Program Development: Vocational Training and Technical Training

Facilitation Guide for Job Analysis Workshops

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Facilitation Guide for Job Analysis Workshops

Formation professionnelle et technique
et formation continue

Direction générale des programmes
et du développement

This document is the result of numerous initiatives undertaken since the mid-1970s, including Pierre-Paul Racicot's DACUM guide, Jean Dussault's work and the revisions done in 1983, 1988 and 1993 in collaboration with a number of program development consultants.

This version of the guide underwent some minor revisions in July 2002, but updates to reference materials related to the development of vocational and technical training programs will be incorporated in the next publication.

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INTRODUCTION

This workshop facilitation guide is used in carrying out a critical step in the program development process applied at the Ministère de l'Éducation, du Loisir et du Sport. One of the features of this process is the widespread participation of representatives from the workplace in key phases of program design.

During the *job analysis* phase, the program development team works closely with those who practise and those who play an immediate supervisory role in the occupation[1] in question. The purpose of a job analysis is to obtain the most relevant and exhaustive information possible on the occupation, as well as on the qualities that a person must have in order to practise it effectively.

This document is first and foremost a *reference tool* for persons involved in job analysis. It is assumed, however, that they have already had relevant training and experience in group facilitation and program development.

This guide first specifies the context for performing a job analysis, and then presents the conditions and information required for the analysis to take place. Lastly, the guide explains how a job analysis workshop should be organized, and it provides several tools to help in preparing and leading the workshop.

This guide is based on program development initiatives in vocational training that began more than 20 years ago in Québec in the adult sector and that continue today in vocational training in secondary school and technical training in college. The guide also looks to a set of theoretical and practical sources such as the DACUM method, work carried out by Ammermand and Melching for the US Marines, projects undertaken in the context of programmed teaching, and so forth. Lastly, this guide is consistent with the competency-based approach of instructional programming developed by Jean Dussault for the Ministère as part of the reform of vocational and technical training begun in 1986 and 1993, respectively, in Québec.

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1. For the purposes of this document, the term "occupation" also includes "trade."

Context of the Job Analysis | 1

Developing a program of study and writing the companion documents requires a detailed knowledge of the occupation for which a proposed training plan is being designed. To acquire this knowledge, specialists in the field are consulted in order to gather a variety of information such as the sequence in which occupational tasks and operations are performed, the relative importance of each task, how frequently each task is performed and under which conditions, the performance criteria and, lastly, the transferable skills and socioaffective behaviours involved.

The job analysis is a critical phase of the program development process, given the type of information required and how it will be used in subsequent phases. This information is particularly useful in determining competencies and defining operational objectives.

Conditions and Information Required for a Job Analysis | 2

2.1   Basic Conditions

A job analysis must be based on preliminary studies that have shown the need to develop or revise a program of study and that have provided the information required for the analysis to begin.

The facilitation team responsible for leading the job analysis workshop must have participated in the preparatory work and have an accurate view of the work context of the occupation in question. In this way, they will be more apt, when appropriate, to steer questions toward essential aspects, to easily grasp the essence of the discussions that take place and to illustrate with concrete examples the type of responses expected of participants. It is generally sufficient for the facilitation team to use the results of preliminary studies, to consult existing task descriptions and to visit several businesses, since they must take care not to influence the group's decisions. In effect, the role of the facilitation team is to facilitate and guide the group's discussion.

Lastly, the facilitation team must have a good knowledge of the program development method so that they can better assess whether the information gathered is relevant and whether they need to delve further into certain areas.

2.2   Program Development Team

Program development activities are carried out by a team composed of a project coordinator, a teacher specializing in the occupation in question and a program development specialist.

The project coordinator at the Ministère provides direction for the program development activities, in particular, tasks related to the planning, support and supervision, and evaluation of the work. Key decisions will be made on the basis of the project coordinator's recommendations.

The teaching specialist contributes both pedagogical and content expertise, and generally takes on a large share of the program design and production activities.

The program development specialist provides services and expertise related to workshop facilitation and the writing and application of the methods and techniques of program development. This person generally leads the program design and production activities in close collaboration with the teaching specialist.

The program development team relies on ad hoc resources, depending on the activities to be carried out.

2.3   Purpose of the Job Analysis

A job analysis is a consultation process undertaken solely with persons in the workplace (e.g. qualified trades people, specialized technicians, and immediate technical or administrative supervisory personnel).

The objective is to obtain the most comprehensive portrait possible of the practice of an occupation:[2] this involves describing the job aspects that are most useful in determining and specifying the competencies required to practise the given occupation (responsibilities, roles, tasks and operations, skills and activities, specific requirements, etc.).

The job analysis is also used to gather suggestions pertaining to the training program.

2.4   Advantages of the Proposed Analysis Method

The job analysis method suggested in this guide has several advantages, including the following:

- It allows a clear and accurate understanding of the objectives of the consultation.
- It allows the program development team to establish contact with persons in the workplace during this first phase of the program development process.
- It ensures the validity of the opinions obtained.
- It allows consensus to be reached on the basic issues.
- It requires relatively little preparation and consultation time.
- It allows for a satisfactory review of the work situation.
- It generally fosters significant interest among persons in the workplace and contributes to establishing the credibility of the future program.
- It allows the program development team to delve further into the actual practice of the occupation.

In short, this method makes it possible to carry out a serious study using flexible and appropriate facilitation techniques and support materials.

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2. The current practice of the occupation must be taken into account, as well as the expected changes over the next five years.

Organization of a Job Analysis Workshop $\boxed{3}$

3.1 Information Gathering

A job analysis workshop is designed in a way that allows participants to organize in a logical sequence the information to be gathered. This includes:

- general information on the occupation: the nature of the work (job title, typical or related jobs, type of activities, etc.), working conditions (location, level of responsibility, stress factors, etc.), conditions for entering the job market, employment and remuneration prospects, opportunities for promotion or transfer, etc.
- tasks and operations
- the relative importance of each task, as well as the level of difficulty involved in performing it
- the categories of products or expected outcomes
- the conditions for carrying out each task, as well as performance criteria
- the cognitive, psychomotor and perceptive skills, as well as the transferable skills and socioaffective behaviours involved
- suggestions related to the training program

3.2 Workshop Facilitation Team

The workshop facilitation team essentially comprises the same people as the program development team. Its role is to ensure continuity and coherence in the program development process. In recent years, a workshop secretary has also been added to the team.

Close collaboration must exist among the different members of the team. The members' clear, accurate comprehension of their respective roles and those of the other members, as well as the absence of competition, will help the job analysis workshop run smoothly. Team members must be sufficiently available to meet the requirements of the task (the work demands a great deal of time and effort within a short time frame).

It is of the utmost importance that team members realize that the job analysis influences the activities that will take place subsequently in the program development process.

A job analysis workshop comprises three main activities: facilitation, assessment of the relevance of the information gathered, and the processing of this information.

Workshop facilitation is entrusted to the team member who has:

- extensive experience in workshop facilitation
- excellent interpersonal skills
- great ease in reformulating and synthesizing ideas
- rigorous critical thinking
- in-depth knowledge of the job analysis method and the ultimate processing of the information gathered, according to the specific structure of each document related to the programs at the secondary and college levels

- good writing skills, given that the information gathered during the workshop must be collated in a report[3]
- a good basic knowledge of the occupation being analyzed

It is up to the workshop facilitator to promote and moderate discussions, to maintain harmony within the group, to ensure that instructions and schedules are followed, to clarify ideas put forth, and to see that real consensus is reached.

