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ABSTRACT

Basic skills instruction can be tied to work performed on the job by conducting a Workplace Educational Skills Analysis (WESA). WESA is a systematic process used by the Wisconsin Workplace Partnership Training Program to identify and analyze the basic educational skills required on the job. Basic skills are identified in seven areas: (1) computing; (2) listening; (3) problem solving; (4) reading; (5) speaking; (6) team building; and (7) writing. The six stages of the WESA process are as follows: (1) design meetings; (2) interview preparation; (3) interviews and observations; (4) data analysis and draft reports; (5) clarification meetings; and (6) final reports. WESA information enables instructors to develop job and workplace-specific curricula, use workplace-specific materials in instruction, design competency-based participant assessment instruments, develop individualized education plans, and assist employees with career planning. Peer advisors play a vital role in the success of the programs. (Twenty references, a 35-item bibliography, and the following 13 appendices are included: (1) program components; (2) planning meeting agenda; (3) implementation strategy meeting agenda; (4) design meeting agenda; (5) interview schedule; (6) summary report; (7) supervisor interview worksheet; (8) employee interview worksheet; (9) skills observation worksheet; (10) observation worksheet; (11) detailed report; (12) Gunning Fog Index; and (13) suggested components for final reports.) (NLA)

Workplace Educational Skills Analysis

TRAINING GUIDE

WORKPLACE EDUCATIONAL SKILLS ANALYSIS TRAINING GUIDE

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February, 1991

WORKPLACE EDUCATIONAL SKILLS ANALYSIS
TRAINING GUIDE

CONTENTS

INTRODUCTION

The workplace is changing, and so are the skills that employees must have in order to change with it. According to former US Secretary of Labor Elizabeth Dole, America's workforce is in a state of unreadiness - unready for the new challenges of the 1990s (Training and Development Journal, 1990). The unreadiness of America's workforce is attributed to two critical situations. First, a "skills gap" between the skills possessed by available workers and the skills required for current employment opportunities. Second, the need to upgrade or renew the skills of employees presently employed.

Statistics abound at the national level which demonstrate the need for increased workplace education initiatives. For example, 75 percent of all high school seniors are unable to write a basic letter of application for employment. As many as 80 percent of job applicants are unable to pass basic employment exams in English and math. Between 20 and 40 million adults are believed to be illiterate. Lastly, it is estimated that up to three-fourths of the currently unemployed are functionally illiterate.

While job applicants face a "skills gap," the existing workforce faces increasing basic and technical skill requirements. The introduction of the microcomputer has directly affected the maintenance worker and manager, the trucker and teacher, and the actuary and auto mechanic. Similarly, the introduction of new processes and methods (e.g., sophisticated statistical quality controls, participative management and just-in-time production) are requiring employees to communicate, compute and process differently in today's changing and more competitive workplace.

In order to meet the increasing basic skills education needs of Wisconsin's workforce, workplace education programs are being developed throughout the state. The challenge of increasing the basic skill levels of the workforce is one that must be met by using an applied (contextually based) approach to workplace basic skills instruction, that is, using or adapting work-related materials and concepts in basic skills curriculums and instruction. According to recent research conducted by Drew and Mikulecky (1988) people learn more rapidly and are able to retain more of what they learn when job-related materials and tasks are used in instruction. Therefore, fundamental in developing contextual basic skills curriculum is an understanding of those basic skills that an employee must use on the job or in the workplace.

Basic skills instruction can be tied to the work performed on the job by conducting a Workplace Educational Skills Analysis (WESA). WESA is a systematic process used to identify and analyze the basic educational skills required on the job. The information gathered during the WESA process enables workplace education instructors to develop job and workplace-specific curriculums; utilize workplace-specific materials in instruction; design competency-based participant assessment instruments; develop individualized education plans; and assist employees with career planning.

The WESA Training Guide is the product of a curriculum development project conducted by the Wisconsin Workplace Partnership Training Program (a US Department of Education grant-funded program administered by the Wisconsin

Board of Vocational, Technical and Adult Education in partnership with Wisconsin State AFL-CIO and Wisconsin Manufacturers and Commerce). The goals for the curriculum development project were twofold. The first goal was to create an innovative and effective model, method and process for VTAE staff to use in identifying job-related basic skills necessary to develop job-specific and workplace-specific curriculums, competency-based participant assessment instruments, individualized education plans and career pathing alternatives. The second goal was to produce a training guide to assist VTAE staff in conducting workplace educational skills analyses in an effective, efficient and uniform manner.

Three Vocational, Technical and Adult Education (VTAE) districts (Milwaukee Area, Moraine Park and Waukesha County) participated in this curriculum development project. Experienced workplace education instructors advised the curriculum developers as to the information needed in order to offer job-related (contextually based) instruction. Private sector state and local labor-management partners involved in the Wisconsin Workplace Partnership Training Program also provided comments and recommendations. After the initial analyses are conducted utilizing this guide, it is envisioned that further modifications to the WESA model, methodology and process will be made, as warranted by application and implementation experience.

WORKPLACE EDUCATION OVERVIEW

The Need

For the individual worker, strong basic skills are the key to greater opportunity and a better quality of life. Workers with good basic skills find it easier to acquire more sophisticated skills, better jobs and higher pay. A strong foundation in basic skills enables workers to learn, problem solve and create -- three key abilities for future jobs. In addition, a workforce with sound basic skills strengthens its employer's ability to compete.

Unfortunately, one report after another illustrates a lack of necessary basic skills within the workforce. The Business Council for Effective Literacy (1988) reports that one out of every eight employees is estimated to read at no more than a fourth-grade level and that one out of five reads at only the eighth-grade level. This situation is compounded by research, also referenced by the Council, indicating that some 70 percent of the reading material in a cross-section of jobs nationally is between ninth-grade and twelfth-grade difficulty. Fifteen percent of this reading material is higher than the twelfth-grade level.

For some employees, the difficulty in meeting new job requirements is the result of "rusty" basic skills, skills that have not been used for many years. In these cases, the base knowledge is there, but the ability to apply and expand that knowledge needs work. In other cases, the basic skills were never learned.

The Wisconsin Program Model

One response to the rapid workplace changes in Wisconsin is the development of workplace education programs based on labor-management-education partnerships. This partnership model was initiated in August, 1988, at Navistar International Transportation, Inc., an iron castings foundry located in Waukesha, Wisconsin. With an educational goal of providing job-related basic skills training to workers, a workplace education program was developed by a partnership among Navistar management; United Steelworkers of America Local 3740, with support from Wisconsin State AFL-CIO; and Waukesha County Technical College.

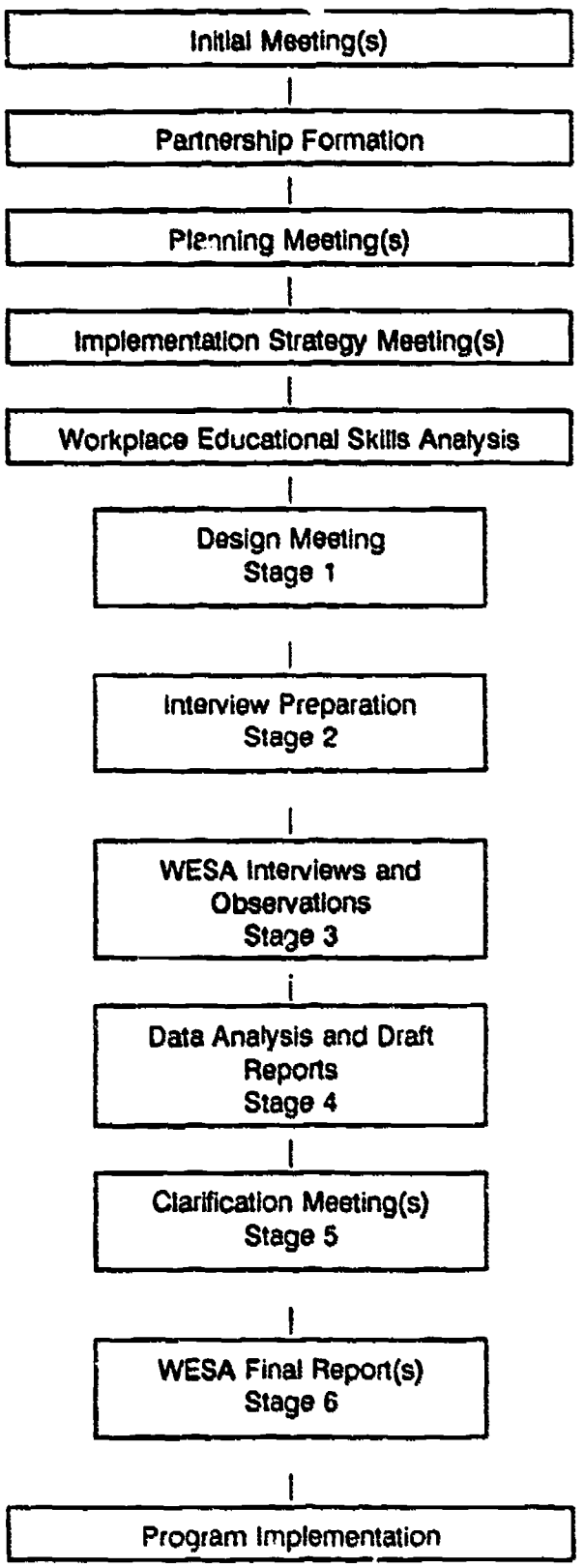
Currently, the workplace education program at Navistar is one of 11 labor-management-education partnerships that has received federal funding through the Wisconsin Workplace Partnership Training Program (the US Department of Education grant-funded program administered by the Wisconsin Board of Vocational, Technical and Adult Education in partnership with Wisconsin State AFL-CIO and Wisconsin Manufacturers and Commerce). Since the initial funding of this program in fiscal year 1989, support for workplace education programs, and the partnership model in particular, has continued to grow. To date, there are more than 60 workplace education programs partially funded through grants from the US Department of Education or the Wisconsin Board of Vocational, Technical and Adult Education operating in 13 of Wisconsin's VTAE districts. In addition, many other workplace education programs exist in the state which are funded entirely by the private sector.

The Wisconsin workplace partnership education programs are individually tailored to address the needs and concerns identified by the labor-management-education partners at each worksite. However, there are many commonalities among successful programs. For example, most effective workplace education programs provide contextually based workplace-specific, job-specific and general basic skills instruction. In addition, most programs are designed to enable employees to realize short- and long-term personal goals, while permitting employers to benefit from a workforce with higher skill levels and an improved competitive position.

