71	1.17	2.03	.67	1.31
90	12	2.08	2.02	2.08	2.10	2.25	2.20	2.67	2.32
91	12	2.08	2.06	2.33	2.25	2.33	2.25	2.58	2.25
92	12	2.83	1.82	3.42	1.80	3.25	2.01	3.58	1.75
93	12	1.92	2.18	1.83	2.11	1.92	2.18	2.17	2.23
94	12	2.17	2.27	2.17	2.27	2.17	2.27	2.17	2.27
95	12	1.83	2.23	1.92	2.33	1.92	2.33	1.83	2.23
96	12	1.33	2.01	1.42	2.06	1.42	2.06	1.42	2.06

No. of raters = 12. (Missing data set to 0's for reliabilities.)
Hoyt reliability (FREQUENCY)= .9032; r11= .4376
Hoyt reliability (CORE TECH.)= .8841; r11= .3887
Hoyt reliability (GEN'L SOL.)= .8593; r11= .3373
Hoyt reliability (OVR'L PERF)= .8973; r11= .4213

Table A-8 REPORT OF SYNTHETICALLY DERIVED WEIGHTS FOR MOS, 41C.
SCALE: Core Technical Scale

	NORMAL EQUATIONS			RAW SCORE EQUATS.		
Var.	Synth. Wts.	Part-Whole Correls.	Reduced Equat	Synth. Wts.	Reduced Equat.	Variable Name
1	.309	.83	.509	.2287	.3766	Verbal Ability
2	.280	.84	.510	.1700	.3096	Reasoning
3	.042	.80	0	.0241	0	Number Ability
4	.132	.84	0	.0755	0	Spatial Ability
5	.032	.39	0	.0199	0	Mental Info. Proc.
6	.049	.69	0	.0426	0	Percept Speed/Acc.
7	.107	.49	0	.0763	0	Memory
8	.128	.80	0	.0724	0	Mechanical Comp.
9	.061	.53	0	.0433	0	Eye-Limb Coord.
10	.024	.63	0	.0129	0	Precision
11	.048	.49	0	.0529	0	Movement Judgment
12	.058	.30	0	.0746	0	Hand/Finger Dext.
13						Physical Strength
14						Physical Endur.
15						Balance/Flexibil.
16	.008	.06	0	.0264	0	Involv. in Athls.
17	.037	.37	0	.0143	0	Work Orient.
18						Sociability
19	.048	.37	0	.0181	0	Cooper./Stability
20	.029	.35	0	.0477	0	Energy
21	.014	.17	0	.0082	0	Conscientiousness
22	.040	.41	.171	.0223	.0944	Domin./Confid.
23	.084	.02	.197	.0255	.0597	Inter: Tools
24	.032	.30	0	.0122	0	Inter: Rugged Act.
25	.008	-.01	0	.0045	0	Inter: Prot. Serv.
26	.028	.11	0	.0118	0	Inter: Tech. Act.
27	.001	.21	0	.0004	0	Inter: Science
28	.034	.23	0	.0407	0	Inter: Leadership
29	0	.09	0	0	0	Inter: Art. Act.
30	.045	-.20	0	.0152	0	Inter: Efficiency
			Intercepts:	-59.246	-41.661	

Multiple Correlation of Synthetic and reduced equat. composites = .9617
Task by attribute matrix of validity ratings screened: cut-off = 3.500.

Note: See manual for description of the operational measures
to be used with the above raw-score weights.

Table A-9 REPORT OF SYNTHETICALLY DERIVED WEIGHTS FOR MOS, 45B.
SCALE: Core Technical Scale

	NORMAL EQUATIONS			RAW SCORE EQUATS.		
Var.	Synth. Wts.	Part-Whole Correls.	Reduced Equat	Synth. Wts.	Reduced Equat.	Variable Name
1	.281	.82	.452	.2079	.3342	Verbal Ability
2	.267	.84	.351	.1620	.2135	Reasoning
3	.041	.79	0	.0235	0	Number Ability
4	.149	.85	.295	.0856	.1693	Spatial Ability
5	.036	.39	0	.0222	0	Mental Info. Proc.
6	.059	.70	0	.0508	0	Percept Speed/Acc.
7	.118	.50	0	.0842	0	Memory
8	.149	.81	0	.0847	0	Mechanical Comp.
9	.066	.55	0	.0471	0	Eye-Limb Coord.
10	.027	.65	0	.0143	0	Precision
11	.039	.49	0	.0431	0	Movement Judgment
12	.077	.33	0	.0987	0	Hand/Finger Dext.
13						Physical Strength
14						Physical Endur.
15						Balance/Flexibil.
16	.013	.05	0	.0439	0	Involv. in Athls.
17	.024	.33	0	.0092	0	Work Orient.
18						Sociability
19	.036	.34	0	.0137	0	Cooper./Stability
20	.017	.31	0	.0283	0	Energy
21	.008	.14	0	.0049	0	Conscientiousness
22	.030	.37	0	.0166	0	Domin./Confid.
23	.097	.04	.194	.0293	.0590	Inter: Tools
24	.041	.32	0	.0156	0	Inter: Rugged Act.
25	.009	-.00	0	.0053	0	Inter: Prot. Serv.
26	.026	.10	0	.0108	0	Inter: Tech. Act.
27	.001	.19	0	.0004	0	Inter: Science
28	.022	.20	0	.0261	0	Inter: Leadership
29	.004	.07	0	.0098	0	Inter: Art. Act.
30	.045	-.20	0	.0151	0	Inter: Efficiency
		Intercepts:		-59.298	-34.814	

Multiple Correlation of Synthetic and reduced equat. composites = .9620
Task by attribute matrix of validity ratings screened: cut-off = 3.500.

Note: See manual for description of the operational measures to be used with the above raw-score weights.