The analysis of the relevance of the information is entrusted to the team member who has:

- a good basic knowledge of the job analysis method and of the program development process
- sufficient knowledge of the occupation to be able to identify aspects of the analysis that seem critical and on which participants have spent too little time, to give opinions in the event that reaching consensus is impossible, and to provide explanations as requested by the workshop facilitator

This team member analyzes the validity of the information, and ensures that the analysis is thorough and that the description of the occupation and its working conditions are sufficient for the analysis process to continue.

The processing of information is entrusted to a secretary who has:

- basic knowledge of the occupation being analyzed
- sufficient knowledge of each step involved in a job analysis workshop
- knowledge of the relative importance of the information gathered and how it will be subsequently used
- the ability to organize and synthesize the information received
- legible handwriting
- excellent writing skills

3.3 Required Resources

Human resources

In addition to the members of the facilitation team, the group attending the job analysis workshop is composed of:

- occupation specialists (10 to 15 people), who provide input on each element being analyzed
- a person responsible for the preliminary work involved in program development, who gathers information on the work situation and makes contact with specialists in the workplace and at the Ministère; this person may also play the role of a resource person
- observers from the education community (teachers, education consultants, etc.) and the workplace (representatives from various organizations, associations or businesses)

Material resources

All available material resources must be deployed to ensure the success of this very important step in the program development process.

The room used by the group must:

- be well lit, quiet and comfortable
- be near facilities (washrooms, restaurants, etc.)
- have an area of at least 750 sq. ft. (70 m^2)

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3. After the job analysis workshop, the workshop facilitator or the secretary must write a job analysis report.

- have a wall approximately 20 ft. (6 m) long (for posting and placing in order the sheets of paper used during the task and operations analysis)
- have comfortable chairs and tables arranged so as to promote dialogue among participants and the workshop facilitation team, as well as to allow participants a full view of the wall
- have the facilities necessary to have breaks on site, thereby making it easier to reconvene the workshop. This will promote a more relaxed atmosphere as participants will have access to drinks and snacks throughout the day.
- provide access to a board, flip charts or large sheets of paper (approximately 60 cm x 90 cm), different coloured felt markers and tape
- be near a photocopier

The job analysis workshop facilitator must also bring:

- approximately 300 sheets of paper, 8½ x 11 in. (22 cm x 28 cm), which will be used for the tasks and operations table
- sheets of coloured Bristol board (approximately 20), on which to write the tasks, job function and the categories of products or expected outcomes
- tape for the sheets
- photocopies of the workshop schedule
- checklists to be completed for additional information

3.4 Selection of Participants

Experience confirms that the best workplace representatives are those who are currently practising the occupation or playing an immediate supervisory role at the time of the job analysis.[4]

Four main principles come into play in selecting participants:

Representativity

- The group must comprise persons from different sectors of the industry or business in question; small, medium-sized and large companies should also be represented.
- The group must include persons from various regions in which the occupation is practised (cities, towns and remote areas).
- The composition of the group must take into account that fact that some occupations are practised in several fields of activity (services, manufacturing, distribution, product development, sales, etc.) and that not all tasks are necessarily performed by the same person. To limit the number of participants, each person should meet a number of these criteria.

Quality over quantity

- Ideally, the group should comprise a dozen people working in the industry or business in question. That way, everyone has an opportunity to provide input, the workshop is easier to run and, not unimportantly, the costs remain relatively reasonable.
- The focus should be on quality, therefore seek people with recognized expertise in their field, with good communication skills, who are team players and who have a marked interest in the quality of training being offered.

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4. For new occupations or when preliminary studies indicate that an occupation is undergoing profound change, it is important to ensure the participation of persons who can provide accurate information on how this occupation will be practised in the future. In exceptional situations, the workshop could be composed differently.

Control of "political" interests

- It may be easier to invite representatives from various employer or union associations, corporations and so forth to the workshop, but it is preferable not to (if unavoidable, the workshop facilitator should be advised). These persons are often defending specific interests and the workshop facilitator may expend a great deal of energy trying to adhere to the schedule.
- If an employer or a union association representative offers to recruit participants for the workshop, this offer should be declined. They will often recommend people who have the same interests, and this may result in the overdevelopment of certain aspects of the work situation or in the derailment of the analysis process.

Motivation and availability

- It is essential that participants be available for the entire duration of the workshop. Some persons must justify a three-day absence to their supervisor. A formal invitation (indicating the location, date, objectives, steps, significance and schedule of the workshop) should therefore be sent to prospective participants.

- Preparing business and industry representatives is an important factor in motivation. They should be sent all the documentation they need to have a clear understanding of their role and of the workshop procedures. They should also be contacted before the workshop, sometimes several times.

When selecting participants for the job analysis workshop, care should be taken not to invite too many who have no longer been directly practising the occupation for some time, such as permanent representatives of organizations or pressure groups (unions, professional corporations, chambers of commerce, etc.), or others who may never have practised the occupation. As mentioned earlier, teachers should be invited only as observers because their views of the occupation may be influenced by concerns related to the training program.

In brief, relying on good sources of information will ensure better accuracy.

3.5   Preparation of the Job Analysis Workshop

Once participants have been invited and have confirmed their attendance, the workshop facilitation team prepares the workshop. Their goals are to:

- clarify the role and tasks of each team member
- organize the materials required for the workshop: room and accommodations reservations, necessary materials (workshop schedule, procedure, participants' kits, introductory texts, pencils, paper, etc.)
- become aware of any potentially contentious issues that could surface during the workshop (job title, field of application, etc.) and anticipate solutions likely to quickly bring consensus
- establish a method and rules of operation that will be followed during the workshop
- clarify the purpose of the analysis
- specify the type of information to be gathered, using the analysis checklists provided in the appendix
- prepare checklists to collect additional information on the tasks and operations

Sample schedule

The agenda for the three days generally needed for a job analysis is found in Appendix I. The workshop facilitator must, however, be flexible in adhering to the schedule.

3.6   General Rules for the Workshop

The general rules for the workshop should be explained to participants, as this will make it easier to lead the workshop:

- Emphasize that the first step is to describe the occupational tasks and operations and the working conditions, and not the knowledge, skills, attitudes and perceptions involved. For example, a hypothetical situation could be used to help practitioners describe the job: "It's the start of a new work week. As a secretary, what will your main activities be over the next five days?" or "You're a sheet metal worker installing the air-conditioning shafts in a commercial building. List all the steps involved in this task, from start to finish." Adequate preparation will ensure that the workshop facilitator will be able to effectively jumpstart the discussions.
- Emphasize that the group should not focus on training-related issues because Step 6 of the workshop deals with training.
- Try to achieve as broad a consensus as possible.
- Do not encumber the workshop with technical considerations related to instructional programming.
- Do not allow participants to move the sheets used during the task and operations analysis.
- Emphasize that the workshop facilitator also acts as moderator.
- Avoid prolonged debates and off-topic comments.
- Give the teaching specialists the right to intervene if they have any questions or require explanations.
- Clearly explain the reasons for the teachers' attendance as observers.
- Make sure the workshop facilitation team does not take a stand on the workshop content.
- Plan for periods when the facilitation team can meet, at the beginning and end of each day, to modify the schedule and methods, take stock of the progress made, prepare proposals, etc.