More specific program components typical in effective workplace education programs include partnership formation; policy development; the construction of an education center at the worksite; workplace educational skills analyses; program (peer) advising; program promotion; varied basic skills instruction and delivery; participant assessment; and program evaluation. (See Appendix 1 for a more detailed listing of components in Wisconsin workplace education programs.)

PROGRAM DEVELOPMENT PROCESS

After one or more initial meetings, the first step in developing a workplace education program is the formation of the labor-management-education partnership. Subsequent to forming that partnership, a series of meetings and activities occur prior tc actual program implementation. The overall development process is outlined below.



The sequence of activities which occur prior to program implementation often vary from site to site. At many sites, one or more activities are frequently combined or conducted simultaneously, as determined by the local partners.

Initial Meeting(s)

Workplace education programs often result from inquiries made to VTAE district technical colleges by a representative of a local employer or labor organization. These inquiries are often spurred as a result of changes in the workplace such as advances in technology, methods or procedures.

During the initial meeting(s), the technical college typically clarifies its role in upgrading and renewing employee skills, discusses the commitment to on-site basic skills development in Wisconsin and emphasizes the relationship between sound basic skills and occupational skills development. In addition, the technical college introduces and stresses the benefit of a local partnership approach to workplace education programs.

At the conclusion of the initial meeting, it is often suggested that the labor-management representatives visit one or more successful workplace education programs or speak with others involved in these programs for first-hand information.

Partnership Formation

Once agreement is reached that a workplace education effort is needed, the technical college suggests the formation of a labor-management-education partnership. This partnership among managers, employees and educators is an integral component of the workplace education programs in Wisconsin. While the responsibilities and contributions of the local labor-management-education partners vary from site to site, the active and ongoing commitment of each partner is essential to program success.

The Wisconsin Workplace Partnership Training Program was not only founded upon a labor-management-education partnership but has grown as a result of this partnership commitment.

Planning Meeting(s)

The purpose of the planning meeting is to discuss labor-management program needs, workplace education program components and the roles and responsibilities of the local labor-management-education partners. Program planning must be developed in conjunction with the partnership and in accordance with the guidelines set forth in the grant, if it is a grant-funded program, or with other terms and conditions previously discussed by the partnership.

Involvement of each of the partners in this meeting is essential in order to prepare for the implementation of the workplace education program. The content of the pro·am planning meeting will differ depending upon the amount of information previous obtained through the initial meeting(s). (See Appendix 2 for a sample planning meeting agenda.)

The goals for the planning meeting should include:

1. **Discussion of management and labor needs relative to the program.** This includes sharing or reviewing available data illustrating program need and identifying any additional information to be gathered. Typically, it is important to obtain data relative to the topics identified below. (Usually the management and labor partners lead discussion on this item and ensure that this discussion is consistent with labor-management agreements.)

    - Are there notable statistics applicable to one or more departments in any of the following areas: safety (OSHA 200 log), product quality, productivity, employee morale or attitude, or industry competitiveness?
    - Are any changes in technology, management practices or production processes on the horizon?
    - What are the demographics of the current workforce?
    - What are the current skill levels required of the workforce by department and/or by position?
    - What skill levels will be required in the future for the workforce by department and/or by position?

2. **Review of workplace education program components.** In general, program components include partnership formation; policy development; the construction of an on-site education center; workplace educational skills analyses; program (peer) advising; program promotion; individualized and group-oriented workplace-specific, job-specific and general basic skills instruction; participant assessment; and program evaluation. (The education partner typically leads discussion on this subject.)

3. **Clarification of the roles and responsibilities of the workplace education program partners.** In part, the success of a workplace education program is contingent upon the partners understanding their roles and responsibilities, as well as the roles and responsibilities of the other partners. It is important to make these determinations at this juncture, in order to avoid confusion or misunderstanding at a later date. (The education partner generally leads discussion on this topic.)

4. **Establishment of a workplace education program steering committee.** Committee members should be identified and the overall responsibilities of the committee discussed. Typically, a steering committee

consists of one to three representatives from each of the local partners (i.e., management, labor and education). Accordingly, it is important for all partners to take part in this activity.

Steering committee activities as well as the name of the committee varies from site to site, as the needs of each local partnership dictate. Some of the activities common to effective workplace education steering committees include:

- planning promotional activities;
- identifying group instruction needs;
- generating curriculum ideas;
- providing technical expertise relative to curriculum development and other program areas;
- sharing program concerns and suggesting program modifications;
- conveying in-depth program information to program (peer) advisors;
- identifying methods to coordinate program activities with other management programs, labor initiatives and VTAE district services; and
- proposing participant and program (peer) advisor recognition activities.

5. **Establishment of a target date for program implementation.** The labor-management-education partners should estimate a date for program implementation based upon program goals, available resources and projected timelines.

6. **Determination of the date for the program implementation strategy meeting.** This next meeting should be set with the target date for program implementation in mind. It is important to allow sufficient time for planning activities. Planning is a time-consuming process but essential to program success. (The education partner usually leads the discussion on this item.)

7. **A workplace tour for the educational partners.** If possible, it is advantageous for the tour to be led by a labor-management team. The conclusion of the tour is an ideal time for educational partners to ask any remaining workplace-specific questions. Please note that this tour is not necessary, if the education partners have received a previous tour.

Implementation Strategy Meeting(s)

After the additional program needs information has been gathered and the other planning activities have been conducted, the next step is to hold an implementation strategy meeting. The purpose of the implementation strategy meeting is to finalize the program components and determine the implementation procedures. (See Appendix 3 for a sample implementation strategy meeting agenda.)

The goals of the implementation strategy meeting are as follows:

1. **Discussion and analysis of any newly gathered information relative to identified needs by management and labor.** The labor-management partners compile this information and present it to the group.

2. **Determination of all program components.** At this point, each program component should be discussed in detail. These components include partnership formation; policy development; the construction of an on-site education center; workplace educational skills analyses; program (peer) advising; program promotion; individualized and group-oriented workplace-specific, job-specific and general basic skills instruction; participant assessment; and program evaluation. Questions or concerns by any of the partners should be fully addressed. At the conclusion of the discussion, the inclusion or exclusion of each program component should be determined.

3. **Development of a program implementation plan.** Implementation priorities need to be established by the partners. For example, should an open house take place before or after the onset of instruction? In addition, the implementation plan should address timelines, necessary resources and the responsibilities of the steering committee members relative to each planned activity.

4. **Discussion of coordinated activities.** The workplace education program should not be operated in isolation but rather coordinated with other labor-management training initiatives and pertinent services available through the technical college. To this end, each partner should identify appropriate areas for coordination.

   It is important to note that significant percentages of employees currently involved in workplace education programs pursue further educational opportunities after, or concurrent with, program participation. These educational opportunities typically include employer-sponsored training programs, VTAE diploma and associate degree programs, VTAE customized (technical) training programs, apprenticeship programs and coursework at other colleges and universities.

5. **Scheduling of the next meeting in accordance with the implementation plan.** For purposes of this training manual, it is assumed that the workplace educational skills analysis will be the next step in the implementation plan. However, this may vary from site to site as determined by the specific plans developed by the local partnership.

WORKPLACE EDUCATIONAL SKILLS ANALYSIS HISTORY

Workplace educational skills analysis (WESA) has its origin in job task analysis. Historically, the process of job task analysis was used for a variety of purposes. According to a survey of organizations conducted by McCormick (1979), employers utilized job task analysis for the following purposes:

- Job Evaluation
  - Setting Wage and Salary Levels
  - Appraising Personnel
- Recruitment and Placement
  - Making Job Specifications
  - Promoting, Transferring and Rotating
- Conducting Labor and Personnel Relations
  - Developing Performance Standards
  - Establishing Responsibility
- Utilizing Workers
  - Organizing and Planning
  - Engineering Jobs
- Training
  - Developing Courses
  - Selecting Trainees

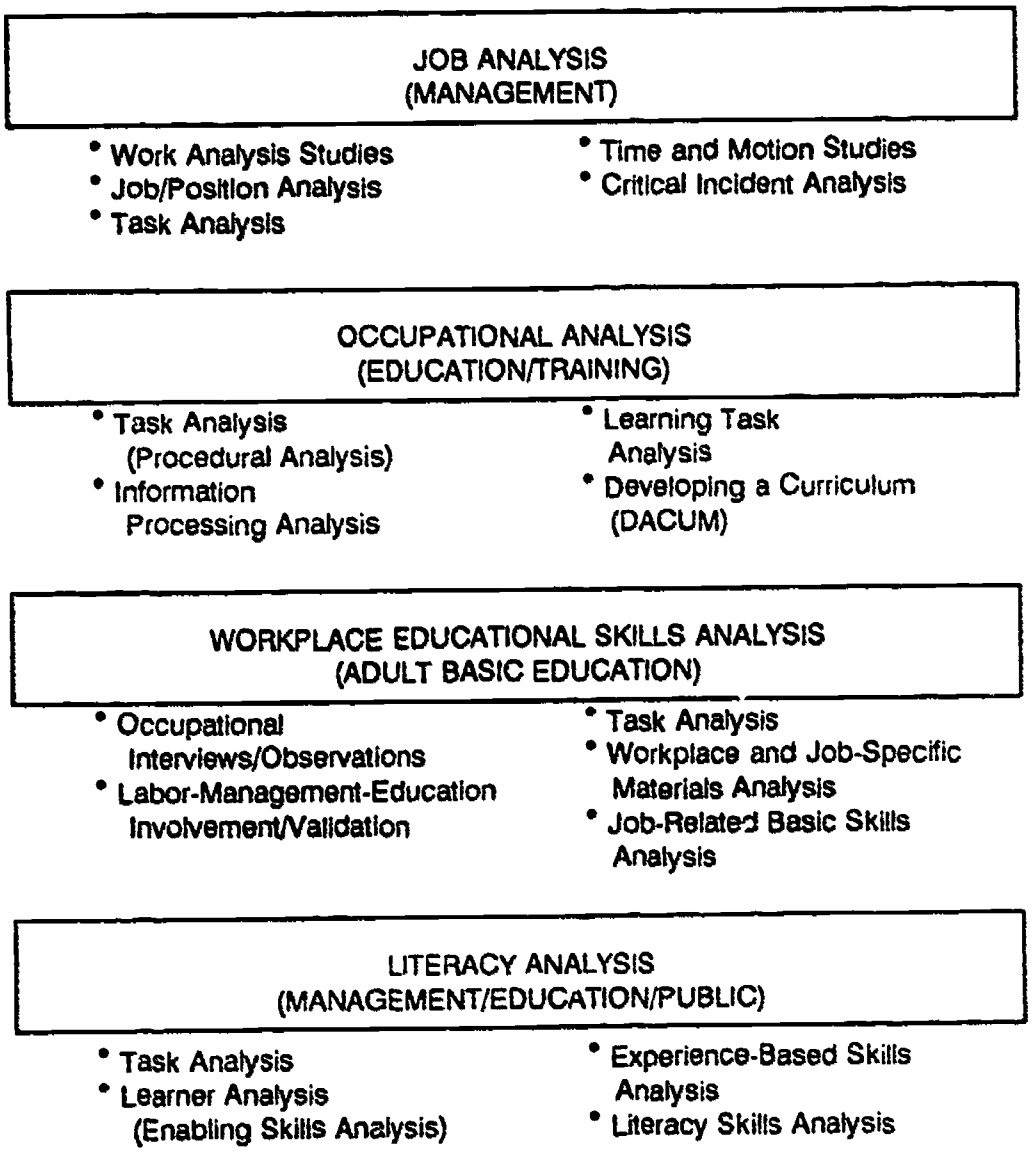
To date, job task analysis has been positively employed in numerous areas of education including curriculum development (Mager, 1977), instructional design (Kemp, 1971), competency-based and contextually based instructional materials development (Drew & Mikulecky, 1988), competency-based assessment and computer-aided instruction. (For additional information regarding the variety of job task analysis methodologies used in educational programs, see the bibliography at the end of this training guide.)