Table A-10 REPORT OF SYNTHETICALLY DERIVED WEIGHTS FOR MOS, 45G.
SCALE: Core Technical Scale

	NORMAL EQUATIONS			RAW SCORE EQUATS.		
Var.	Synth. Wts.	Part-Whole Correls.	Reduced Equat	Synth. Wts.	Reduced Equat.	Variable Name
1	.302	.83	.532	.2235	.3933	Verbal Ability
2	.277	.84	.465	.1683	.2824	Reasoning
3	.055	.80	0	.0316	0	Number Ability
4	.129	.85	0	.0739	0	Spatial Ability
5	.033	.39	0	.0201	0	Mental Info. Proc.
6	.054	.69	0	.0470	0	Percept Speed/Acc.
7	.123	.50	.187	.0876	.1328	Memory
8	.137	.80	0	.0780	0	Mechanical Comp.
9	.054	.53	0	.0389	0	Eye-Limb Coord.
10	.033	.64	0	.0175	0	Precision
11	.035	.48	0	.0384	0	Movement Judgment
12	.064	.31	0	.0818	0	Hand/Finger Dext.
13						Physical Strength
14						Physical Endur.
15						Balance/Flexibil.
16	.010	.05	0	.0320	0	Involv. in Athls.
17	.026	.34	0	.0101	0	Work Orient.
18						Sociability
19	.033	.34	0	.0124	0	Cooper./Stability
20	.018	.31	0	.0306	0	Energy
21	.009	.15	0	.0057	0	Conscientiousness
22	.028	.38	0	.0156	0	Domin./Confid.
23	.086	.03	.215	.0260	.0653	Inter: Tools
24	.028	.30	0	.0107	0	Inter: Rugged Act.
25	.006	-.01	0	.0035	0	Inter: Prot. Serv.
26	.066	.13	0	.0279	0	Inter: Tech. Act.
27	.001	.22	0	.0004	0	Inter: Science
28	.023	.22	0	.0276	0	Inter: Leadership
29	.002	.10	0	.0043	0	Inter: Art. Act.
30	.044	-.19	0	.0146	0	Inter: Efficiency
			Intercepts:	-59.507	-45.532	

Multiple Correlation of Synthetic and reduced equat. composites = .9652
Task by attribute matrix of validity ratings screened: cut-off = 3.500.

Note: See manual for description of the operational measures to be used with the above raw-score weights.

Table A-11 REPORT OF SYNTHETICALLY DERIVED WEIGHTS FOR MOS, 45K.
SCALE: Core Technical Scale

	NORMAL EQUATIONS			RAW SCORE EQUATS.		
Var.	Synth. Wts.	Part-Whole Correls.	Reduced Equat	Synth. Wts.	Reduced Equat.	Variable Name
1	.282	.82	.527	.2089	.3900	Verbal Ability
2	.262	.84	.467	.1594	.2836	Reasoning
3	.050	.79	0	.0288	0	Number Ability
4	.144	.85	0	.0826	0	Spatial Ability
5	.033	.39	0	.0205	0	Mental Info. Proc.
6	.060	.70	0	.0519	0	Percept Speed/Acc.
7	.120	.50	.186	.0855	.1321	Memory
8	.151	.81	0	.0858	0	Mechanical Comp.
9	.064	.55	0	.0458	0	Eye-Limb Coord.
10	.030	.65	0	.0160	0	Precision
11	.038	.49	0	.0425	0	Movement Judgment
12	.068	.32	0	.0871	0	Hand/Finger Dext.
13						Physical Strength
14						Physical Endur.
15						Balance/Flexibil.
16	.008	.04	0	.0276	0	Involv. in Athls.
17	.026	.33	0	.0100	0	Work Orient.
18						Sociability
19	.032	.34	0	.0120	0	Cooper./Stability
20	.018	.31	0	.0296	0	Energy
21	.009	.14	0	.0053	0	Conscientiousness
22	.025	.37	0	.0140	0	Domin./Confid.
23	.091	.03	.220	.0275	.0669	Inter: Tools
24	.032	.31	0	.0124	0	Inter: Rugged Act.
25	.004	-.01	0	.0023	0	Inter: Prot. Serv.
26	.050	.11	0	.0212	0	Inter: Tech. Act.
27	.002	.20	0	.0005	0	Inter: Science
28	.022	.20	0	.0265	0	Inter: Leadership
29	.001	.08	0	.0017	0	Inter: Art. Act.
30	.035	-.21	0	.0116	0	Inter: Efficiency
		Intercepts:		-58.331	-45.569	

Multiple Correlation of Synthetic and reduced equat. composites = .9628
Task by attribute matrix of validity ratings screened: cut-off = 3.500.

Note: See manual for description of the operational measures to be used with the above raw-score weights.

Table A-12 REPORT OF SYNTHETICALLY DERIVED WEIGHTS FOR MOS, 45L.
SCALE: Core Technical Scale

	NORMAL EQUATIONS			RAW SCORE EQUATS.		
Var.	Synth. Wts.	Part-Whole Correls.	Reduced Equat	Synth. Wts.	Reduced Equat.	Variable Name
1	.283	.82	.507	.2091	.3750	Verbal Ability
2	.253	.83	.435	.1539	.2641	Reasoning
3	.036	.78	0	.0206	0	Number Ability
4	.135	.85	0	.0772	0	Spatial Ability
5	.028	.39	0	.0173	0	Mental Info. Proc.
6	.054	.69	0	.0464	0	Percept Speed/Acc.
7	.110	.49	0	.0784	0	Memory
8	.173	.82	0	.0979	0	Mechanical Comp.
9	.082	.56	0	.0588	0	Eye-Limb Coord.
10	.026	.65	.205	.0138	.1088	Precision
11	.039	.49	0	.0429	0	Movement Judgment
12	.073	.32	0	.0944	0	Hand/Finger Dext.
13						Physical Strength
14						Physical Endur.
15						Balance/Flexibil.
16	.014	.06	0	.0442	0	Involv. in Athls.
17	.028	.34	0	.0108	0	Work Orient.
18						Sociability
19	.042	.35	0	.0159	0	Cooper./Stability
20	.020	.32	0	.0337	0	Energy
21	.011	.14	0	.0067	0	Conscientiousness
22	.033	.39	0	.0184	0	Domin./Confid.
23	.102	.05	.199	.0311	.0605	Inter: Tools
24	.038	.32	0	.0148	0	Inter: Rugged Act.
25	.008	-.00	0	.0047	0	Inter: Prot. Serv.
26	.030	.10	0	.0125	0	Inter: Tech. Act.
27	.000	.19	0	.0001	0	Inter: Science
28	.027	.20	0	.0316	0	Inter: Leadership
29	.001	.07	0	.0015	0	Inter: Art. Act.
30	.028	-.22	0	.0095	0	Inter: Efficiency
		Intercepts:		-59.233	-38.432	

Multiple Correlation of Synthetic and reduced equat. composites = .9597
Task by attribute matrix of validity ratings screened: cut-off = 3.500.