4.1   Step 1: Introduction

Objective

Provide an overview of the program development process at the Ministère and of how the workshop will unfold (schedule and operating principles).

Situation

Most participants are probably not familiar with the job analysis or program development process. A brief overview of how the workshop will proceed and the program development process will help participants understand the workshop objectives, methods and techniques and, most of all, will help them grasp the importance of their contribution to vocational and technical training in Québec.

The conviction that these three days constitute one of the key phases in developing a proposed training plan is an important motivation for participants and a pledge of their cooperation.

Procedure

Phase I

Welcome and introduce participants.

- The project coordinator briefly reviews the invitation and the workshop's objectives. He or she should reiterate that the purpose of a job analysis workshop is not to determine competencies but to gather as much information as possible to describe the occupation as thoroughly as possible.
- The project coordinator briefly reviews the procedure for the first step.
- The workshop facilitation team members explain their respective roles and the context of the workshop.

Phase II

Situate the workshop within the Ministère's program development process and inform participants of the general goals of vocational training in secondary school and of technical training in college.

- At this stage, it is not useful to officially initiate participants in the workings of vocational or technical training or the internal mechanisms that govern them. Therefore, the reasons for developing a new program or revising an existing program should be explained first. Then, participants should be made aware that the job analysis is the cornerstone of program development because it ensures that the program is valid.
- Briefly present the main steps of the program development process.
- Briefly explain certain general goals of vocational and technical training and the ways of taking these goals into account (level of competency upon entering the job market, autonomy, mobility, adaptability to technological developments, etc.).

Phase III

Present the schedule, and review the workshop plan and procedure.

Note: It is essential that participants understand that most of the training-related elements will derive from this workshop and that the participants are in the best position to describe how their occupation is practised, a task on which subsequent activities will depend. It would be interesting to review the steps in the program development process in the section on pedagogical suggestions at the end of the workshop. After becoming familiar with the job analysis process, participants will have a better understanding of the entire process as well as of the steps involved in developing a program of study. Participants must be given enough information on the process without, however, burdening them with too many details or technical considerations.

4.2   Step 2: Scope of the Analysis and Collection of General Information on the Occupation

Objectives

Define the job to be analyzed and come up with a general outline of the occupation.

Situation

After having read the preliminary studies and making the necessary preparations, the workshop facilitator should understand the different aspects of the job title. The facilitator should also have identified the tasks likely to overlap with those of a related occupation, checked whether working conditions differ depending on the workplace, and identified the main requirements for entering the job market. It is important that the facilitator propose a clear definition of the occupation and that participants refer to this definition during the workshop.

Note: A job analysis must include all aspects of the occupation as practised by experienced workers. In this way, a training program can be designed that will allow students to acquire all the required competencies. It is also important to distinguish between the levels of autonomy and efficiency required of a person who is starting out in the occupation and of a person who has been practising the occupation for several years. Thus, entry-level requirements must reflect the autonomy and efficiency that would normally be expected of a person who is starting out in an occupation.

The job analysis should therefore provide a complete picture of the occupation and specify the performance expected of a beginner. Entry-level requirements are determined when additional information is gathered on the tasks and operations (Step 4), and not during the analysis of tasks and operations (Step 3.1).

Procedure

Phase I

Establish a consensus on the scope of the analysis as well as on the precise nature of the occupation and field.

- On the basis of the preliminary studies and with the help of practitioners, quickly validate the field of activity (industry, transportation, tourism, research, etc.) and the systems, mechanisms, products, services and so forth associated with the work.
- Validate the title selected for the occupation: mechanic, plumber, nurse, orthosis and prosthesis technician, etc.
- Validate the job functions that are part of the occupation, in automotive body repair, for example.

Phase II

Establish the scope of the occupation's field of application and gather general information on the occupation.

- Clearly describe the tasks that may or may not be performed by practitioners of the occupation. The scope of the tasks generally corresponds to the limits of the fields of application of various occupations and is often described in official documents. The following are two examples of what is expected in a description: The occupation is in the field of construction and services in both the residential and nonresidential (commercial and industrial) sectors; the analysis specifically focuses on the qualified worker who is called upon to install, modify, repair, inspect and maintain systems A, B, C and D. This worker is not responsible for the design and sale of these systems.[5]

Gather information on aspects such as:

- working conditions
- occupational health and safety risk factors
- the worker's tasks in relation to data/information, people and things
- conditions for entering the job market
- qualification profile

Note: The goal is to provide an overview of the job functions to be studied and to establish as wide a consensus as possible within the group. Focusing on a clear description of the workshop objective and group consensus helps to avoid irrelevant analyses, comprehension errors, conflicts and attempts at manipulation or agenda-setting during the workshop. Also, the general information provides an overview of the occupation, and will eventually be used by teachers, students and anyone else wishing to know more about the occupation.

It must be kept in mind that the primary objective of a job analysis is to obtain an accurate description of the occupation in question. The facilitator must not impose any personal views of the occupation. His or her role is to find the most relevant catalysts for discussion. The facilitator should adapt the tool Analysis Checklist 1, *General Information on the Occupation* to the needs of the workshop.

To complete the overview of the occupation, it would be helpful to have certain information on the role played by women, men and ethnic minorities (representativity, obstacles to job entry, traditions, etc.), as well as on opportunities for entrepreneurship. Analysis Checklist 1, *General Information on the Occupation,* is found in Appendix II.

4.3 Step 3: Analysis of Tasks and Operations

Objective

Gather the information required to produce one or several tables of the main tasks and operations involved in the occupation.

Situation

A description of the occupational tasks is an essential component of the job analysis.

Task analyses prepared by different government or industry organizations often exist for a given occupation. These analyses should be used as references during the workshop. They should not, however, be used in conjunction with the analysis method presented in this document because they would lead to predictable results. The person responsible for the preliminary studies usually obtains these documents. The workshop facilitator should also refer to Appendix III (*Task Definition Tool*).

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5. A general definition of the occupation is usually prepared.

Procedure

Phase I

Describe the tasks that take up most of the work time; "tasks" are actions that correspond to the main activities involved in practising the occupation.

- Brainstorm initial ideas and list actions without regard to level, sequence or terminological accuracy. These brief statements (approximately six words beginning with an action verb in the imperative) are written on sheets and hung on the left-hand side of the wall.
- Group and order the statements, ensuring that participants agree on the meaning of the terms used. No more than 12 tasks are generally listed. The following are examples of tasks:

  A fire protection mechanic performs the following tasks:
  > Install systems
  > Connect system accessories
  > Refurbish or modify systems
  > Repair systems
  > Inspect and maintain systems

Phase II

Describe the operations that correspond to each task.

- Choose the first task or the one that appears the simplest.
- Describe the actions involved in this task. Write the statements on sheets and hang the sheets on the wall.
- Describe the operations for each of the other tasks.
  - Use the following structure: "When [insert task], the person must . . ." (participants must list the actions involved in the task using a verb followed by a direct object complement). The following are some examples of operations:

    When refurbishing or modifying systems (task 3), the person must:
    > Read plans
    > Plan the work
    > Verify the alarms
    > Drain the systems
    > Prepare the materials
    > Set up the scaffolding
    > Install the anchors and supports
    > Install the piping
    > Install the sprinklers
    > Test the systems
    > Produce the relevant reports

  - Fully analyze one task at a time.
  - At this stage, do not be concerned with the exact sequence of the tasks.
  - Ensure that each person participates sufficiently.
  - Verify that there is consensus on the formulation of statements.
  - Do not consider anything definite at this stage and expect changes.
  - Avoid being a language purist so as not to overextend the amount of time spent on the work.