While there are a variety of approaches to and end-uses for job task or skills analysis, it is important to stress that ***the WESA methodology has been designed solely for educational and training purposes.*** Accordingly, the WESA methodology is not intended to supplant or conflict with collective bargaining contracts, job evaluations, studies or similar systems established for other purposes (e.g., labor-management agreements).

There are predominantly four categories of skills analysis: job analysis, occupational analysis, workplace educational skills analysis, and literacy analysis. Literacy analysis focuses on the underlying skills necessary to function effectively as an individual, citizen and community member in today's ever-changing society. Through an analysis of the basic skills required to perform job duties, WESA facilitates career planning for employees, the development of job-related basic skills curriculum, the utilization of job-related materials in basic skills instruction, and the construction of competency-based employee assessment instruments. Occupational analysis is conducted to identify the technical and higher level educational skills required to

perform a given job or occupation. Lastly, job analysis is important to every aspect of human resource administration and management (Gael, 1988), as is evidenced by the uses for job task analysis identified by the McCormick study referenced earlier in this section. In job analysis, not only are technical skills analyzed, but job methods, processes, worker characteristics, job outcomes and organizational job relationships are evaluated.

Relative to the various skills analysis categories, WESA falls within the continuum as shown in the illustration below.



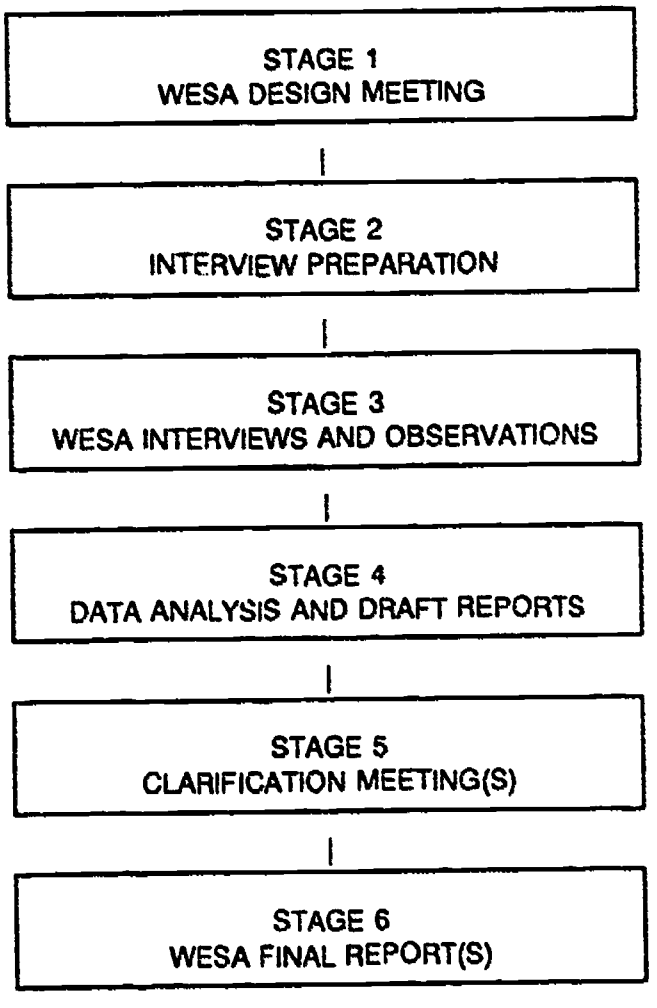
The development of the WESA approach directly resulted from the explosive growth of workplace education programs and the increasing amount of research stressing that people learn more rapidly and are able to retain more of what they learn when job-related materials and tasks are used in instruction (Drew & Mikulecky, 1988). Further, the conclusions and recommendations section of The Learning Enterprise (American Society for Training and Development, 1989) states that employers and educators need to work together to "develop and provide learning and earning curriculums that combine academic and applied learning experiences."

WORKPLACE EDUCATIONAL SKILLS ANALYSIS METHODOLOGY

WESA is a systematic process used to identify and analyze basic educational skills required on the job. Basic skills are identified in seven areas: ***computing, listening, problem-solving, reading, speaking, team building and writing.*** The information gathered during this process enables workplace education instructors to develop job and workplace-specific curriculums; utilize workplace-specific materials in instruction; design competency-based participant assessment instruments; and assist employees with career planning.

The WESA typically is a six-stage process. During this process, representatives of management and labor work with an educational skills analyst to identify the specific academic skills needed to satisfactorily perform current and future jobs. It is important to note that a focus upon the future as well as the present is necessary, due to the technological, methods-related and procedural changes occurring in today's workplace.

The WESA process incorporates interview and observation methods; the collection of supporting documentation; the use of job-content or skill experts; and accepted educational, employment and training procedures related to compiling available data for instructional materials. As outlined below, the six stages of the WESA process include: WESA design meeting(s); interview preparation; WESA interviews and observations; data analysis and draft reports; clarification meeting(s); and WESA final report(s).



Stage 1 - WESA Design Meeting

The first stage in the WESA process is to hold a meeting with representatives of the labor-management-education partners to discuss and plan the details of the WESA process. Note that it is crucial for each topic identified below to be covered during the meeting; however, the sequence of the discussion items is best determined by the circumstances at each worksite. (See Appendix 4 for a sample WESA design meeting agenda.)

The goals of the WESA design meeting should include:

1. **Review of management and labor needs information gathered to date.** Needs information is reviewed to ensure that the WESA process, design and methodology are closely tied to partner needs. (This information is most commonly compiled and presented by the labor-management partners.)

2. **Discussion and determination by the partners of the uses, advantages and limitations of the WESA in the workplace education program.** It is important that any concerns of the partners are fully addressed and an agreement is reached by all parties on the uses for the WESA. (The education partner generally leads discussion on the proposed uses, advantages and limitations of the WESA.)

3. **Establishment of WESA interview priorities.** Identify positions (by department) for which a WESA will be conducted. These positions should be identified based upon the labor-management program needs discussed previously. (The labor-management partners are primarily responsible for this activity.)

   At this time, the number of positions to be analyzed and the sequence of the WESA interviews should be finalized. It is recommended that a pilot WESA be conducted initially (i.e., identify two or three positions to be analyzed and follow the WESA process from beginning to end).

4. **Discussion and confirmation by the partners of the dimensions to be analyzed in the WESA.** These dimensions typically include computing, listening, problem-solving, reading, speaking, team building and writing. Other dimensions may be added as determined by the local partners.

5. **Discussion and determination of the content and format of any WESA reports.** Sample reports are presented by the education partners, but the addition or deletion of reports as well as modifications to the content and format of the reports may be proposed by all partners to meet site-specific needs. (See Appendixes 6, 11 and 13 for more information regarding report formats.)

It is critical that the confidentiality of these reports and related materials is discussed when the issue of confidentiality is raised later in this meeting.

6. **Review of proposed WESA methodology and procedures by the education partner.** It is important that questions and suggested modifications be fully discussed by all partners.

7. **Identification of personnel selected for WESA interviews.** WESA interviews will be conducted with personnel selected by the labor-management partners. Interviews are generally conducted with employees in occupations being analyzed; supervisory/management personnel knowledgeable about the jobs being analyzed; and other job-content experts such as human resources personnel, management staff or union representatives.

   Whomever is selected for an interview should receive advance notification of the interview, an explanation of the interview purpose and process and other interview and observation specifics (e.g., location, estimated time commitment, any impact on wages/hours and suggested preparatory activities). The substance of the notice and the manner of distribution should be agreed upon by the partners.

8. **Listing of information to be gathered for each WESA interview.** A collection plan should be developed by the partners to ensure that all necessary information is available to the workplace educational skills analyst. Generally, necessary information includes:

   - company forms, annual reports, charts, schedules, blueprints, job tickets, HAZCOM materials and work order packets;
   - training, machinery and equipment manuals;
   - professional journals and trade magazines;
   - personnel and employee handbooks;
   - fringe benefit policies, insurance forms and related materials;
   - organizational charts and floor plans;
   - job descriptions and other materials necessary to fully analyze the basic educational skills required for identified positions; and
   - career pathing/development programs and systems utilized at the worksite.

9. **Review and finalize interview introductory statements for supervisors and employees.** After a standard introduction and greeting, the workplace educational skills analyst begins each interview with supervisors/managers and employees with an introductory statement or lead-in. The goal of the introductory statement is to clearly communicate the purpose of the interview, set a positive tone, put the interviewee at ease and establish trust between the analyst and the employee. The comfort level of the interviewee is often increased by ensuring confidentiality or total anonymity. It is important that the lead-ins are specifically tailored for each worksite and that the labor-management partners agree upon the wording and the purposes identified in the statement.

Below are sample lead-ins for supervisor and employee interviews. The labor-management-education partners may modify these statements or develop new statements to meet the needs at the worksite.

Supervisor Lead-In:

You are probably aware that the company, union and technical college are developing a workplace education program. We have learned that jobs throughout the company have been changing. Your employees may have experienced some of these changes or have seen changes in other jobs.

To provide the best job-related basic skills training in the Education Center, it is necessary to determine specific skills needed to do the jobs (list jobs being analyzed) in your department. I am most interested in communication, math, team work and other similar skills. It is important for you to know that I am gathering job-related basic skills information regarding identified positions, not employees or employee performance.

I would like to begin by reviewing the information I have collected already.

Employee Lead-In:

You are probably aware that the company, union and technical college are developing a workplace education program. We have learned that jobs throughout the company have been changing. You may have experienced some of these changes or have seen changes in other jobs.