Note: See manual for description of the operational measures
to be used with the above raw-score weights.

Appendix B

Job Description Booklet

1991

Prepared for U.S. Army Research Institute by the American Institutes for Research

Section 1: PRIVACY ACT AND BACKGROUND INFORMATION

No action is required from you concerning the Privacy Act Statement. Simply read the statement. Then complete the Background Information as instructed.

5 U.S.C. 552a

TITLE OF FORM

PRESCRIBING DIRECTIVE
AR 70-1

1. AUTHORITY

10 USC Sec 4503

2. PRINCIPAL PURPOSE(S)

The data collected are to be used for research purposes only.

3. ROUTINE USES

This is an experimental personnel data collection activity conducted by the U. S. Army Research Institute for the Behavioral and Social Sciences pursuant to its research mission as prescribed in AR 70-1. When identifiers (name or Social Security Number) are requested they are to be used for administrative and statistical control purposes only. Full confidentiality of the reponses will be maintained in the processing of these data.

4. MANDATORY OR VOLUNTARY DISCLOSURE AND EFFECT ON INDIVIDUAL NOT PROVIDING INFORMATION

Although your participation in this research is voluntary, we encourage you to provide complete and accurate information in the interests of the research. There will be no effect on you for not providing all or any part of the information. This notice may be detached from the rest of the form and retained by you if so desired.

FORM Privacy Act Statement - 25 Sep 75

DA Form 4368-R, 1 May 75

BACKGROUND INFORMATION

Please complete the information on this form.

1. Name: _____
   Last First MI

2. SSN: _____

3. Date: _____
   Day Month Year

4. Post: _____

5. Unit: _____

6. Your Position or Job Title: _____
   (include your MOS code if you are a soldier)

7. Sex: _____ Male
   _____ Female

8. Race: _____ Black/Afro-American
   _____ American Indian
   _____ Hispanic
   _____ White
   _____ Other (please specify: _____)

9. Please enter your current pay grade (for example, E6, W2, O2, GS-9, etc.): _____

10. Time in the Army (including time in service and, for civilians, time working for the Army as a civilian):
    _____ years _____ months

11. MOS you are rating (circle one):

12. Experience includes time spent working in or supervising persons in the MOS, training persons for the MOS, reviewing and revising doctrine or training and testing programs for the MOS.

    Your experience with the MOS you are rating:
    _____ years _____ months

Section 2: ARMY TASK QUESTIONNAIRE

Please keep track of how much time you spend reading the instructions and completing this section. At the end of this section, we ask you to tell us how many minutes you spent working on the Army Task Questionnaire.

PERFORMANCE AREA DEFINITIONS

Below are definitions of three performance areas. Read them carefully. You must use these definitions to complete the Army Task Questionnaire. You may tear this page out for ready reference.

CORE TECHNICAL PROFICIENCY: This performance area is made up of the tasks that are "central" to the MOS. The tasks represent the core of the job and are the primary definers of the MOS.

GENERAL SOLDIERING: In addition to the core technical area, individuals in every MOS are responsible for being able to perform a variety of general soldiering tasks. These are referred to as "Common Tasks." General Soldiering Area refers to all Common Tasks.

OVERALL PERFORMANCE: This refers to all areas of job performance, including the two areas listed above. Think of this as total job performance.

ARMY TASK QUESTIONNAIRE

This questionnaire contains 96 tasks designed to cover ALL ENTRY-LEVEL MOS in the Army. Since it is designed to cover so many MOS, a large number of these tasks may not apply to the particular MOS you are rating.

For each task, we would like you to make five ratings. First, indicate how FREQUENTLY each task is performed by soldiers in this MOS, using the following FREQUENCY rating scale:

0 = Never; this task is not part of the job.
1 = Least Often; this task is performed much less often than most other tasks.
2 = Not Very Often; this task is performed less often than most other tasks.
3 = Often; this task is performed about as often as other tasks.
4 = Very Often; this task is performed more often than most other tasks.
5 = Most Often; this task is performed much more often than most other tasks.

As you make your ratings, think about soldiers who have about 24 months of service in this MOS after Basic and AIT. Also keep in mind all that you know about the full range of duty assignments for this MOS.

After you have made FREQUENCY ratings for all 96 tasks, go through the list again, this time rating the IMPORTANCE of each task for successful performance in three different areas of the job: Core Technical Area, General Soldiering Area, and Overall Performance. The definitions of these performance areas are on a separate sheet, entitled PERFORMANCE AREA DEFINITIONS. Please read these definitions carefully before making your IMPORTANCE ratings.

You will make IMPORTANCE ratings using the following rating scale:

0 = No Importance
1 = Extremely Low Importance
2 = Low Importance
3 = Moderate Importance
4 = High Importance
5 = Extremely High Importance

In addition to the IMPORTANCE ratings, we would like you to make a single DIFFICULTY rating for each task, using the following scale:

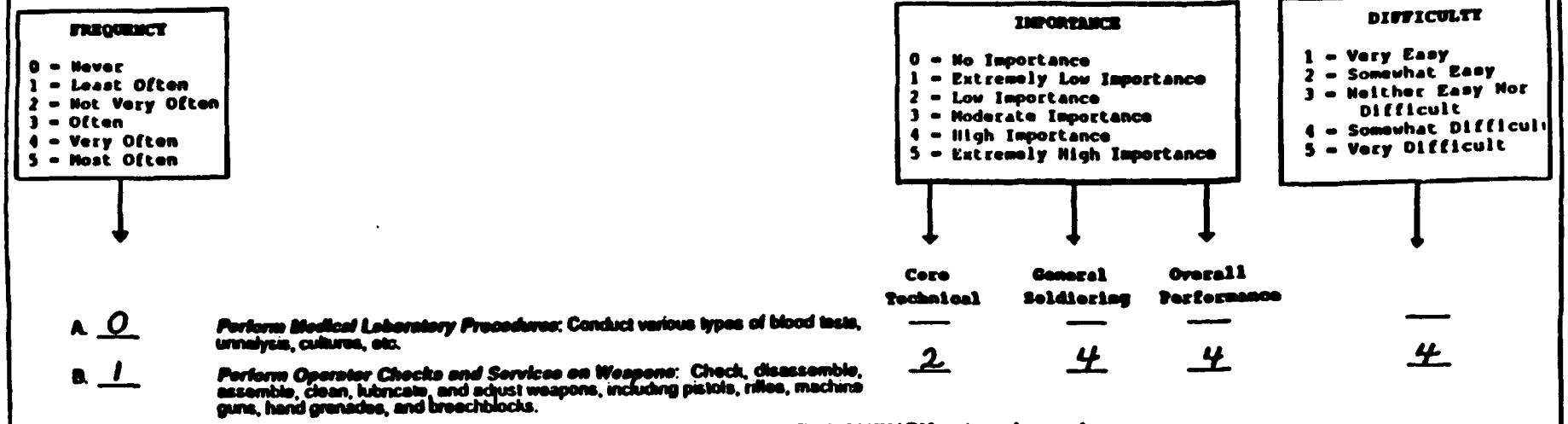
How difficult is it to reach and maintain an acceptable level of proficiency in this task?

1 = Very Easy; this task can be performed correctly after less than an hour of instruction, and performed again correctly a year later with little or no practice in between.
2 = Somewhat Easy
3 = Neither Easy Nor Difficult; this task can be performed correctly after a few days of instruction, and performed again correctly a few months later with little or no practice in between.
4 = Somewhat Difficult
5 = Very Difficult; this task can be performed correctly after several weeks of instruction, and performed again correctly only if it is practiced regularly.

Note: If you decided that a particular task is not part of this MOS (so you gave it a FREQUENCY rating of 0), you should leave all three IMPORTANCE ratings and the DIFFICULTY rating blank.

Please look at the EXAMPLES below and read through their explanations before starting to make your ratings.

EXAMPLES:



Joe supervises 94B (Cooks). He went through the list of tasks and made FREQUENCY ratings for each one.

1. Since he felt that Task A, "Perform Medical Laboratory Procedures," was not part of the job for 94B, he gave this task a FREQUENCY rating of 0, and left all three IMPORTANCE ratings and the DIFFICULTY rating blank.

2. Joe felt that Task B, "Perform Operator Checks and Services on Weapons," was performed much less often than most tasks in MOS 94B, so he gave it a FREQUENCY rating of 1, for Least Often.

Joe then returned to the beginning of the list and, after carefully reading the PERFORMANCE AREA DEFINITIONS, has started making his ratings of how IMPORTANT each task is for successful performance in three different areas of the job.

Joe decided that this task was of Low Importance for Core Technical Area, so he gave it an IMPORTANCE rating of 2.

For General Soldiering, Joe felt that this task was of High Importance, so he gave it an IMPORTANCE rating of 4 for this performance area.

For Overall Performance, Joe gave this task a rating of 4, indicating the task was of High Importance for overall job performance.

Finally, Joe gave Task B a DIFFICULTY rating of 4, indicating that it is somewhat Difficult for most soldiers to reach and maintain an acceptable level of proficiency on this task.

Keep the PERFORMANCE AREA DEFINITIONS handy and refer to them as often as necessary while making your IMPORTANCE ratings.

Note: Many of the task definitions in this questionnaire contain specific examples to help explain and clarify the task. Please keep in mind that these are just some of the possible examples; it was not practical to list every possible example.

Name: _____

FREQUENCY

0 = Never
1 = Least Often
2 = Not Very Often
3 = Often
4 = Very Often
5 = Most Often

IMPORTANCE

0 = No Importance
1 = Extremely Low Importance
2 = Low Importance
3 = Moderate Importance
4 = High Importance
5 = Extremely High Importance

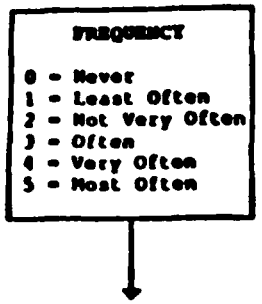
DIFFICULTY

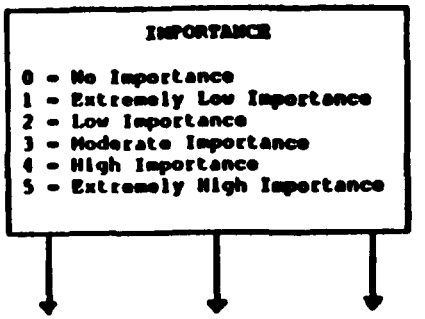
1 = Very Easy
2 = Somewhat Easy
3 = Neither Easy Nor Difficult
4 = Somewhat Difficult
5 = Very Difficult

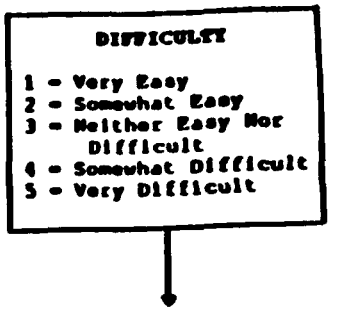
I. Maintenance

A. Mechanical Systems Maintenance

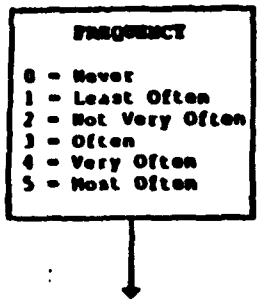
		Core Technical	General Soldiering	Overall Performance	Difficulty
1. ____	***Perform Operator Maintenance Checks and Services***: Follow directions in Operator's Manual; conduct before, during, after, and weekly operator checks and services on vehicles, trailers, generators, construction equipment, or other kinds of mechanical apparatus.	____	____	____	____
2. ____	***Perform Operator Checks and Services on Weapons***: Check, disassemble, assemble, clean, lubricate, and adjust weapons, including pistols, rifles, machine guns, hand grenades, and breechblocks.	____	____	____	____
3. ____	***Troubleshoot Mechanical Systems***: Measure, use specialized test equipment and manuals, and observe mechanical equipment (for example, engines, transmissions, brakes, hydraulics, refrigeration systems, etc.) to detect and diagnose problems and malfunctions.	____	____	____	____
4. ____	***Repair Weapons***: After the cause of a problem in a weapon has been found, fix it using the appropriate tools and necessary replacement parts by following directions in the weapon's technical manual.	____	____	____	____
5. ____	***Repair Mechanical Systems***: After the cause of a problem in a mechanical part has been found, fix it using the appropriate tools (for example, wrenches, screwdrivers, gauges, hammers, soldering equipment, etc.) and necessary replacement parts by following directions in the equipment's technical manual.	____	____	____	____
6. ____	***Troubleshoot Weapons***: Find the cause of malfunctions in weapons using technical manuals, tools, and test equipment.	____	____	____	____