Phase III

Reach an agreement on the first tasks and operations table: consensus on the statements, their meaning and sequence.

Tasks and operations:

- The facilitation team prepares a proposal for the table. It may be helpful to enlist the assistance of qualified observers for this task. At the end of the first day, because people are tired, it is sometimes preferable to have this task done by a number of people in order to identify any unanswered questions, contradictions, omissions, etc.
- Submit this proposal to the group for discussion. The sequence of elements in the table and the formulation of statements are reviewed; the meaning of terms used is also verified. Adjustments are made until a consensus is reached.

Phase IV

Thoroughly describe the products, outcomes or services, and establish links with the tasks in the table.

- Produce a list of products, outcomes or services and validate it with the group.
- Verify the links between each task and the products, outcomes or services. For example:

Links between the tasks and products, outcomes or services				
Products, outcomes or services Tasks	System A	System B	System C	System D
Install systems	X	X	X	X
Connect system accessories	X	X	X	X
Refurbish or modify systems	X	X	X	X
Repair systems	X	X	X	X
Inspect and maintain systems	X	X	X	X

4.4   Step 4: Additional Information on Tasks

Objective

Gather information on the suboperations that correspond to each operation, if applicable, on the conditions for performing the various tasks, on the performance criteria used to evaluate if these tasks are performed effectively and safely, and on the relative importance and level of complexity of each task, including the percentage of time spent on each task.

Situation

The program development team will later design a proposed training plan and write first-level operational objectives. The information gathered at this stage will be a valuable reference.

The importance of this step should not be underestimated. The exercise is even more difficult because the participants have invested a great deal of energy in the preceding step and because they may sometimes provide incomplete or irrelevant information.

It is essential to cover the requirements for practising the occupation (safety, autonomy, level of responsibility, etc.) as well as the relative importance of the various tasks and their level of complexity or difficulty.

Procedure

Phase I

Describe the suboperations that correspond to each operation.

- Form small groups of three or four (three is best).
- Each team describes the suboperations corresponding to a given number of validated operations in the tasks and operations table.
- If time permits, the whole group discusses the suboperations described by each team.

Note: When the job function is relatively simple, the suboperations are obvious details of a simple action. In this case, the suboperations do not need to be described for all of the operations (see Appendix III, *Task Definition Tool*). Describing the suboperations makes it possible to identify the scope of each operation, information which is useful when writing objectives. Moreover, the exercise requires a great deal of participants, takes up a large portion of the time allotted to the job analysis workshop and requires that the facilitation team provide the teams with ongoing support and supervision. Because this information is gathered for reference purposes only and is not usually validated, the facilitation team should assess the need for delving further into the suboperations during the workshop. The facilitation team could meet at a later date with the field specialists to collect this information.

Phase II

For each task, describe the working conditions and performance criteria. Begin by listing a few general working conditions (environments, individual or group work, type of supervision, reference documents consulted, tools used, etc.) and a few general criteria for satisfactory performance. These criteria normally correspond to one or more (observable and measurable) aspects that are essential for carrying out the task.

- Form small groups of two or three (three is best).
- Give each team checklists prepared using Analysis Checklist 2, *Additional Information on Tasks*.
- Do a detailed analysis of the working conditions and performance criteria.
- Collect each team's answers.
- Discuss the information gathered with the participants with a view to reaching a consensus.

This procedure may vary, providing that:

- comprehensive information is gathered for each task studied
- an exhaustive analysis of the working conditions and performance criteria is carried out
- each participant is encouraged to share his or her views
- the discussion is managed so as to make it possible for the facilitator to obtain the best results possible (especially when people are unruly or not used to discussing issues in a large group)

There may be some disadvantages to this method. Teams may sometimes skirt issues or give vague answers. Problems may be mitigated by paying special attention to each team throughout the activity.

Note: It is important to remind participants of the general goals of secondary school vocational training and college technical training and to stress that candidates must be prepared to practise the occupation at entry level. Educational institutions offer training but not experience. It is important to make this distinction.

Analysis Checklist 2, *Additional Information on Tasks,* is found in Appendix IV.

4.5   Step 5: Definition of Transferable Skills and Socioaffective Behaviours

Objectives

Specify the transferable skills and socioaffective behaviours required to practise the occupation; describe the functional links that exist between these skills and behaviours on the one hand, and the performance of various occupational tasks on the other.

Situation

Training based solely on a description of occupational tasks and operations would be specific, specialized, on-the-job training.

However, the general goals pursued by the Ministère are to:

- help students develop effectiveness in the practice of an occupation
- help students integrate into the work force
- foster the students' personal development and acquisition of occupational knowledge, skills, perceptions and attitudes
- promote job mobility

These general goals require the acquisition of broader competencies, hence the importance of including this fifth step in a job analysis workshop.

Procedure

Phase I

Describe the transferable skills and socioaffective behaviours, and determine the links that exist between these skills and behaviours on the one hand, and the performance of various occupational tasks on the other.

- The participants identify the transferable skills and socioaffective behaviours required to effectively and safely practise the occupation. Much information on these aspects was already gathered during the task and operations analysis; it is now a matter of taking stock, formulating statements that participants agree on, and writing the statements on sheets.

  It is not always easy to list the necessary skills, and the facilitator should pay special attention to cognitive skills. The usefulness of these skills should be identified as clearly as possible and it should be emphasized that the participants' comments must unequivocally demonstrate how the cognitive skills are used in the occupation. For example, the facilitator should not allow an industry representative merely to state that, to practise the occupation, a person should be able to apply concepts of metallurgy such as the properties of metals, their processing, heat processes, etc. The facilitator should emphasize and ask this person to demonstrate the usefulness of being able to apply such concepts in the occupation.

- Determine the importance of these transferable skills and socioaffective behaviours in relation to each other and with respect to the performance of various tasks. To promote a comprehensive analysis, it is suggested that the main tasks, the types of products or outcomes (if applicable), and the transferable skills and socioaffective behaviours be written on a flip chart. The functional links that exist between the tasks and the transferable skills and socioaffective behaviours also need to be described.

Analysis Checklist 3, *Transferable Skills and Socioaffective Behaviours,* is found in Appendix V.

4.6   Step 6: Training-Related Suggestions

Objective

Gather suggestions related to training in general: physical and instructional organization, human resources, possible collaboration with industry, terms and conditions for practicums, elements to which special attention should be paid, etc.; use Analysis Checklist 4, *Training-Related Suggestions,* found in Appendix VI, and conclude the workshop.

Procedure

Phase I

Gather general information on:
- the tools, equipment, raw materials and so forth required for the courses
- course organization (methods, means, suggested learning activities, etc.)
- learning sequence (order in which courses are taken)
- agreements with industry and organizations, in particular with respect to practicums
- other aspects

Discuss the training and ask participants to think about each point in Analysis Checklist 4, *Training-Related Suggestions.* Although this exercise is primarily used to prepare for discussion, the facilitator may also collect the completed checklists, since they may prove useful for the job analysis report.