To provide the best job-related basic skills training in the Education Center, it is necessary to determine specific skills needed to do this job. I am most interested in communication, math, team work and other similar skills. It is important for you to know that I am interested in gathering information about your job, not about you or your performance.

I would like to begin by reviewing the information I have collected already.

10. **Review of pertinent workplace dress and safety requirements.** The labor-management partners should be sure to discuss all pertinent workplace requirements with the education partners.

11. **Establishment of the WESA interview schedule by the labor-management-education partners.** Set the date, time and location for each supervisor/manager interview and corresponding employee interview and observation. (See Appendix 5 for a sample WESA interview schedule.) Note that the names of personnel interviewed will be used for reference by the educational skills analyst only. Employee names will not be included in any WESA reports.

When developing the interview schedule, approximately 30 minutes should be estimated per interview and 30 minutes per observation. Actual time will vary somewhat from job to job, according to interview and observation conditions.

12. **Discussion and resolution of any concerns regarding confidentiality.** Confidentiality should be discussed insofar as it concerns any aspect of the WESA process. Confidentiality issues may be raised regarding any area. The following are areas frequently discussed:

    - company information (e.g., proprietary documents and trade secrets);
    - employee anonymity;
    - sensitive information obtained during the WESA process from supervisors, individual employees and others participating in the analyses;
    - WESA report information;
    - distribution of and access to information obtained during the WESA process; and
    - provision of WESA-related information to any parties external to the organization (e.g., other labor or management representatives interested in initiating a workplace education program).

    It is important that agreement is reached relative to the handling of any confidential material and that the agreement is clearly understood by the workplace educational skills analyst prior to conducting any WESA interviews. Unless otherwise agreed upon by the partners, all information gathered and obtained during the WESA process is maintained by the education partner and treated as confidential information.

13. **A tour of each department for which a WESA will be conducted.** This tour should focus on the jobs selected for interviews and the relationship of those jobs to other company units and operations. Any remaining job or workplace-specific questions by the workplace educational skills analyst should be addressed at this time.

Stage 2 - Interview Preparation

The first step in preparing for the WESA interview is to gather and organize the information obtained during and subsequent to the WESA design meeting. At this time, the analyst should have the following information organized by the departments in which the interviews are to be conducted:

- a brief description of the department and its purpose;
- a floor plan (if available) of the department and its interrelationship with other departments;
- copies of all supporting materials (e.g., job tickets and manuals); and
- the interview schedule developed during the WESA design meeting.

After all of the necessary information and materials are gathered, the next step is for the workplace educational skills analyst to complete the first two sections of the Summary WESA Report. (See Appendix 6 for a sample summary WESA report.)

As shown below on the sample, the analyst inserts the job title or goal in the first section of the Summary WESA Report.

SUMMARY WESA REPORT
Job Title/Goal: Word Processing Specialist for Engineering

Then, in order to complete the second section pertaining to job duties, the workplace educational skills analyst reviews and analyzes the documentation provided for each job (e.g., job descriptions and posting data). This information should be grouped into six essential categories. The six categories, as recommended by Fine (1989), are:

1. Who or subject (job title or goal)? -- Who is doing the work?

2. Actions or behaviors (action verbs)? -- What is the subject doing?

3. Object of actions (object of verb)? -- Who or what is receiving the action performed by the subject?

4. Sources of information? -- Upon what instructions, directions and knowledges is the subject performing the action?

5. Tools, computers, equipment or work aids? -- What does the subject need in order to do the actions or behaviors?

6. Result or expected outcome (in order to)? -- To produce or achieve what result?

A job description or job posting may not provide the analyst with all of the information needed to respond to these questions. The information may be out-of-date, labor-management partners may choose not to provide the job descriptions or postings to the analyst, or job descriptions or posting information may not be available. In these situations, the analyst can turn to other standardized resources such as the Occupational Outlook Handbook (US Department of Labor, 1988) and the Dictionary of Occupational Titles -- Fourth Edition (US Department of Labor, 1977). Using these resources and information gathered during the WESA design meeting, the analyst can group information in the six essential categories referenced above. An example of how information obtained from the Occupational Outlook Handbook (OOH) and the company can be grouped into these six categories is provided below for a word processing specialist for engineering.

Who? (Job Title)	Worker's actions? (Behavior)	Who or what? (Object of Action)	Source of information?	Using what tools, aids, equipment?	To produce/ achieve what? (Result)
(1st) Word Processing Specialist for Engineering	(2nd) records, edits, revises and stores	(3rd) correspon-dence, statistical tables, reports and forms	(4th) based on instructions from supervisor, tickler file, policy and procedure book and knowledge of processes	(5th) using application programs on a stand-alone PC with fixed hard drive, mouse, scanner and printer	(6th) in order to prepare material for routing within and outside the engineering department

The above information is then written in narrative form to complete the "Job Duties Summary" section of the report for the word processing specialist for engineering.

SUMMARY WESA REPORT
Job Title/Goal: Word Processing Specialist for Engineering
Job Duties Summary: Records, edits, revises and stores correspondence, statistical tables, reports and forms based on instructions from supervisor, tickler file, policy/procedure book and knowledge of processes using application programs on stand-alone PC with fixed hard drive, mouse, scanner and printer in order to prepare material for routing within and outside the engineering department.

After completing the first two sections of the Summary WESA Report, the analyst should review the interview questions (Appendix 7 - Supervisor Interview Worksheet and Appendix 8 - Employee Interview Worksheet); and observation worksheets (Appendix 9 - WESA Skills Observation Worksheet and Appendix 10 - WESA 4M Observation Worksheet). Based upon the preparatory activities conducted to this point, the analyst should delete any questions which are clearly not applicable to the individual interview and note any anticipated responses on the interview worksheets, in order to save time during the interview. If any information is noted on the worksheets prior to the interviews, it must be verified with the interviewees at the time of the interview.

A day or two before the interviews and observations are to be conducted, the analyst should confirm the schedule with the company and address any necessary changes. If possible, the job duties summary and the interview questions should be reviewed again just before the start of each interview.

Stage 3 - WESA Interviews and Observations

The ability to interview and observe is learned and perfected with practice. It requires the ability to effectively combine the skills of active listening and observation, with inquiry and reporting skills. The interview and observation also necessitate an atmosphere of nonintimidation, openness and individual confidentiality.

The quality of the entire WESA process is dependent upon the interview and observation. Success with these activities requires thorough **preparation** prior to the interview and observation; an established **purpose** for both the interview and the observation; the use of thoughtful, **probing** questions; and carefully **planned pauses** to allow for insightful responses.

- Thorough **preparation** by the analyst prior to conducting the interview means learning as much as possible about the company. It is important to know its history, products, services, policies and plans. This information enables the educational skills analyst to enter the interview better prepared to collect valid, reliable and in-depth information about the identified jobs and the job-related basic skills. In addition to collecting company information, the educational skills analyst must practice interview and observation techniques before beginning an actual interview. (For more information, see above Stage 2 - Interview Preparation.)

- Prior to conducting any interviews or observations, the educational skills analyst must have a firmly established **purpose**. The overall purpose for the interview and observation is a synthesis of the goals and objectives established by the labor-management partners and the needs of the educational skills analyst to identify job-related basic skills for use in the development of contextually based curriculum, competency-based assessment instruments, career pathing alternatives and individualized education plans. The seven basic skills dimensions constitute the framework for the interview.

- During the interview process, it is essential to use **probing** skills. Probing is a technique used by the interviewer to get more in-depth information from the interviewee. By using data obtained prior to the interview about the company and the occupations of those selected for interviews, the interviewer prepares investigative questions about identified jobs. These questions are designed to determine not only the type of skills required but the breadth and depth of each skill and its interrelation with other skills.

- Another effective interviewing technique is the use of **planned pauses**. The well-placed pause during an interview often elicits valuable information from the interviewee. By suggesting a particular situation or question to a supervisor or employee and then waiting for a thoughtful respor se, valuable and highly useful information often can be obtained.

During the interview process, it is also important to ask open-ended questions such as:

- "How do you calculate the diameter of this part?"
- "When do you use instruction or operator's manuals?" and
- "Why is this part of the service so important?"

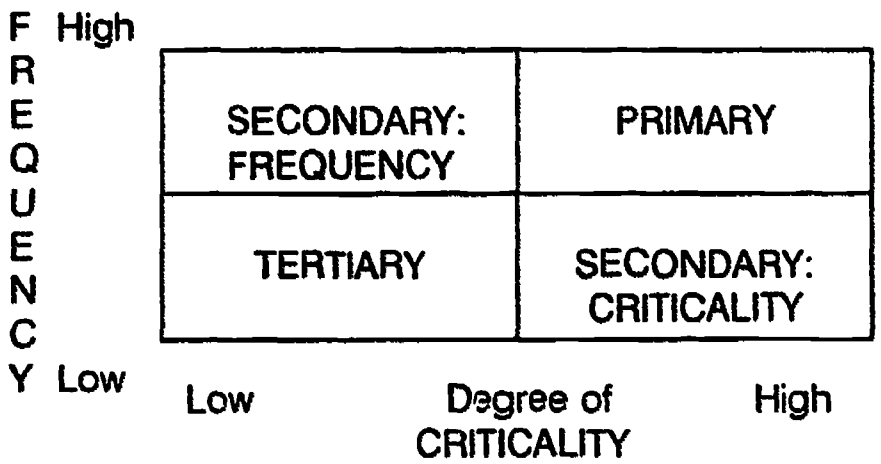
Then, it is critical for the analyst to probe or go beyond obvious answers in order to obtain more focused information regarding job-related basic skills. This can be accomplished by following up with two- or three-part questions, such as:

- "At what point in the troubleshooting process is the supervisor called?" and
- "How could training assist in reducing these types of calls?"

During the interview and observation process, the analyst also elicits information regarding the frequency and criticality of the basic skills used on the job. The analyst uses this information to draft the "Frequency and Criticality of Basic Skills" section on the summary and detailed WESA reports. At the upcoming clarification meeting(s), discussion of this information is very important. (See Stage 5 - Clarification Meeting(s) for detailed information.)

Frequency refers to how often the specific job-related basic skills are used by the employees in a given time period (i.e., minute, hour, day, week, month or year). Criticality, or the critical nature of the specific job-related basic skill, provides the analyst with insight into the importance of the skill relative to the work being performed. During the analysis, information regarding the frequency and criticality of specific, grouped and overall skills is obtained and later reported on the summary and detailed WESA reports.

Frequency and criticality variables are illustrated in the diagram below.