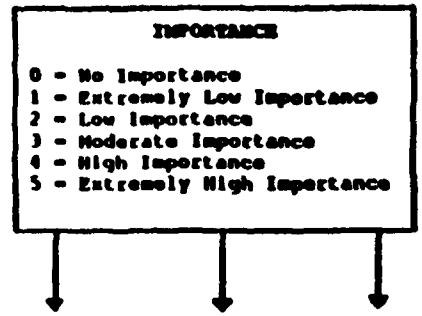


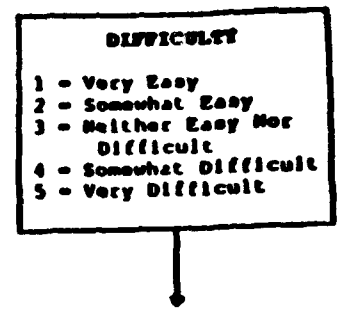




	Core Technical	General Soldiering	Overall Performance	
B. Electrical and Electronic Systems Maintenance				
7. ____ ***Install Electronic Components***: Connect electronic and communications equipment (for example, radios, antennas, telephones, teletypewriters, radar, power supplies, etc.) and check system for operation.	____	____	____	____
8. ____ ***Inspect Electrical Systems***: Measure, use specialized test equipment and manuals, and observe electrical systems (for example, generators, wiring, harnesses, switches, relays, circuit breakers, etc.) to detect and diagnose problems and malfunctions.	____	____	____	____
9. ____ ***Inspect Electronic Systems***: Measure, use specialized test equipment and manuals, and observe electronic systems (for example, communications equipment, radar, missile and tank ballistics computer, etc.) to detect and diagnose problems and malfunctions.	____	____	____	____
10. ____ ***Repair Electrical Systems***: After the cause of an electrical problem has been found, fix it with the appropriate tools (for example, wire strippers, pliers, soldering irons, etc.) and necessary replacement parts by following directions in the equipment's technical manual.	____	____	____	____
11. ____ ***Repair Electronic Components***: After the cause of an electronics problem has been found, fix it with the appropriate tools (for example, test sets, screwdrivers, pliers, soldering guns, etc.) and necessary replacement parts by following directions in the equipment's technical manual.	____	____	____	____







II. General Operations

		Core Technical	General Soldiering	Overall Performance	
	C. Pack and Load				
12. ____	***Pack and Load Materials***: Load and lash materials onto transport vehicles (land, sea, or air) to secure and protect from damage or loss during shipment.	____	____	____	____
13. ____	***Prepare Parachutes***: Inspect cargo and personnel parachutes, repair or replace faulty components, and pack parachutes for air drop.	____	____	____	____
14. ____	***Prepare Equipment and Supplies for Air Drop***: Build or assemble platforms, cushions, and riggings for parachuting supplies, equipment, and vehicles.	____	____	____	____
	D. Vehicle and Equipment Operations				
15. ____	***Operate Power Excavating Equipment***: Use air hammers and drills, paving breakers, grinders, backfill tampers, or other hand-operated power equipment in building concrete, stone, or other structures (for example, roads, fortifications, buildings, etc.).	____	____	____	____
16. ____	***Operate Wheeled Vehicles***: Drive wheeled vehicles over roads and cross-country in response to mission, terrain, and traffic regulations.	____	____	____	____
17. ____	***Operate Track Vehicles***: Drive track vehicles (for example, tank, APC, BFV, etc.) in response to mission, terrain, and traffic controls.	____	____	____	____
18. ____	***Operate Boats***: Drive boats and rafts.	____	____	____	____

FREQUENCY

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5 = Most Often

IMPORTANCE

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DIFFICULTY

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5 = Very Difficult

		Core Technical	General Soldiering	Overall Performance	
19. ____	***Operate Lifting, Loading, and Grading Equipment***: Operate fork lifts, cranes, back-hoes, graders, and other heavy equipment to load, unload, or move heavy equipment, supplies, construction materials (for example, culvert pipe, building and bridge parts), or terrain (for example, earth, rocks, trees, etc.).	____	____	____	____
	E. Construct/Assemble				
20. ____	***Paint***: Prepare surfaces (clean, remove old paint, sand) and apply paint with brush, roller, or spray.	____	____	____	____
21. ____	***Install Wire and Cables***: String or lay, and connect electrical wire or communications cables.	____	____	____	____
22. ____	***Repair Plastic and Fiberglass***: Fix plastic or fiberglass parts and structures by cutting, sawing, drilling, sanding, filling, gluing, and painting.	____	____	____	____
23. ____	***Repair Metal***: Fix metal structures or parts by bending, cutting, drilling, welding, hammering, grinding, soldering, and painting.	____	____	____	____
24. ____	***Assemble Steel Structures***: Erect bridges, antennas, and other steel structures. May require the assistance of others and use of heavy equipment.	____	____	____	____
25. ____	***Install Pipe Assemblies***: Place, connect, and test pipe assemblies and fixtures (for example, plumbing, POL pipelines and pumps, etc.).	____	____	____	____