Phase II

Summarize the workshop and provide explanations on how the information collected will be used.

- Briefly review the work accomplished during the workshop and the latest modifications.
- Briefly explain the subsequent steps in the process.
- Thank the participants for their input.

Reminder

It is necessary to prepare a report reviewing each step of the job analysis workshop and including all the information needed for the subsequent steps in the program development process. This report must accurately reflect the consensuses reached. A copy of the report should be sent to participants so that they can confirm the accuracy of the content.

Note that morning, afternoon and lunch breaks have not been indicated. Generally, 15 minutes is set aside for each break and 75 minutes for lunch. Also, 30 minutes should be planned at the beginning of the day for setting up the room and doing last-minute preparations such as hanging the tasks and operations tables on the wall, checking materials, locating missing materials, etc.

Day 1

8:30 a.m. Welcoming of participants

9:30　　　Step 1:　**Introduction**
- Welcome
- Introduction of participants
- Introduction of observers
- Brief presentation of the Ministère's program development process
- Presentation of the workshop schedule
- Explanation of instructions on workshop procedure

9:45　　　Step 2:　**Explanation of the scope of the analysis and collection of general information on the occupation**
- Definition of the scope of the job being analyzed
- General overview of the occupation

11:45　　　Step 3:　**Analysis of tasks and operations**
- Information on the analysis procedure
- Presentation of examples

1:30 p.m. Step 3 (*continued*)
- Sequence of tasks (beginning of analysis using brainstorming techniques)
- Identification of operations

4:30　　　Adjournment

Note:　The facilitation team must conduct their own assessment of Day 1 and prepare a proposal for the tasks and operations table, based on the participants' input.

Day 2

9:00 a.m. Step 3 (*cont.*)
- Examination of the proposed tasks and operations table
- Search for consensus

11:00　　　Step 4:　**Additional information on the tasks**
- Description of suboperations[6]

1:30 p.m. Step 4 (*cont.*)
- Description of working conditions and performance criteria

4:30　　　Adjournment

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6. If the facilitation team chooses not to describe the suboperations, the time can be used to gather more complete information on the working conditions and performance criteria as well as on the transferable skills and socioaffective behaviours.

Day 3

9:00 a.m.   Step 4 (*cont.*)
- Plenary session on additional information
- Explanation of the relative importance of each task and its level of difficulty or complexity

11:00   Step 5:   **Definition of transferable skills and socioaffective behaviours**
- Definition
- Functional links with occupational tasks

1:30 p.m.   Step 5 (*cont.*)

3:15   Step 6:   **Training-related suggestions**
- Instructional approaches, methods and activities
- Collaboration between the workplace and the education community
- Equipment, tools and instruments
- Other

4:00   Overall evaluation of the workshop and summary information on subsequent activities

4:30   Adjournment

Analysis Checklist 1

This appendix may be used to organize or complete the information collected during the preliminary studies. This information concerns the nature of the work, the conditions for practising the occupation, the conditions for entering the job market, opportunities for promotion and transfer, certain elements involved in candidate selection, etc. The information should be verified and completed during the job analysis workshop.

The information gathered using this checklist will serve to:
- establish a general overview of the occupation, that will be used to inform teachers, students or any other person concerned
- determine the field of application for various behavioural or situational objectives or the achievement context for objectives and standards
- specify the requirements for entering the job market
- determine certain guidelines for selecting candidates

Nature of the work

Occupational field
- mechanics
- electronics
- mines and forestry
- health and social services
- other

Type of activity
- manufacturing
- production
- services
- other

Job title
- laboratory technician
- machine operator
- mechanic
- other

Typical functions
- design
- operation
- installation
- maintenance
- other

Typical classifications
- class
- apprentice
- technician
- other

Related functions
- sales and representation
- multidisciplinary care team

Type of products, outcomes or services
- objects
- systems
- mechanisms
- circuits
- caregiving
- varied services

Categories of products, outcomes or services

Working conditions

Workplace
- location
- physical environment (noise, heat, emanations, hazardous products, etc.)

Responsibility
- immediate responsibility
- individual or team work
- supervised or independent work
- complexity of decisions to be made
- importance of consequences of decisions made
- initiatives to be taken in response to new problems
- leeway in method of working

Stress factors
- time constraints
- quality-related constraints
- quantity-related constraints
- risks of accident
- frequency and importance of decisions to be made

Health and safety
- risk of breakage
- risk of fire
- risk of accidents
- risks of occupational diseases

Psychomotor characteristics of the work
- strength
- degree of coordination and attention
- degree of flexibility
- manual and finger dexterity
- perceptive, auditory, speaking and olfactory abilities

Job functions in relation to data/information, people and things

Source: *National Occupational Classification. Career Handbook.* 2nd ed. rev. (Ottawa: Communication Ottawa, 2003), 8.

Data/information			People			Things		
0	Synthesizing	☐	0	Mentoring	☐	0	Setting up	☐
1	Co-ordinating	☐	1	Negotiating	☐	1	Precision working	☐
2	Analyzing	☐	2	Instructing-Consulting	☐	2	Controlling	☐
3	Compiling	☐	3	Supervising	☐	3	Driving-Operating	☐
4	Computing	☐	4	Diverting	☐	4	Operating-Manipulating	☐
5	Copying	☐	5	Persuading	☐	5	Tending	☐
6	Comparing	☐	6	Speaking-Signalling	☐	6	Feeding-Offbearing	☐
7		☐	7	Serving-Assisting	☐	7	Handling	☐
8	Not significant	☐	8	Not significant	☐	8	Not significant	☐

If you checked off any of the boxes under "People," please provide explanations below.

	Number:		YES	NO	Frequency of exchanges
Persons concerned	_____	Immediate superior	☐	☐	_____
	_____	Peer	☐	☐	_____
	_____	Persons under your responsibility	☐	☐	_____
	_____	Persons outside of the company	☐	☐	_____
Other persons		_____			

Conditions for entering the job market

Probation period
- Is there a probation period?

  Yes ☐   No ☐

  If so, how long is it? _____

- Is there a learning phase?

  Yes ☐   No ☐

  If so, how long is it? _____

- Does an apprenticeship card have to be applied for at the beginning of the course?

  Yes ☐   No ☐

Qualification certificate
- Is a qualification card required for this job?

  Yes ☐   No ☐

  If so, how do you apply for one?

  _____

Corporation or association
- Does a corporation regulate the occupation?

  Yes ☐ No ☐

- Is there an association for members of this occupation?

  Yes ☐ No ☐

  If so, what is it?_____

  _____

  What are the annual membership dues? _____

  What are the admission requirements?_____

  _____

- Is adherence to this corporation or association compulsory?

  Yes ☐ No ☐

- Does the corporation or association define standards for practising the occupation?

  Yes ☐ No ☐

  If so, which document contains these standards? _____

- Does the corporation or association have a monitoring mechanism?

  Yes ☐ No ☐

  If so, how does it work? _____

  What are the advantages of adhering to this corporation or association?

  _____

  _____

Prospects for employment and remuneration
- Employment prospects in this occupation are:

  – excellent ☐

  – good ☐

  – average ☐

  – not good ☐

- What is the average starting salary?

  – hourly salary ☐

  – annual salary ☐

- What is the average salary of a worker with 10 years of experience?

  – hourly salary ☐

  – annual salary ☐

- Are workers unionized?