The "primary" quadrant represents the most important skills used on the job. These skills are used very frequently and are extremely critical to the work being performed. Both of the "secondary" quadrants represent the next level of skill importance. The

"secondary: frequency" quadrant refers to skills which are more important relative to the frequency of their use, but not in terms of criticality. The "secondary: criticality" quadrant emphasizes that the skill is critical to the job, but used infrequently. Skills represented in the "tertiary" quadrant are used infrequently and are not critical to the work.

Therefore, during interviews and observations, the analyst asks questions to determine whether skills are of primary, secondary or tertiary importance relative to frequency and criticality. This information can be used to individualize an education program. Consider the employee-learner who has a short period of time to master a job. The instructor and learner may decide to target skills in the "primary" quadrant because they are integral to job success. The next skills taught may fall in the "secondary" quadrants. Lastly, those skills from the "tertiary" quadrant may be taught.

In the WESA process, the supervisor/manager is most commonly interviewed first; then the employee; and lastly, any job-content experts identified in the design meeting (e.g., a labor representative or company representative). Beginning the WESA interview and observation stage with a supervisor/manager interview provides an intra- and inter-departmental perspective to the analyst; specific information on the jobs identified for analysis; and insights into the work being performed. The purpose of the employee interview is to gain first-hand information about the skill demands in the workplace, in the department and on the job. The focus of this interview is on how skill demands impact employee output in relation to manpower, work methods, materials or machinery. Concluding the WESA interview and observation stage with the job-content experts identified during the design meeting allows clarification of the data collected from the supervisor/manager and employee interviews and observations and may suggest additional areas of exploration.

Throughout the interviews with supervisors/managers and employees, it is imperative to focus on the job-related basic skills associated with the occupation **not** the individual worker or the worker's present basic skill level(s). The analyst is learning about the job, **not** the individual worker!

The WESA interview and observation approach requires the analyst to: 1) identify the job-related basic skills required to perform the major job functions listed on the "Job Duties Summary" section of the Summary WESA Report; and 2) observe and validate the job duties and required basic skills.

1. **Identify the basic skills required to perform the major job functions as listed on the "Job Duties Summary."**

   Using the data contained on the Summary WESA Report completed for each position, the analyst begins to develop or refine specific job-related basic skills questions, outline the questions for the interview and identify job-related basic skills concerns to be studied during the observation. (Sample interview questions for supervisors and employees are included as Appendixes 7 and 8.)

2. Observe and validate job duties and required basic skills.

The purpose of the observation is for the educational skills analyst to confirm or clarify previously identified skills or identify job-related basic skills not discussed during the interview(s). Throughout the observation, the analyst is focusing on the job-related basic skills associated with the occupation being analyzed, **not** the individual worker or worker's basic skill level(s). It is important for the analyst to explain the observation process and its purpose to each employee before beginning the observation.

As with the interviews, the analyst must be fully prepared for the observations. The educational skills analyst should bring the following items to the observation: the applicable Summary WESA Report, with the first two sections completed; if appropriate, supporting documentation (e.g., forms and manuals); and notes from the interview(s).

As work is being observed, the analyst is to confirm and record job-related basic skills. Two structured formats are available to the educational skills analyst for recording observational data. One approach focuses directly on the observation of job-related basic skills as shown below. (See Appendix 9 - WESA Skills Observation Worksheet for the complete worksheet.)

WESA Skills Observation Worksheet	
ORGANIZATION: _____	WESA ANALYST: _____
JOB TITLE: _____	DATE: _____
NAME/CODE: _____	TIME: _____
OBSERVED JOB-RELATED COMPUTING SKILLS	
OBSERVED JOB-RELATED LISTENING SKILLS	

The second approach focuses on the areas of manpower, materials, methods and machinery as shown below. (See Appendix 10 - WESA 4M Observation Worksheet for the complete worksheet.)

WESA 4M Observation Worksheet
ORGANIZATION: _____ WESA ANALYST: _____ JOB TITLE: _____ DATE: _____ NAME/CODE: _____ TIME: _____
MANPOWER [ ] COMPUTING [ ] PROB-SOLV [ ] SPEAKING [ ] WRITING [ ] LISTENING [ ] READING [ ] TEAM BUILD MATERIALS [ ] COMPUTING [ ] PROB-SOLV [ ] SPEAKING [ ] WRITING [ ] LISTENING [ ] READING [ ] TEAM BUILD

If the structured approach for these two worksheets is too confining, the analyst should take notes on a writing tablet. Regardless of the approach, the observed job-related basic skills must be recorded. This information will be included on the detailed and summary WESA reports.

Although separate interview and observation sessions are preferred, the educational skills analyst must be prepared to combine the interview and observation. If the sessions are combined, the analyst should conduct them at the work station and utilize the above techniques in a coordinated manner. At the conclusion of the interview/observation or group of interviews/observations, the analyst should review all notes to ensure readability and comprehension at a later date.

Stage 4 - Data Analysis and Draft Reports

After Stage 3 has been completed, the analyst reviews the data collected from supervisors/managers and employees in order to complete a detailed WESA report for each position analyzed. (See Appendix 11 for a sample detailed WESA report.)

The Detailed WESA Report is designed to provide the on-site instructor with specific job-related basic skills information regarding occupations at the worksite. This information is to be used in the development of contextually based curriculum, instructional materials, competency-based participant assessment instruments, career planning materials and orientation tools for the instructor and employee-learner.

After entering the job title/goal on the Detailed WESA Report, the analyst completes the "Job-Related Basic Skills" section. Information in this section is presented in detailed, behavioral statements. These statements are directly related to the job and organized by job-related basic skill dimensions ***(i.e., computing, listening, problem-solving, reading, speaking, team building and writing).*** The process for translating raw data collected during interviews and observations into basic skills statements is similar to the process used to develop the job duties summaries outlined in Stage 2 - Interview Preparation. The analyst focuses on the job-related basic skill dimensions when writing the basic skills statements as shown below.

WORKER'S ACTION (BEHAVIOR)	TO WHOM OR WHAT (OBJECT OF ACTION)	SOURCE OF INFO. (WHAT IS USED)	REFERENCE CRITERIA (IN ORDER TO)
Reading			
Locate	the meaning, syllabication and spelling of word(s)	using dictionary and thesaurus built into word processor application programs	to correctly type letters and reports
Writing			
Compose	memos and business letters	from notes, oral instructions or meetings using S.O.P. and knowledge	to prepare correspondence for signature and distribution without added change
Computing			
Calculate and plot	upper and lower limits for control charts	using S.O.P. from SQC unit and manual	in order to send to manufacturing supervisors before beginning of shift

A wide range of reference materials exists to assist the analyst in developing job-related basic skills statements. The analyst must keep in mind that these statements will be used in the development of contextually based curriculum, instructional materials, competency-based participant assessment instruments and career planning materials for the workplace education program.

Verbs for assisting the analyst in writing job-related basic skills statements are listed below.

Job-Related Computing	
calculate	measure
subtract	tally
add	compute
multiply	analyze
divide	total
compare	determine
compile	average
check	tabulate

Job-Related Speaking	
speak	explain
interview	inform
ask	call
advise	introduce
consult	instruct
exchange	confer
contact	persuade
describe	recommend

Job-Related Listening

follow	attend
understand	consider
listen	interpret
adhere	appraise

Job-Related Problem-Solving

reason	evaluate
judge	work out
resolve	classify
compare	analyze
plan	organize
summarize	prioritize
settle	schedule

Job-Related Reading

locate	scan
identify	analyze
read	review
compare	file

Job-Related Team Building

team	pair
cooperate	coordinate
link	mediate
unite	merge

Job-Related Writing

list	mark
write	compose
complete	explain
edit	copy
summarize	chart/graph
log	record
type	format

The "Job-Related Basic Skills" section of the detailed WESA report is presented below for the word processing specialist for engineering.

Job-Related Basic Skills:

Computing Skills
1. Calculate and plot upper and lower limits for control charts using S.O.P. from SQC unit and manual in order to send to manufacturing supervisors before beginning of shift.

Listening Skills
1. Follow oral instructions from supervisor to complete daily work.
2. Appraise list of daily duties and set priorities for accomplishment during the work day.

Problem-Solving Skills
1. Resolve department production schedule conflicts from master lists in order to insure proper production sequence.
2. Prioritize work assignments given by supervisor in order to accomplish work tasks in a timely manner.

Reading Skills
1. Locate the meaning, syllabication and spelling of words using dictionary and thesaurus built into word processing application programs to correctly type letters and reports.
2. Follow operating instructions from scanner manual, readability between 8th and 10th grade, to program scanner, scan graphical data and place data into appropriate file on hard drive.

Speaking Skills
1. Ask drafting and CAD operators for inventory needs for the CIM system in order to submit inventory request weekly.
2. Advise engineering vendors of specification changes from spec sheets provided by engineers in order to correct or modify ongoing orders.

Team Building Skills
1. Mediate discrepancies between engineering and manufacturing run chart statistics in order to accurately complete UL/LL charts.
2. Facilitate quality value group (THE PROCESSORS) to resolve ongoing issues.

Writing Skills
1. Type weekly status reports from draft material written between the 11th and 14th grade level provided by supervisor in order to have ready for Wednesday morning staff meeting.

The basic skills statements on the Detailed WESA Report are to be followed by information regarding the frequency and criticality of basic skills. Within the "Frequency and Criticality of Basic Skills" section, the analyst summarizes the "primary" and "secondary" skills identified during Stage 3.

After completing the "Frequency and Criticality of Basic Skills" section on the Detailed WESA Report, the analyst uses printed materials (i.e., writing samples or reading passages) found on the job to finish the next section, "Readability of Printed Materials". The results of a readability analysis is an approximate grade level for readership. Commonly used readability formulas in the education field include the Lorge Formula (1959), Dale-Chall Formulas (1948), Spache Formula (1974), and Harris-Jacobson Formula (Harris & Jacobson, 1976). However, the three most widely used readability formula are: the Flesch-Kincaid (Klare, 1984; QUE, 1990), which is the standard used by the US Department of Defense; the Flesch (Klare, 1984; QUE, 1990), which is used widely by the insurance industry for policy readability; and the Gunning Fog (Rothwell & Brandenburg, 1990), which is used mainly by educators.

Based, in part, on vocabulary (i.e., the number of words) and the number of words per sentence, readability can be calculated by hand or by computer. Computerized readability formulas are available in a number of word processing packages as well as in stand-alone programs such as RightWriter 4.0 (QUE, 1990). Manually, readability can be calculated using a number of formulas, such as the Gunning Fog Index. (See Appendix 12 for the complete Gunning Fog Index.)