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		Core Technical	General Soldiering	Overall Performance	
26. ___	***Construct Wooden Buildings and Other Structures***: Measure, saw, nail or plane to frame, sheathe, and roof buildings, or erect trestles, bridges, and piers.	___	___	___	___
27. ___	***Construct Masonry Buildings and Structures***: Measure, lay brick or concrete blocks, or build forms and pour concrete to construct walls, columns, field fortifications, and other concrete or masonry structures.	___	___	___	___
	F. Technical Procedures				
28. ___	***Operate Gas and Electric Powered Equipment***: Operate electric generators, air compressors, smoke generators, quarry machines, mobile washing machines, water pumps, etc., to produce power or process materials.	___	___	___	___
29. ___	***Select, Lay Out, and Clean Medical or Dental Equipment and Supplies***: Prepare treatment areas for use by following prescribed procedures for laying out instruments and equipment; clean equipment and area for future use.	___	___	___	___
30. ___	***Use Audiovisual Equipment***: Use cameras and videotape to record sights and sounds for intelligence analysis, training, or documentation.	___	___	___	___
31. ___	***Reproduce Printed Material***: Operate duplicating machines, offset presses, and similar equipment to reproduce printed materials; collate and bind materials using various types of bindery equipment.	___	___	___	___

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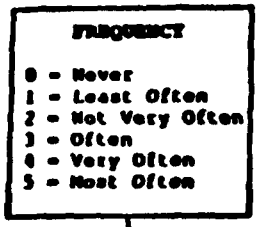
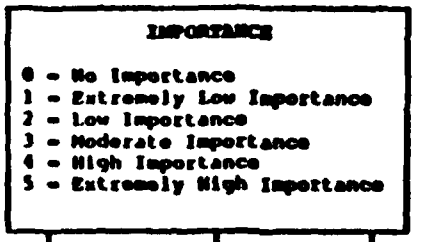
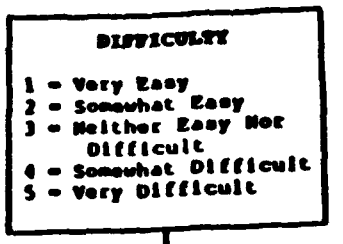
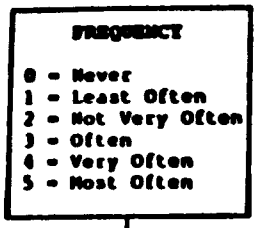
		Core Technical	General Soldiering	Overall Performance	
32. ____	***Operate Electronic Equipment***: Set and adjust the controls to operate electronic equipment (for example, radio, computer hardware, missile ballistics controls, etc.).	____	____	____	____
33. ____	***Operate Radar***: Operate radar equipment and interpret signals.	____	____	____	____
34. ____	***Operate Computer Hardware***: Operate computer hardware such as tape and disk drives, optical scanners, terminals, and other input/output devices. (Does not include programming).	____	____	____	____
35. ____	***Cook***: Prepare food and beverages according to recipes and meal plans (measure, mix, bake, etc.); inspect fresh food and staples for freshness; clean equipment and work area.	____	____	____	____
36. ____	***Perform Medical Laboratory Procedures***: Conduct various types of blood tests, urinalysis, cultures, etc.	____	____	____	____
37. ____	***Conduct Land Surveys***: Survey terrain to determine elevations, azimuths, and distances of terrain features; record information.	____	____	____	____
38. ____	***Provide Medical or Dental Treatment***: Give medical attention to soldiers in the field or in medical or dental clinics, or give veterinary treatment to animals (for example, administer injections, take blood pressure, change sterile dressings, etc.); does not include first aid.	____	____	____	____

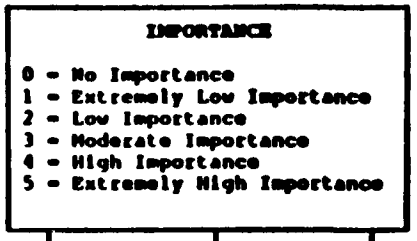


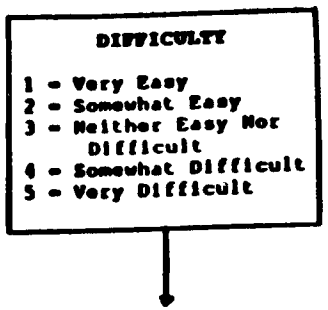




		Core Technical	General Soldiering	Overall Performance	
	G. Make Technical Drawings				
39. ____	***Sketch Maps, Overlays, or Range Cards***: Use standard symbols to make sketches of terrain, including locations of buildings and other objects, targets, avenues of approach, and maneuver areas.	____	____	____	____
40. ____	***Produce Technical Drawings***: Use drafting and drawing equipment to make technical drawings and blueprints.	____	____	____	____
41. ____	***Draw Maps and Overlays***: Use drafting, graphics, and related techniques to draw and revise maps from aerial photographs.	____	____	____	____
42. ____	***Draw Illustrations***: Use pen, pencil, paint, or other media to make free-hand technical drawings and illustrations. (Does not include range cards, sketched maps or other field expedient drawings).	____	____	____	____
	III. Administrative				
	H. Clerical				
43. ____	***Type***: Type information using a typewriter, teletypewriter, keypunch, or computer terminal.	____	____	____	____
44. ____	***Prepare Technical Forms and Documents***: Follow standardized procedures to prepare or complete forms and documents (for example, personnel records, legal briefs, requisition requests, inspection records, etc.).	____	____	____	____







		Core Technical	General Soldiering	Overall Performance	
45. ____	***Record, File, and Dispatch Information***: Collect, copy, update, sort, index, file, and retrieve information (for example, mail, training rosters, personnel statistics, supply inventories, etc.).	____	____	____	____
46. ____	***Receive, Store, and Issue Supplies, Equipment, and Other Materials***: Inspect materials and review paperwork when receiving materials; sort, transport, and store materials; issue or ship materials to authorized personnel or units.	____	____	____	____
	I. Communication				
47. ____	***Use Hand and Arm Signals***: Communicate messages and instructions using hand and arm signals.	____	____	____	____
48. ____	***Read Technical Manuals, Field Manuals, Regulations, and Other Publications***: Use index and table of contents to find location of needed information; locate information; read instructions, diagrams, charts, and tables.	____	____	____	____
49. ____	***Use Maps***: Read and interpret map symbols and identify terrain features in order to orient map to your position in the field; determine grid coordinates; determine directions; identify roads, towns, etc.	____	____	____	____
50. ____	***Send and Receive Radio Messages***: Use standardized radio codes and procedures to transmit and receive messages and other information.	____	____	____	____