  Yes ☐ No ☐

Opportunities for advancement and transfer

- Related occupation
    - lateral move
    - vertical move

- Transfers within the system
    - conditions

- Transfers within the occupation
    - conditions
    - requirements

Selection criteria

- Aptitudes and competencies
    - level of aptitude
    - general education
    - vocational training
    - work experience

- Areas of interest and temperament indicators

Factors in qualification profiles

Aptitudes	Physical Activities	Environmental Conditions

Aptitudes

G General Learning Ability
V Verbal Ability
N Numerical Ability
S Spatial Perception
P Form Perception
Q Clerical Perception
K Motor Co-ordination
F Finger Dexterity
M Manual Dexterity

**Aptitude Level
(working population)**

1 The highest 10 percent of the working population
2 The upper third, exclusive of the highest 10 percent
3 The middle third of the working population
4 The lowest third, exclusive of the lowest 10 percent
5 The lowest 10 percent of the working population

Physical Activities

Vision
1 Close visual acuity
2 Near vision
3 Near and far vision
4 Total visual field

Colour Discrimination
0 Not relevant
1 Relevant

Hearing
1 Limited
2 Verbal interaction
3 Other sound discrimination

Body Position
1 Sitting
2 Standing and/or walking
3 Sitting, standing, walking
4 Other body positions

Limb Co-ordination
0 Not relevant
1 Upper limb co-ordination
2 Multiple limb co-ordination

Strength
1 Limited
2 Light
3 Medium
4 Heavy

Environmental Conditions

Location

L1 Regulated inside climate
L2 Unregulated inside climate
L3 Outside
L4 In a vehicle or cab

Hazards

H1 Dangerous chemical substances
H2 Biological agents
H3 Equipment, machinery, tools
H4 Electricity
H5 Radiation
H6 Flying particles, falling objects
H7 Fire, steam, hot surfaces
H8 Dangerous location

Discomforts

D1 Noise
D2 Vibration
D3 Odours
D4 Non-toxic dusts
D5 Wetness

EMPLOYMENT REQUIREMENTS
Education/Training Indicators

1 No formal education or training requirements

2 Some high school education and/or on-the-job training or experience

3 Completion of high school

4 Course work, training, workshops and/or experience related to the occupation

5 Apprenticeship, specialized training, vocational school training

6 College, technical school (certificate, diploma)

7 Undergraduate degree

8 Post-graduate or professional degree

+ Indicating an additional requirement beyond education/training (extensive experience, demonstrated or creative ability, appointments, etc.)

R Regulated requirements exist for this group

THE CANADIAN WORK PREFERENCE INVENTORY*

The Canadian Work Preference Inventory (CWPI) measures five occupational interests:

DIRECTIVE

Directive persons like to take charge and control situations. They like to take responsibility for projects that require planning, decision making and co-ordinating the work of others. They are able to give direction and instructions easily. They enjoy organizing their own activities. They see themselves as independent and self-directing.

INNOVATIVE

Innovative persons like to explore things in depth and arrive at solutions to problems by experimenting. They are interested in initiating and creating different ways to solve questions and present information. They enjoy scientific subjects. Innovative persons prefer to be challenged with new and unexpected experiences. They adjust to change easily.

METHODICAL

Methodical persons like to have clear rules and organized methods to guide their activities. They prefer working under the direction or supervision of others according to given instructions, or to be guided by established policies and procedures. Methodical persons like to work on one thing until it is completed. They enjoy following a set routine and prefer work that is free from the unexpected.

OBJECTIVE

Objective persons enjoy working with tools, equipment, instruments and machinery. They like to repair and/or fabricate things from various materials according to specifications and using established techniques. Objective persons are interested in finding out how things operate and how they are built.

SOCIAL

Social persons like dealing with people. They enjoy caring for and assisting others in identifying their needs and solving their concerns. Social persons like working and co-operating with others. They prefer to be involved in work that requires interpersonal contact.

*Source: *NOC Career Handbook*, p. 10.

This tool is designed to help the workshop facilitator distinguish among the tasks, operations and suboperations of an occupation. It should be used as a frame of reference during the analysis of tasks and operations (Step 3 of the job analysis).

The guidelines presented in the following pages will help the workshop facilitator correctly gather and organize the information needed to produce a table of occupational tasks and operations. But the analysis of tasks and operations constitutes only one part of the job analysis. Care should be taken to avoid focusing too much on the tasks and operations, but also to take into consideration a larger set of variables inherent in the work situation.

A host of information should therefore be gathered on the aspects involved in the task analysis, such as:
- complex positions, functions or situations
- level of responsibility and autonomy
- the categories of people with whom the worker comes into contact
- the social, political, civil or administrative nature of human relations
- the physical, psychological or intellectual environment
- particular tools and equipment
- limitations and constraints
- specific requirements
- other aspects

Appendixes II, IV and V are also used for gathering information: *General Information on the Occupation*, *Additional Information on Tasks*, and *Transferable Skills and Socioaffective Behaviours*.

Unit of Work

A "unit of work" refers to the actions carried out in the course of performing a function in the workplace. It corresponds to the type of breakdown generally found in task analyses and is structured according to a process that goes from the general to the specific. Three categories of units of work are considered a priori: tasks, operations and suboperations.

Definition of "task," "operation" and "suboperation"

Task: Actions that correspond to the main activities to be performed in an occupation; a task generally reflects the products or outcomes of the work. For example, "repair brakes," "drive a truck," "install a drainage system" and "make a device (orthosis or prosthesis)."

Operation: Actions that describe the steps involved in performing a task. Operations correspond to steps of tasks and are primarily related to the methods and techniques used or to existing work habits; an operation illustrates the work process. For example:
- for the task "drive a truck":
  – make turns
  – back up
  – park
  – drive on the road
  – etc.

- for the task "make a device (orthosis or prosthesis)":
  – apply safety measures
  – shape the device directly on the person
  – change the negative to positive
  – verify the measurements and do calculations
  – etc.

Suboperation: Actions that describe the elements involved in carrying out an operation; a suboperation is a substep of a task. A suboperation specifies the methods and techniques used and illustrates the details of the work. For example:
- for the operation "back up":
  – shift into reverse
  – look in the rearview mirror
  – etc.
- for the operation "shape the device directly on the person":
  – inhibit spasticity
  – prepare the skin for moulding
  – cut and prepare materials
  – etc.

Note: For a simple job function such as "drive a heavy truck," the suboperations are so simple that describing them for each operation is not necessary. It may, however, be useful to do it anyway in order to better identify the scope and limits of other units.

When the level of complexity of a job function is relatively high, the tasks and operations described are not sufficiently specific. For example, the task of a technician with the responsibility of managing personnel may be broken down into operations such as "participate in the hiring process," "coordinate activities," etc. Additional information should therefore be collected in order to specify what this person actually does when participating in the hiring process, coordinating activities, etc.

Generally, the job analysis workshop should serve to gather and validate the information required for the table of occupational tasks and operations. Describing the suboperations provides additional information. The information collected in this way is for reference purposes only and, because of lack of time, is generally not validated. The facilitation team may, however, deem it appropriate to have the participants validate the suboperations providing that this does not interfere with the other information to be gathered during the workshop.