In addition to calculating the readability level, other factors need to be considered and described in the section on readability. The extent or nature of the following factors should be reviewed: vocabulary/jargon specific to the occupation, job, company and industry; supporting documentation such as pictures, sketches and diagrams; medium of print (i.e., electronically, graphically or in text); and presentation style of the materials. These aspects of readability go beyond a numerical reference. The numerical readability level and information regarding these other readability factors are included on the "Readability of Printed Materials" section on the Detailed WESA Report. It also follows the information previously entered on the Summary WESA Report (i.e., "Job Title/Goal," "Job Duties Summary" and "Summary of Job-Related Basic Skills" sections).

After completing the readability sections of the WESA reports, the analyst lists all vocabulary/jargon identified during prior WESA stages that pertains to the job being analyzed. Following the "Vocabulary/Jargon" section of the Detailed WESA Report, the analyst specifically identifies all tools, equipment, machinery and work aids used on the job. Subsequent to completing the "Tools, Equipment, Machinery and Work Aids" sections of the detailed and summary WESA reports, the analyst reviews all notes and other report sections to determine if there is any important information which has been omitted. Appropriate data (e.g., a description of other aspects critical to the job such as accuracy or visual discrimination) is then entered on the "Other Comments" sections of the detailed and summary WESA reports. Lastly, the drafts of the detailed and summary WESA reports are reviewed for accuracy by comparing them with all documentation and notes gathered to date.

For added clarification, a completed, draft Summary WESA Report for the word processing specialist for engineering is provided below.

SUMMARY WESA REPORT
Job Title/Goal: Word Processing Specialist for Engineering
Job Duties Summary: Records, edits, revises and stores correspondence, statistical tables, reports and forms based on instructions from supervisor, tickler file, policy/procedure book and knowledge of processes using application programs on stand-alone PC with fixed hard drive, mouse, scanner and printer in order to prepare material for routing within and outside the engineering department.
Summary of Job-Related Basic Skills: Reading and writing skills to interpret and type reports and memos. Math skills with ability to calculate basic statistics and plot numerical data on charts. Speaking and listening to communicate with both internal and external customers/vendors. Ability to communicate with non-English speaking employees in their native language. Independent decision-making skills. Team building skills require the ability to mediate, facilitate and coach.
Frequency and Criticality of Basic Skills: Communication skills are highly critical and used frequently (continuously) in this position (primary). Computing skills, while highly critical, are used daily in basic arithmetic and infrequently in more advanced statistical operations (secondary: criticality).
Readability of Printed Materials: Printed material ranges between 11th and 14th grade levels -- manuals, correspondence, etc. Most manuals provide excellent examples, but company materials are true text, filled with vocabulary specific to the process and the company.
Tools, Equipment, Machinery and Work Aids: PC, optical/graphic scanner, dot matrix printer, laser printer, plotter, WINDOWS 3.0, AutoCAD, dBase IV, WordPerfect 5.1, Library, mouse, graphics tablet, FAX, Merlin 10-line system and Universal Pager.
Other Comments: High degrees of accuracy, understanding of organizational structure and flexibility are required. Understanding of mechanical concepts is also required.

All of the supporting materials collected prior to and during the interviews and observations (e.g., job descriptions, process sheets and diagrams) are attached to the detailed WESA reports. (See Appendix 11 for the completed Detailed WESA Report for the word processing specialist for engineering.)

Stage 5 - Clarification Meeting(s)

After completing drafts of the summary and detailed WESA reports, the analyst schedules a clarification meeting with the labor-management partners. It is essential for in-house job-content experts and others who can assist in clarifying the WESA information to attend this meeting. The clarification meeting is an important opportunity for all of the partners to actively participate in the WESA process.

The purpose of the clarification meeting is to address any remaining job content questions that the analyst may have; validate the accuracy of the collected information; refine the reported data; and discuss any proposed modifications or enhancements to the summary and detailed WESA reports. The partners should review the content of the summary and detailed WESA reports for each position analyzed to ensure completeness, specificity and accuracy.

The analyst facilitates the clarification meeting and encourages the partners and the job-content experts to provide additional information and suggest changes. Generally, data on the summary WESA reports is reviewed first. Afterward, the meeting participants review the detailed WESA reports.

Stage 6 - WESA Final Report(s)

After the clarification meeting(s), the analyst finalizes the detailed and summary WESA reports. In addition, the analyst completes a WESA final report and any other reports requested by the labor-management partners. The WESA Final Report typically contains nine sections preceeded by a cover page and an abstract of the WESA activity. The nine sections usually include:

- **Section One - Recommendations**
  Workplace education recommendations including curriculum focus, assessment methods and instructional methodologies. In this section the analyst may suggest linkages with other training initiatives within the workplace.

- **Section Two - Rationale for WESA**
  This section provides a brief history of activities to this point and generally includes the reasons for conducting the WESA. Dates and participating partners may also be referenced.

- **Section Three - Needs Analysis**
  Job-related basic skill needs identified within the organization are discussed in this section. This information is presented with a curriculum and instructional focus, illustrating how the program will be based on organizationally identified needs as well as WESA findings.

- **Section Four - Summary of Supervisory Interviews**
  The names of supervisors/managers interviewed are not included. The data shared with the analyst is reported as aggregate information only.

- **Section Five - Summary of Employee Interviews and Observations**
  The names of employees interviewed are not included. The data shared with the analyst is reported as aggregate information only.

- **Section Six - Summary of Skills**
  Skills identified in each of the dimensions (i.e., computing, listening, problem-solving, reading, speaking, team building and writing) are addressed with respect to the range of skills used on the job; the skills currently needed, and the future skills anticipated in the occupations reviewed.

- **Section Seven - Statistical Summary**
  This section includes information such as a listing of the departments involved in the WESA process, the number of positions reviewed, readability findings and other pertinent numerical or statistical data.

- **Section Eight - Summary WESA Reports**
  This portion of the final report includes the summary WESA reports, generally in alphabetical order.

- **Section Nine - Detailed WESA Reports**
  All detailed WESA reports with supporting documentation (e.g., forms, sketches and job tickets) are often compiled in alphabetical order in this section.

The format and content of the WESA Final Report and any other reports are determined by the local partners during the WESA design meeting. Modifications to the arrangements made during the design meeting may be adopted throughout the WESA process, with the agreement of the local partners.

WORKPLACE EDUCATION PROGRAM IMPLEMENTATION

The goal of the Wisconsin Workplace Partnership Training Program is to increase the basic skill levels of the workforce by using work-related materials and concepts in conjunction with basic skills curriculums. Workplace educational skills analysis is one of the preparatory activities which lays the foundation for the delivery of effective instruction. Other preparatory activities include the formation of a partnership, policy development, construction of an on-site facility to house the training program, program (peer) advisor training and promotional activities.

Program (peer) advisors play a vital role in the initial and long-term success of workplace education programs. Typically, program (peer) advisors recruit and motivate co-workers to participate in the program; act as public relations and marketing agents of the program; provide consultation to the partnership regarding curriculum development, career pathing opportunities and linkages with other, in-house training programs; and assist in guiding future program direction. The selection of advisors, the responsibilities they are to perform and the training that they will receive are issues determined by the local labor-management-education partners at each worksite.

Developing the policies which guide the operation of the program is an on-going, evolutionary process. Experience has shown that a premature start of workplace education programs results in skepticism and decreases the level of program participation. In general there is a time lag between the conduct of the WESA and program implementation. Customization of materials and learning activities is a time-consuming process. Therefore, many workplace education programs offer expanded areas of study as the program matures. The hours of operation, assessment practices and teaching methodologies must also be determined by the partnership. (See Appendix 1 for a more detailed description of the Wisconsin Workplace Education Program Components.)

WESA AND LINKAGES TO INFORMATION SYSTEMS

Although each workplace education program is different and each position unique, technology does exist to enhance the conduct of workplace educational skills analysis, making the process more manageable, reliable and replicable.

At present two programs are available to VTAE districts from the Wisconsin Vocational Studies Center and the Wisconsin Career Information System. These occupational and training management information systems are the Automated Cross-Referencing Occupational System (1988) and the Occupational Skills Analysis System (Educational Data System, Inc., 1989). The Automated Cross-Referencing Occupational System (ACROS) is an educational, occupational and training information system which contains training information from the Michigan Department of Education and the Vocational-Technical Education Consortium of States (V-TEC); and a wide range of occupational and labor information (e.g., data from the Dictionary of Occupational Titles). The Occupational Skills Analysis System (OSAS) is a management information system containing data base information similar to ACROS, but OSAS allows for new information and the modification of existing data. This system further provides a means for assessing skill information, matching skills to occupations and more.

The ACROS and OSAS systems are viewed as two management information systems that provide information to the workplace educational skills analyst about occupations as well as enable the analyst to generate, store, retrieve and share WESA data.

As these systems are introduced to the Wisconsin VTAE System, more information and instructions on the uses and applications will be available.

APPENDIXES

APPENDIX 1

WISCONSIN WORKPLACE EDUCATION PROGRAM COMPONENTS

Partnership Formation
- Labor/Management/Education Commitment
- Steering Committee Formation

Policy Development
- Program Goals and Objectives
- Nature of Participation (Voluntary)
- Confidential Instruction/Assessment
- Hours of Instruction
- Instructional Delivery Methods
- Nature of Instruction
- Participant Incentive/Recognition Initiatives
- Basic Skills Assessment Practices
- Program Coordination with Other Training Initiatives
- Child Care/Transportation/Counseling Services
- Program Evaluation Methodologies

Education Center Development
- On-Site Facility
- Convenient Location

Workplace Educational Skills Analysis
- Design Meeting(s)
- Interviews and Observations
- Clarification Meeting(s)
- Final Reports

Program (Peer) Advisor Training
- Identification of Committed Volunteers (e.g., Program Participants, Union Stewards, and Management Representatives)
- Ongoing Program Involvement
- Initial and Followup Training Sessions

Program Promotion
- Workforce Orientations (e.g., Open Houses, Newsletter Articles, Posters, and Employee Handouts)
- Program (Peer) Advising Activities (e.g., One-On-One Contacts and Informational Distributions)

Varied Instruction and Delivery
- Basic Skills (General, Workplace and Job-Specific)
- Contextually Based
- Computer-Assisted and Video-Based
- Individualized (One-on-One)
- Self-Paced

APPENDIX 1

WISCONSIN WORKPLACE EDUCATION PROGRAM COMPONENTS
Page 2

- Personalized (Individualized Education Plan)
- Group-Oriented (Formal and Informal Workshops)
- Open-Entry/Open-Exit

Participant Assessment

- Formal and Informal
- Initial, Interim and Post

Program Evaluation

- Participant and Organizational Goals and Objectives
- Qualitative, Quantitative and Anecdotal Data