FREQUENCY

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3 = Often
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5 = Most Often

IMPORTANCE

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DIFFICULTY

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3 = Neither Easy Nor Difficult
4 = Somewhat Difficult
5 = Very Difficult

		Core Technical	General Soldiering	Overall Performance	
51. ____	***Give Short Oral Reports***: Use standard communication procedures to organize and deliver information (for example, SALUTE, call for and adjust indirect fire, status reports, etc.).	____	____	____	____
52. ____	***Receive Clients, Patients, Guests***: Schedule, greet, and give routine information to persons seeking medical, dental, legal, or counseling services.	____	____	____	____
53. ____	***Give Directions and Instructions***: Give verbal information, instructions, or directions to others.	____	____	____	____
54. ____	***Write and Deliver Presentations***: Make formal presentations (for example, briefings, radio and television broadcasts, etc.).	____	____	____	____
55. ____	***Interview***: Gather information from clients, patients, witnesses, prisoners, or other persons.	____	____	____	____
56. ____	***Provide Counseling and Other Interpersonal Interventions***: Conduct personal adjustment counseling with individuals and groups; use interpersonal relations skills to solve relationship problems.	____	____	____	____
57. ____	***Write Documents and Correspondence***: Draft letters, reports, memos, etc.; proofread and edit.	____	____	____	____
	J. Analyze Information				
58. ____	***Decode Data***: Use coding systems and rules to decipher and interpret coded information (for example, use CEOI, interpret symbols/signs, etc.).	____	____	____	____

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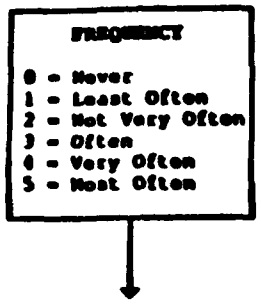
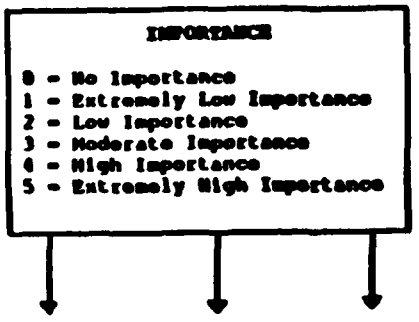
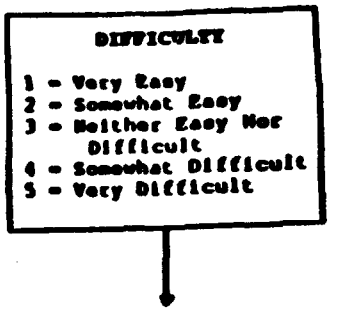
		Core Technical	General Soldiering	Overall Performance	
59. ____	***Analyze Electronic Signals***: Analyze electronic signals to detect threat transmitters and electronic countermeasures.	____	____	____	____
60. ____	***Analyze Weather Conditions***: Determine weather conditions and analyze their effects on tactical operations.	____	____	____	____
61. ____	***Order Equipment and Supplies***: Determine needs and requisition needed supplies, materials, and equipment.	____	____	____	____
62. ____	***Estimate Time and Cost of Maintenance Operations***: Estimate equipment downtime and cost of repairs, including parts and labor.	____	____	____	____
63. ____	***Plan Placement or Use of Tactical Equipment***: Using maps and on-site inspection, identify positions and areas to be used for cover and concealment and to place weapons, fortifications, mines, and detectors.	____	____	____	____
64. ____	***Translate Foreign Languages***: Translate written or spoken foreign language communications.	____	____	____	____
65. ____	***Analyze Intelligence Data***: Determine importance and reliability of information; use information to determine identity, capabilities, disposition, and movement of enemy forces.	____	____	____	____
	K. Applied Math and Data Processing				
66. ____	***Control Money***: Keep accounting records; disperse and collect money and money orders.	____	____	____	____







	Core Technical	General Soldiering	Overall Performance	
67. ___ ***Determine Firing Data for Indirect Fire Weapons***: Use maps, firing charts, and targeting and ballistics information to determine elevation and azimuth needed for engaging targets.	___	___	___	___
68. ___ ***Compute Statistics or Other Mathematical Calculations***: Select formulas and make mathematical calculations, with or without using calculators or computers; report results.	___	___	___	___
69. ___ ***Provide Programming and Data Processing Support for Computer Operations***: Analyze data processing needs; select or prepare, edit, test, and run computer programs; document process and results.	___	___	___	___

L. Control Air Traffic

70. ___ ***Control Air Traffic***: Coordinate departing, en route, arriving, and holding aircraft by monitoring radar equipment, communicating with aircraft and other air traffic control units.	___	___	___	___

IV. Combat

M. Individual Combat

71. ___ ***Use Hand Grenades***: Identify, inspect, arm, throw, and secure hand grenades.	___	___	___	___
72. ___ ***Protect Against NBC Hazards***: Use protective clothing, masks, and decontamination equipment to protect self, others, equipment, and supplies from nuclear, biological, and chemical hazards.	___	___	___	___

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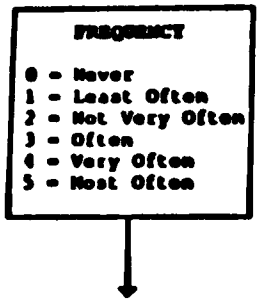
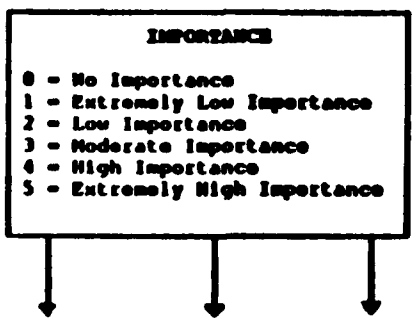
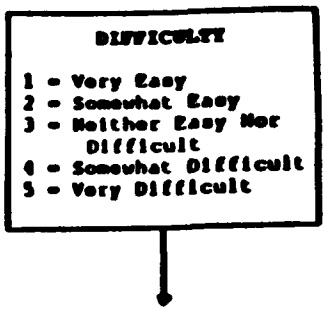
5 = Very Difficult