Characteristics of the tasks

Significance within the occupation: A task corresponds to an activity that is easy to describe by a person familiar with the occupation. It can be used as an order. The task is one of the main responsibilities of the worker, who spends a large portion of time on it. For example, "repair brakes," "make a device" and "give a shampoo."

Correspondence with the actual work situation: Artificial groupings into tasks must be avoided. It may be tempting to group different occupational activities which, in effect, never occur together. For example, "take the brakes apart" and "take the transmission apart" are not tasks that are normally grouped together.

Value and meaning in and of itself: The unit of work that makes up the task is complete; for example, "apply a product" or "drain a hydraulic system" do not have any value or meaning in isolation.

Independence: A task must have a clearly determined start and finish. The activity undertaken must proceed entirely within the unit of work; for example, "activate the cutter in order to ensure that the tree is completely cut" is a unit that involves the preceding unit, "grasp the tree with the machine"; these two units are therefore not independent of each other.

Recognized performance standards: There are specific requirements with respect to the task analyzed, such as conventions or standards regarding accuracy, quantity, quality, time, etc., generally defined by a supervisor in writing, verbally, in chart form, etc. For example, "observe the time indicated in the manufacturer's manual."

Distinctions among task, operation and suboperation

Depending on the goal, the unit relates directly to the following:
- Tasks usually relate to the outcomes of the work (products or services).
- Operations relate to how the work proceeds.
- Suboperations relate to the important aspects of the operations.

Depending on the nature, the unit is defined as follows:
- Tasks are the important actions involved in an occupation, that is, the worker's main activities.
- Operations are steps of tasks; the breakdown is based on common methods, techniques or habits.
- Suboperations are substeps of tasks; they are details of the operations.

Depending on the function, the primary purpose of the unit is defined as follows:
- Tasks serve mainly to illustrate the result of the work and generally describe part or all of the expected outcome.
- Operations serve primarily to illustrate the work process and describe ways of completing the work and the steps involved in the process.
- Suboperations illustrate the details of the work, where it is important to do so.

Depending on the precision, the degree of precision required for each unit is defined as follows:
- Tasks should designate a general action, that is, include a set of specific actions.
- Operations should designate a specific action, that is, include a set of gestures considered even more precise.
- Suboperations should designate a gesture; it is the smallest unit considered here.

The degree of precision of the units of work varies depending on the occupation. Every effort should be made, however, to keep it as close as possible to the targeted degree of precision (see Table 2 below).

Table 2: Degree of Precision of the Unit of Work			
Job function	**Tasks**	**Operations**	**Suboperations**
Drive a heavy truck	Steer a truck	Back up	Shift into reverse
—— + or - ——	—— + or - ——	—— + or - ——	—— + or - ——
Design and fabricate orthosis and prosthesis devices	Make the device	Shape the device directly on the person	Prepare the skin for shaping
—— + or - ——	—— + or - ——	—— + or - ——	—— + or - ——
A set of general actions	**One general action**	**A specific action**	**A gesture**

Table 3: Characteristics of Units of Work			
	Tasks	Operations	Suboperations
Characteristics			
– Significance within the occupation	yes	no (with exceptions)	no
– Correspondence to a real work situation	yes	yes	yes
– Value and meaning in and of itself	yes	+ or –	+ or -
– Independence	yes	+ or –	no
– Established performance	yes	+ or -	no
	Tasks	Operations	Suboperations
Definitions			
– Depending on the goal	relate to outcomes of the work	relate to how the work is performed	relate to elements involved in performing the work
– Depending on the nature	important activities	steps (based on techniques, methods, habits, etc.)	substeps
– Depending on the function	illustrate outcomes of the work	illustrate work processes	illustrate work details
– Depending on the precision	+ or - general actions	+ or - specific actions	+ or - gestures

Sequence of the units of work

The logical or chronological order of tasks: the tasks do not normally appear to have a logical or chronological sequence. At first glance, some trades, such as relatively simple production trades, could involve a specific cycle or sequence in which tasks are carried out. The following example shows how the work may be logically or chronologically organized, but where the elements do not have the characteristics of tasks:

- Troubleshoot a machine.
- Install the workpiece.
- Operate the machine.
- Remove the workpiece.
- Inspect the workpiece.

In this example, the elements have little meaning on their own, are not independent and relate more to carrying out the task rather than the outcomes of the work. They are primarily steps in the work process and not responsibilities or mandates; they illustrate the process more than the product and are too specific.

However, occupational tasks may exceptionally appear in a logical or chronological order. This is the case for tasks done by an orthosis and prosthesis technician:

- Determine the needs related to the device.
- Design the device.
- Make the device.
- Test the device.
- Deliver the device.
- Ensure follow-up.

The functional sequence of tasks: even if the tasks generally do not seem to follow a regular cycle, often they are carried out in a sequence that depends on the work situation or place. The sequence may vary according to the organizational models in use in different workplaces. For example:

- Keyboard letters.
- Compile and enter information.
- File documents.
- Prepare purchase orders and distribute materials.

The logical or chronological sequence of operations: because operations are steps involved in carrying out a task, they occur in a certain logical or chronological sequence when the task is carried out according to a specific cycle or the operations are performed in a specific order. The methods or techniques used generally require that operations be carried out in a systematic fashion. For example:

- Dismantle a system.
- Verify the components.
- Replace any defective components.
- Put the system back together.
- Verify that the system is working properly.

The functional sequence of operations: where operations are not organized according to a regular cycle, they are often carried out on the basis of work situations or habits. For example:

- Drive a truck in a straight line.
- Make a turn.
- Brake.
- Back up.

(The road situation determines these operations and the order in which they are performed.)

Organization of units of work

Occupational tasks and operations are usually organized as follows in a table:

- Tasks are listed vertically.
- Operations are listed horizontally.
- Tasks are placed in sequence from top to bottom.
- Operations are placed in sequence from left to right.

Therefore:

- Work products and outcomes appear vertically.
- Work processes and steps appear horizontally.

Note: Where tasks are organized in a logical or chronological sequence, the major steps appear vertically (the tasks become the major steps involved in the function to be carried out). The steps involved in carrying out each task should not be confused with the major steps involved in the job function.

Analysis process for the units of work

- Specify and define the scope of the job function, the occupation or the trade.
- Describe the outcomes of the work: tasks.
- For one of the tasks, describe the phases involved in performing the task, the work steps and the work process: operations.
- For one of the operations, describe the substeps and the elements and details of the work: the suboperations.
- Verify the degree of precision required for a series of units along the horizontal axis, referring to Table 4, *Units of Work*.

Table 4: Units of Work			
Job function	**Task**	**Operation**	**Suboperation**
——— + or - ———	——— + or - ———	——— + or - ———	——— + or - ———
A set of general actions	One general action	A specific action	A gesture

- Make the adjustments required.
- Verify the characteristics of the set of units determined using Table 3, *Characteristics of Units of Work*.
- Make the necessary changes.
- Complete the definition of all the operations.
- Verify the characteristics of the operations determined using Table 3.
- Make the necessary corrections.
- Verify if the analysis is complete and if it accurately describes the occupation; if this is not the case, complete it or make corrections.

Formulation of units of work

- The unit is formulated as a sentence.
- The sentence begins with an action verb in the imperative.
- It is possible to use several action verbs, as needed, to accurately describe a complex action.

Analysis Checklist 2

This second checklist is used to specify the working conditions, performance criteria and relative importance of occupational tasks. It should be used as a memory aid or reference during this step of the job analysis. The better the facilitation team knows the checklist content, the less they will need to refer to it during the workshop.