APPENDIX 2

WORKPLACE EDUCATION PROGRAM
PLANNING MEETING
SAMPLE AGENDA

1. Discuss Available Data Illustrating Program Need and Additional Program Need Information to Be Gathered
   (Labor/Management Partners)

   - Technological, Procedural and Organizational Changes
   - Workforce Demographics and Morale Issues
   - Safety, Quality and Productivity Statistics
   - Industry Competitiveness and Profit Margin Data
   - Present and Future Workforce Basic Skills Requirements

2. Review Proposed Workplace Education Program Components
   (Education Partner)

   - Partnership Formation
   - Policy Development
   - Education Center Development
   - Workplace Educational Skills Analysis
   - Program (Peer) Advisor Training
   - Program Promotion
   - Instruction
   - Participant Assessment
   - Program Evaluation

3. Clarify Roles and Responsibilities of Program Partners
   (Labor/Management/Education Partners)

4. Identify Steering Committee Members and Committee Responsibilities
   (Labor/Management/Education Partners)

5. Establish Target Date for Program Implementation
   (Labor/Management/Education Partners)

6. Set a Meeting Date to Finalize Program Implementation Plans
   (Labor/Management/Education Partners)

7. Tour the Workplace
   (Education Partner)

APPENDIX 3

WORKPLACE EDUCATION PROGRAM
IMPLEMENTATION STRATEGY MEETING
SAMPLE AGENDA

1. Discuss Newly Gathered, Program-Related Needs Information
   (Labor/Management Partners)

2. Review, Analyze and Finalize Education Program Components
   (Labor/Management/Education Partners)

   - Partnership Formation
   - Policy Development
   - Education Center Development
   - Workplace Educational Skills Analysis
   - Program (Peer) Advisor Training
   - Program Promotion
   - Instruction
   - Participant Assessment
   - Program Evaluation

3. Develop Program Implementation Plan
   (Labor/Management/Education Partners)

   - Program Components/Activity Priorities
   - Required Resources
   - Partner/Committee Responsibilities and Contacts
   - Timeline

4. Discuss Workplace Education Program Coordination with Other Initiatives Planned by Local Partners
   (Labor/Management/Education Partners)

5. Schedule Next Meeting Based Upon Implementation Plan
   (Labor/Management/Education Partners)

APPENDIX 4

WORKPLACE EDUCATION SKILLS ANALYSIS (WESA) DESIGN MEETING SAMPLE AGENDA

1. Review Available Data Documenting Program Need
   (Labor/Management Partners)

2. Discuss Uses, Advantages and Limitations of WESA
   (Labor/Management/Education Partners)

3. Establish WESA Priorities
   (Labor/Management/Education Partners)

   - Classifications/Departments
   - Positions

4. Review and Confirm WESA Dimensions
   (Labor/Management/Education Partners)

   - Computing
   - Listening
   - Problem-Solving
   - Reading
   - Speaking
   - Team Building
   - Writing

5. Finalize the Content and Format of Requested WESA Reports
   (Labor/Management/Education Partners)

   - Summary
   - Detailed
   - Final

6. Review WESA Methodology and Procedures
   (Education Partner)

7. Identify Personnel Selected for WESA Interviews
   (Labor/Management Partners)

   - First-Line Supervisors
   - Employees
   - Human Resources Staff
   - Other Labor and Management Representatives

8. List Workplace Materials Needed to Conduct Interviews and Establish a Collection Plan

APPENDIX 4

WESA DESIGN MEETING AGENDA
Page 2

9. Finalize Interview Introductory Statements

10. Review Workplace Requirements Pertinent to the WESA Process (Labor/Management Partners)

    - Safety Requirements
    - Dress Code

11. Establish WESA Interview Schedule (Labor/Management/Education Partners)

    - Dates
    - Times
    - Locations
    - Observation Specifics

12. Discuss Policies and Procedures Relative to Confidentiality (Labor/Management/Education Partners)

    - Company Information
    - Employees
    - Other Sensitive Information
    - Distribution of and Access to WESA Information

13. Tour Department(s) with Positions Selected for WESA Interviews (Education Partner)

APPENDIX 5

WESA INTERVIEW SCHEDULE

Date	Time Start - End	Name*	Type**	Job Title/Goal (Department)
10/10	9:00- 9:30a	Rita Cromb	I	Supervisor (Shipping and Receiving)
10/10	10:00-10:30a	Fred T. Jones	I	Grader Operator (Highway Department)
10/10	10:30-11:00a	Mary Anderson Fran Schmelling	I I	Word Processing Specialist (Administrative Assistant to the Plant Manager)
		Lisa Cummins	I	Office Manager (Administrative Offices)
10/10	11:15-12:00a	Gordon Smith	I/O	Injection Molding Machine Operator (Production)
10/12	8:15- 9:00a	Mary Anderson	O	Secretary (Administrative Offices)

* The WESA interview schedule is developed for use by the WESA analyst and is maintained as a confidential document. The names of interviewees are not included on any WESA reports and the data provided to the WESA analyst is reported as aggregate information only.

** I-Interview
O-Observation

APPENDIX 6

SUMMARY WESA REPORT

Job Title/Goal: Word Processing Specialist for Engineering

Job Duties Summary:

Records, edits, revises and stores correspondence, statistical tables, reports and forms based on instructions from supervisor, tickler file, policy/procedure book and knowledge of processes using application programs on stand-alone PC with fixed hard drive, mouse, scanner and printer in order to prepare material for routing within and outside the engineering department.

Summary of Job-Related Basic Skills:

Reading and writing skills to interpret and type reports and memos. Math skills with ability to calculate basic statistics and plot numerical data on charts. Speaking and listening to communicate with both internal and external customers/vendors. Ability to communicate with non-English speaking employees in their native language. Independent decision-making skills. Team building skills requiring the ability to mediate, facilitate and coach.

Frequency and Criticality of Basic Skills:

Communication skills are highly critical and used frequently (continuously) in this position (primary). Computing skills, while highly critical, are used daily in basic arithmetic and infrequently in more advanced statistical operations (secondary: criticality).

Readability of Printed Material:

Printed material ranges between 11th and 14th grade levels -- manuals, correspondence, etc. Most manuals provide excellent examples, but company materials are true text, filled with vocabulary specific to the process and the company.

Tools, Equipment, Machinery and Work Aids:

PC, optical/graphic scanner, dot matrix printer, laser printer, plotter, WINDOWS 3.0, AutoCAD, dBase IV, WordPerfect 5.1, Library, mouse, graphics tablet, FAX, Merlin 10-line system and Universal Pager.

Other Comments:

High degrees of accuracy, understanding of organizational structure and flexibility are required. Understanding of mechanical concepts is also required.

APPENDIX 7

SUPERVISOR INTERVIEW WORKSHEET

Organization: _____

Department: _____

Supervisor or Code: _____

WESA Analyst: _____

Date: _____

INTRODUCTORY STATEMENT

(NOTE: Analysts should record frequently used job or workplace-specific terms or jargon in item #12 of this worksheet.)

MANPOWER RELATED TO BASIC SKILLS

1. As you review the job duties summary, is it consistent with the job? Does this position perform other job duties?

2. What duties do you believe are the most critical to the job? Which are performed the most frequently?

3. What basic skills do you assume this position requires in the area of computing? Writing? Listening? Problem-solving? Reading? Speaking? Working in teams?

(PROBE: Why is the assumption made?)

APPENDIX 7

SUPERVISOR INTERVIEW WORKSHEET
PAGE 2

4. How do you orient employees to their jobs? Do you use different methods or approaches for different jobs or situations?

5. Under what circumstances would you have to change your method of orientation or training?

6. When working with new employees in positions (list jobs being analyzed), what is the nature and frequency of any difficulties observed in the following areas?

safety:	teamwork:	prioritizing:
planning:	quality:	cross-training:
training:	instruction:	other:

(PROBE: Are the difficulties associated with basic skills? If so, how?)

7. When working with more experienced employees in positions (list jobs being analyzed), what is the nature and frequency of any difficulties observed in the following areas?

safety:	teamwork:	prioritizing:
planning:	quality:	cross-training:
training:	instruction:	other:

(PROBE: Are the difficulties associated with basic skills? If so, how? NOTE: If difficulties are being observed, try to learn of the ongoing training available to employees on-the-job.)

METHODS RELATED TO BASIC SKILLS

8. What basic skills are needed to:

   a. Work independently or with minimal supervision? Work in a team or group? Work in a cell?

   b. Work within guidelines, rules or tolerances? Work without structure or supervision?

   (PROBE: How is work prioritized?)

   c. Measure and record quality methods (e.g., SPC, J-I-T, inspection, etc.)?

   d. Work with other departments?

   e. Adapt to change (e.g., schedules, machinery, etc.)?

APPENDIX 7

SUPERVISORY INTERVIEW WORKSHEET
PAGE 4

MATERIALS RELATED TO BASIC SKILLS

9. Are difficulties in basic skills experienced when:

   a. Using manuals to learn operating procedures, troubleshooting problems, learning new methods, etc.?

      (PROBE: How often are manuals used and what type of information is being sought?)

   b. Completing company forms (e.g., job tickets, time sheets, expense sheets, etc.)?

   c. Completing personnel documents such as insurance forms, worker's compensation statements, postings for new jobs, union contracts, etc.?

   d. Interpreting data and completing logs, charts, graphs, or tables?

   e. Reading labels, signs, tags and other documentation that provide warnings or information on contents, etc.?

f. Keeping abreast of current issues, new methods and machinery through bulletin boards, newsletters, newspapers, trade magazines, journals, etc.?

MACHINERY RELATED TO BASIC SKILLS

10. Are difficulties in basic skills experienced when:

a. Using automated equipment or machinery, such as: digital meters or clocks, fax machines, computer controllers, PCs, copy machines, etc.?

(PROBE: What kinds of preparation and training were provided prior to the introduction of the equipment?)

b. Using manual equipment, machinery or tools, such as: rules, micrometers, typewriters, press brakes, etc.?

(PROBE: Are the difficulties seen most frequently due to routine or uncommon situations?)

c. Changing from using manual to automated equipment or machinery? Or changing from automated to manual equipment (e.g., not using the automated cash register, but making change)? Or transferring skills from one type/model of equipment or machinery to another?

(PROBE: How are difficulties manifested during changeovers or breakdowns of equipment or machinery?)

d. Using computers, CRTs and related peripheral equipment (e.g., printer, modem, wand, scanner, etc.)?

11. Are sensory skills needed to detect odors, noises, or color changes in machinery, equipment, products produced or processes used?

(PROBE: How is this information communicated?)

OTHER

12. Do I understand the meaning of the following terms/jargon? (List job or workplace-specific terms/jargon below with their definitions.)