		Core Technical	General Soldiering	Overall Performance	
73. ____	***Handle Demolitions or Mines***: Store, place, charge, discharge, and disarm explosives, demolition devices, or mines.	____	____	____	____
74. ____	***Engage in Hand-to-Hand Combat***: Use offensive and defensive maneuvers to overcome hostile individuals.	____	____	____	____
75. ____	***Fire Individual Weapons***: Aim, track, and fire individual weapons, such as rifles, pistols, machine guns, and LAW, at designated targets; load, reduce a stoppage, and clear weapons.	____	____	____	____
76. ____	***Control Individuals and Crowds***: Perform guard duty, including challenge and password; apprehend and search suspected criminals or enemy soldiers; guard prisoners; participate in riot control.	____	____	____	____
77. ____	***Customs and Laws of War***: Use knowledge of Geneva convention and military SOP concerning treatment of enemy personnel, engagement of the enemy, conduct of military protocol and ceremony, guard duty, and physical readiness.	____	____	____	____
78. ____	***Navigate***: During the day or night, with or without a map, locate positions and move from point to point in response to terrain features (for example, for cover or concealment), battle conditions, and mission.	____	____	____	____
79. ____	***Survive in the Field***: Select, prepare, and occupy individual tactical positions (for example, battle positions, overwatch positions, observation posts), camouflage self and equipment, observe security procedures.	____	____	____	____







		Core Technical	General Soldiering	Overall Performance	
80. ____	***Move and React in the Field***: Move on foot in the battlefield as a member of a tactical operation; react to threats, including direct and indirect fire.	____	____	____	____
	N. Crew-Served Weapons				
81. ____	***Load and Unload Field Artillery or Tank Guns***: Operate breech controls and handle ammunition (stow and load) to prepare guns for firing; unload or extract unused rounds or misfires.	____	____	____	____
82. ____	***Fire Heavy Direct Fire Weapons (for example, tank main guns, TOW missile, IFV cannon, etc.)***: Using weapon sights, manipulate weapon controls to aim, track, and fire on targets.	____	____	____	____
83. ____	***Prepare Heavy Weapons for Tactical Use***: Position and prepare for firing heavy tactical weapons, such as missiles, field artillery, and anti-aircraft systems.	____	____	____	____
84. ____	***Place and Camouflage Tactical Equipment and Materials in the Field***: Place mines, detectors, chemicals, and camouflage materials into position in the battlefield.	____	____	____	____
85. ____	***Fire Indirect Fire Weapons (for example, field artillery and heavy mortars)***: Lay weapon by adjusting azimuth and elevation controls in response to fire commands.	____	____	____	____

FREQUENCY

0 = Never
1 = Least Often
2 = Not Very Often
3 = Often
4 = Very Often
5 = Most Often

IMPORTANCE

0 = No Importance
1 = Extremely Low Importance
2 = Low Importance
3 = Moderate Importance
4 = High Importance
5 = Extremely High Importance

DIFFICULTY

1 = Very Easy
2 = Somewhat Easy
3 = Neither Easy Nor Difficult
4 = Somewhat Difficult
5 = Very Difficult

		Core Technical	General Soldiering	Overall Performance	
	O. Give First Aid				
86. ____	***Give First Aid***: Carry out first aid procedures (for example, CPR, put on field dressing, prevent shock, etc.).	____	____	____	____
	P. Identify Targets				
87. ____	***Detect and Identify Targets***: With or without optical devices (for example, night sights, weapon sights, binoculars, etc.), locate possible targets, and identify type (for example, troops, tanks, aircraft, etc.) and nomenclature.	____	____	____	____
	Q. Supervision				
88. ____	***Plan Operations***: Plan, prepare, and develop orders for team operations, including combat, support, and technical operations.	____	____	____	____
89. ____	***Direct/Lead Teams***: Direct combat and security team activities in the field (for example, lead reconnaissance teams, set up offensive and defensive positions, carry out a fire mission, etc.).	____	____	____	____
90. ____	***Monitor/Inspect***: Monitor subordinates to ensure that they are carrying out their duties properly, that they have the correct equipment, that supply levels are adequate for the mission, and that records are complete, etc.).	____	____	____	____
91. ____	***Lead***: Influence subordinates by setting goals, maintaining good lines of communication, sharing hardships, building trusts, etc.	____	____	____	____

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		Core Technical	General Soldiering	Overall Performance	
92. ____	*Act As A Model*: Show subordinates correct way to perform technical tasks, maintain a positive attitude under adverse conditions, demonstrate proper military bearing, etc., on a day-to-day basis.	____	____	____	____
93. ____	*Counsel*: Provide individual subordinates with support, assistance, and feedback on specific performance, personal, or disciplinary problems.	____	____	____	____
94. ____	*Communicate*: Compose orders, brief subordinates on things that are happening in the unit; keep superiors and peers informed, etc.	____	____	____	____
95. ____	*Train*: Schedule, plan, and conduct training for subordinates.	____	____	____	____
96. ____	*Personnel Administration*: Prepare and conduct performance appraisals, recommend various personnel actions, keep and maintain personnel and administrative records, etc.	____	____	____	____

Additional Tasks

In the following spaces, please write in any tasks that soldiers in the MOS that you are rating perform that were not covered in the questionnaire.

_____

_____

_____

_____

_____

_____

_____

_____

Time to Complete Section 2.

How long did it take you to complete this section? _____ minutes

Section 3: EVALUATION

EVALUATION FORM

Now that you have completed the Army Task Questionnaire, we would like to ask you several questions about it.

1. Were the instructions clear, i.e., did you understand how to complete the ratings?

_____ Yes _____ No

If you answered no, please try to explain the difficulties you had in making the ratings.

_____

_____

_____

_____

_____

2. Do you think your ratings provide an accurate description of the **frequency** of task performance?

_____ Yes _____ No

In no, why not?

_____

_____

_____

_____

_____

3. Do you think your ratings provide an accurate description of the **importance** of task performance?

_____ Yes _____ No

In no, why not?

_____

_____

_____

_____

_____

4. Do you think your ratings provide an accurate description of the **difficulty** of task performance?

_____ Yes _____ No

In no, why not?

_____

_____

_____

_____

_____