The information gathered with this checklist will:
- make it easier to identify the evaluation conditions and performance criteria for operational objectives or the achievement context, performance criteria, and objectives and standards
- provide information that will be used to determine the importance and duration of the various learning activities

Working conditions for each task

Level of autonomy
- individual or team work
- supervised or independent work

References used
- manufacturers' manuals
- technical documents
- forms
- other

Materials used
- raw materials
- tools and devices
- instruments
- equipment
- other

Special instructions
- technical specifications
- purchase orders
- client requests
- specific data or information
- other

Environmental conditions
- risks: risks of accident, toxic products, etc.
- indoor or outdoor work

Prerequisite, parallel or subsequent activities or tasks
- prerequisite to carrying out the task
- in conjunction with other tasks
- related to subsequent tasks

Requirements for carrying out each task

Health and safety
- compliance with standards
- use of protective equipment
- precautions
- other

It would be helpful to specify the degree of risk.

Autonomy
- level of responsibility
- degree of initiative
- reaction to unforeseen situations
- other

Rapidity
- reaction time
- duration of execution
- other

Quantity and quality
- number of parts, services, etc.
- precision of work
- tolerance levels
- finishing
- other

Attitudes and habits specific to the task

Specifics
- according to region
- according to company size
- other

Important points
- particular importance of certain operations related to carrying out a task
- other factors essential to carrying out a task (without which the whole is irremediably compromised)

Relative importance of each task
- importance of tasks in relation to each other
- frequency with which tasks are performed
- level of difficulty and complexity of each task

Analysis Checklist 3

This third checklist is used to define the transferable skills and socioaffective behaviours. It makes it possible to specify their nature, frequency, level of complexity and relationship with the occupational tasks.

The checklist should be used as a memory aid during this particular step once it has been adapted to the occupation being analyzed. For example, more specific questions could be formulated or other points added.

The information gathered with this checklist will make it possible to:

- determine or specify the competencies grouping transferable skills and socioaffective behaviours
- specify the level of complexity, performance requirements, etc.
- specify certain content elements
- establish connections between these skills and behaviours and the various occupational tasks

Cognitive skills

Apply mathematical and scientific concepts or principles
- applied mathematics
- applied chemistry
- applied physics
- biology
- thermodynamics
- other

Apply technological concepts or principles
- plan reading
- electronics
- hydraulic/pneumatic mechanics
- computers
- instruments
- specialized terminology
- symbols and signs
- other

Apply concepts or principles specific to the social sciences
- history/geography
- psychology
- sociology
- social work
- other

Apply concepts or principles specific to reasoning
- problem solving
- explanation of operational methods and principles
- development of strategies and plans
- activity planning
- decision making
- other

Psychomotor skills

Use of objects
- handling of products
- use of tools, devices and specialized instruments
- assembling of objects
- other

Performance of actions
- specialized techniques
- specialized manoeuvres
- level of dexterity
- level of coordination
- quality of reflexes
- other

Perceptive skills

Visual skills
- perception of colours, forms, signs, signals, codes, etc.

Olfactory skills
- perception of odours in order to recognize a product, diagnose the condition of a product, assess a risk, etc.

Auditory skills
- recognition of sounds in order to diagnose a problem, decide what needs to be done, etc.

Perception
- understanding of attitudes
- recognition of feelings
- other

Socioaffective skills and behaviours

On a personal level
- understanding of one's own feelings and emotions
- resolution of internal conflicts
- other

On an interpersonal level
- communication with others
- motivation and interest of others
- group facilitation
- other

Attitudes relating to
- health and safety
- human relations
- professional ethics
- other aspects

Habits relating to
- physical reflexes
- mental reflexes
- ways of behaving in specific work situations
- other aspects

Analysis Checklist 4

This fourth checklist is used to gather suggestions relating to the training program, more specifically, to collect information on aspects that require further thought and, especially, to identify avenues for collaboration between the workplace and the school.

This checklist makes it possible to obtain information of a pedagogical, organizational and material nature, and to describe certain elements concerning the type of arrangements that may be reached between the educational institution and the business: work/study programs, practicums, use of equipment, collaboration of the industry or business, etc.

Specification of the general goals

This involves reviewing and enriching the elements presented during the introduction and reviewing, in particular, the general goals of vocational and technical training, as well as discussing ways of interpreting and attaining these goals.

Suggestions of a pedagogical nature

With respect to the educational institution
- instructional approach
- teaching strategies
- learning activities
- teaching methods
- major aspects to be evaluated
- other

With respect to the business
- possibility of visits and practicums
- possibility of work done by students in the workplace
- loan of services of resource persons
- loan, rental or donation of equipment
- loan or donation of teaching materials
- possibility of organizing courses in the workplace
- other

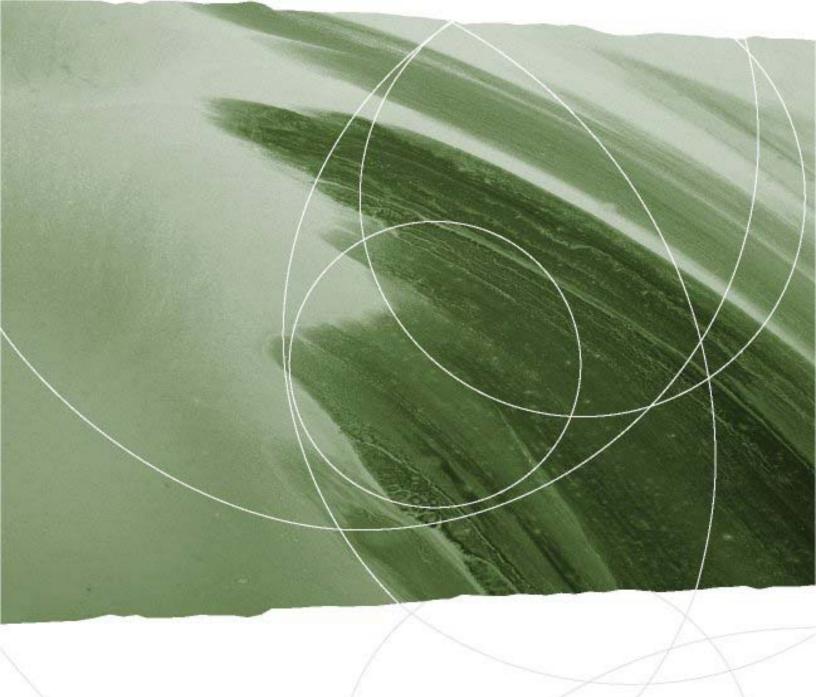### *Suggestions of an organizational nature*

Learning sequence
- tasks that must be covered at the beginning of the training
- tasks that must be covered at the end of the training

Practicums
- criteria for selecting host companies
- practicum objectives
- on-the-job supervision (trainee/supervisor ratio, recruitment of supervisors, frequency of meetings, type of support and supervision provided to trainees, etc.)
- supervision by the school (trainee/supervisor ratio, frequency of meetings, type of collaboration with the workplace supervisor, etc.)
- completion of a practicum log
- evaluations for the purpose of learning during the practicum

Suggestions concerning materials

- tools, devices, types of systems, etc.
- recycling of devices, materials and raw materials
- preferred supply sources
- other