13. Do you have any other comments?

APPENDIX 8

EMPLOYEE INTERVIEW WORKSHEET

Organization: _____

Department: _____

Supervisor or Code: _____

WESA Analyst: _____

Date: _____

INTRODUCTORY STATEMENT

(NOTE: Analysts should record frequently used job or workplace-specific terms or jargon in item #12 at the end of this worksheet.)

MANPOWER RELATED TO BASIC SKILLS

1. Is the job duties summary reflective of the work you do? If not, how is it different? Do you perform any other duties?

2. How is this position different from other positions in the department? In the company? How does your job fit in relation to other jobs in the company?

3. What kinds of basic skills are needed to do this job (i.e., computing, listening, problem-solving, reading, speaking, team building and writing)?

4. How frequently do you use the basic skills identified? How critical are these skills to doing the job?

APPENDIX 8

EMPLOYEE INTERVIEW WORKSHEET
PAGE 2

5. How were you trained to do your job? Would a different method or approach have been more helpful? Please explain.

6. Are there any job-related difficulties in the following areas? If so, what is the nature and frequency of the difficulties?

safety: teamwork: prioritizing:

planning: quality: cross-training:

training: instruction: other:

METHODS RELATED TO BASIC SKILLS

7. Are you required to:

   a. Work independently? Work in a team? Work in a cell?

   b. Work within guidelines or rules? Work without structure or supervision?

   c. Measure and record quality methods (e.g., SPC, J-I-T, inspection, etc.)?

APPENDIX 8

EMPLOYEE INTERVIEW WORKSHEET
PAGE 3

d. Work with other individuals? Departments?

e. Communicate with other individuals?

nonverbally: verbally: in writing:

by paraphrasing: in a group: by questioning:

in a language other than your native language:

(PROBE: Do you either give or receive instructions during the work day? How often? From whom? In person (face-to-face)? By telephone, intercom, etc.? In writing?)

8. How frequently do your job duties or your work environment change (e.g., schedules, machinery, cells, etc.)?

(NOTE: If problems are being identified, begin to search for the root of those problems as they relate to basic skills.)

9. Are you required to troubleshoot on the job? Must you determine the cause of an error and correct it? If so, would you provide an example.

MATERIALS RELATED TO BASIC SKILLS

10. What basic skills are used to do this job when:

    a. using manuals to learn operating procedures, troubleshoot problems, learn new methods, etc.?

    (NOTE: Determine exactly how the material is used and the frequency of use. Learn if the method is used routinely or based on problem-solving or technical reading skills.)

    b. completing company forms (e.g., job tickets, timesheets, expense sheets, etc.)?

    c. completing personnel documents such as insurance forms, worker's compensation statements, postings for new jobs, union contracts etc.?

    d. interpreting and completing logs, charts, or tables?

    (NOTE: Determine exactly how the material is used and the frequency of use. Learn if the method is used routinely or based on problem-solving or technical reading skills.)

    e. reading labels, signs, warnings, tags or other documents that provide information?

f. keeping up-to-date on current issues, new methods, or machinery through newspapers, newsletters, magazines, journals, etc.?

g. writing notes, memos, letters, instructions, descriptions, reports, etc.?

(NOTE: Get samples, if possible. If you have collected samples prior to the interview, show them to the employee to verify that they are current.)

MACHINERY RELATED TO BASIC SKILLS

11. What basic skills are required when:

a. using automated equipment or machinery, such as: digital meters or clocks, fax machines, computer controllers, PCs, copiers, etc.?

(PROBE: What difficulties were noted during the changeover or introduction of new equipment?)

b. using manual equipment or machinery such as rules, micrometers, typewriters, press brakes, etc.?

(PROBE: In what type of situation do you experience the most difficulties using this equipment?)

c. changing from using manual to automated equipment or machinery? or changing from automated to manual equipment (e.g., not using the automated cash register, but making change)? or transferring skills from one type/model of equipment or machinery to another?

d. using computers, CRTs, and related peripheral equipment (e.g, printer, modem, wand, scanner, etc.)?

(NOTE: Learn not only what skills, but why and how the basic skills are used in each of the above areas.)

e. detecting a problem with a machine, piece of equipment or process you follow?

f. talking on the telephone?

OTHER

12. Do I understand the meaning of the following terms/jargon? (List job or workplace-specific terms/jargon with their definitions below.)

13. Do you have any other comments?

APPENDIX 9

WESA SKILLS OBSERVATION WORKSHEET

ORGANIZATION: _____ WESA ANALYST: _____

JOB TITLE: _____ DATE: _____

NAME/CODE: _____ TIME: _____

OBSERVED JOB-RELATED **COMPUTING** SKILLS

OBSERVED JOB-RELATED **LISTENING** SKILLS

OBSERVED JOB-RELATED **PROBLEM-SOLVING** SKILLS

OBSERVED JOB-RELATED **READING** SKILLS

OBSERVED JOB-RELATED **SPEAKING** SKILLS

APPENDIX 9

WESA SKILLS OBSERVATION WORKSHEET
PAGE 2

OBSERVED JOB-RELATED **TEAM BUILDING** SKILLS

OBSERVED JOB-RELATED **WRITING** SKILLS

VOCABULARY/JARGON

TOOLS, EQUIPMENT, MACHINERY, WORK AIDS ETC.

FREQUENCY AND CRITICALITY

OTHER COMMENTS

APPENDIX 10

WESA 4M OBSERVATION WORKSHEET

ORGANIZATION: _____ WESA ANALYST: _____

JOB TITLE: _____ DATE: _____

NAME/CODE: _____ TIME: _____

MANPOWER [ ] COMPUTING [ ] PROB-SOL [ ] SPEAKING [ ] WRITING
[ ] LISTENING [ ] READING [ ] TEAM BUILDING

MATERIAL [ ] COMPUTING [ ] PROB-SOL [ ] SPEAKING [ ] WRITING
[ ] LISTENING [ ] READING [ ] TEAM BUILDING

MACHINERY [ ] COMPUTING [ ] PROB-SOL [ ] SPEAKING [ ] WRITING
[ ] LISTENING [ ] READING [ ] TEAM BUILDING

METHODS [ ] COMPUTING [ ] PROB-SOL [ ] SPEAKING [ ] WRITING
[ ] LISTENING [ ] READING [ ] TEAM BUILDING

APPENDIX 10

WESA 4M OBSERVATION WORKSHEET
PAGE 2

VOCABULARY/JARGON

TOOLS, EQUIPMENT, MACHINERY, WORK AIDS, ETC.

FREQUENCY AND CRITICALITY

OTHER COMMENTS

APPENDIX 11
DETAILED WESA REPORT

Job Title/Goal: Word Processing Specialist for Engineering

Job-Related Basic Skills:

Computing Skills
1. Calculate and plot upper and lower limits for control charts using S.O.P. from SQC unit and manual in order to send to manufacturing supervisors before beginning of shift.

Listening Skills
1. Follow oral instructions from supervisor to complete daily work.
2. Appraise list of daily duties and set priorities for accomplishment during the work day.

Problem-Solving Skills
1. Resolve department production schedule conflicts from master lists in order to insure proper production sequence.
2. Prioritize work assignments given by supervisor in order to accomplish work tasks in a timely manner.

Reading Skills
1. Locate the meaning, syllabication and spelling of words using dictionary and thesaurus built into word processing application programs to correctly type letters and reports.
2. Follow operating instructions from scanner manual, readability between 8th and 10th grade, to program scanner, scan graphical data and place data into appropriate file on hard drive.

Speaking Skills
1. Ask drafting and CAD operators for inventory needs for the CIM system in order to submit inventory request weekly.
2. Advise engineering vendors of specification changes from spec sheets provided by engineers in order to correct or modify ongoing orders.

Team Building Skills
1. Mediate discrepancies between engineering and manufacturing run chart statistics in order to accurately complete UL/LL charts.
2. Facilitate quality value group (THE PROCESSORS) to resolve ongoing issues.

Writing Skills
1. Type weekly status report from draft material written between the 11th and 14th grade level provided by supervisor in order to have ready for Wednesday morning staff meeting.

Frequency and Criticality of Basic Skills:

Communication skills are highly critical and used frequently (continuously) in this position (primary). Computing skills, while highly critical, are used daily in basic arithmetic and infrequently in more advanced statistical operations (secondary: criticality).

Readability of Printed Materials:

Printed material ranges between 11th and 14th grade levels -- manuals, correspondence, etc. Most manuals provide excellent examples, but company materials are true text, filled with vocabulary specific to the process and the company.

Vocabulary/Jargon:

1. Application: computer program or software package like word processor, spreadsheet, computer-aided drafting, data base, etc.
2. Unix: computer operating system and in multiuse and multitasking computer systems.

Tools, Equipment, Machinery and Work Aids:

PC, optical/graphic scanner, dot matrix printer, laser printer, plotter, WINDOWS 3.0, AutoCAD, dBase IV, WordPerfect 5.1, Library, mouse, graphics tablet, FAX, Merlin 10-line system and Universal Pager.

Other Comments:

High degrees of accuracy, understanding of organizational structure and flexibility are required. Understanding of mechanical concepts is also required.

APPENDIX 12
GUNNING FOG INDEX
Readability Formula

The Gunning Fog Index (Rothwell and Brandenburg, 1990) can be applied to measure the readability level of written material in five steps. To use the index:

1. Choose one passage from the beginning, middle and end of the written material. Each passage should be a minimum of 100 words in length.

2. Determine the average sentence length for each of the three passages by counting the number of sentences in the passage and dividing by 100.

$$\frac{\text{Number of Sentences}}{100} = \text{Average Sentence Length}$$

3. Then, count the number of words in each passage with three or more syllables. Exclude from the calculation any capitalized words, combinations of smaller words (e.g., businessperson, bookkeeper and handwritten) or words made into three-syllable words by adding -es, -ing or -ed (e.g., repeated, entering and businesses).

4. Add items 2 and 3 above (i.e., the average sentence length plus the number of words containing one or more syllables).

5. Multiply the total from #4 above by 0.4. This product is considered to be the minimum grade level at which the material can be easily read.

APPENDIX 13

SUGGESTED COMPONENTS FOR FINAL WESA REPORTS

- Workplace Education Program Recommendations
- Rationale for Conducting the Workplace Educational Skills Analysis (WESA)
- Basic Skills Training Needs Identification and Analysis
- Summary of Supervisory Interviews
- Summary of Employee Interviews and Observations
- Summary of Basic Skills Needs For Current and Future Jobs
- Statistical Summary of WESA-Related Data
- Summary WESA Reports Addendum
- Detailed WESA Reports Addendum

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