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Niveaux de compétence
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Compétences essentielles

Centre for Canadian Language Benchmarks

On the Job

Essential Skill of Thinking



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Thinking Skills

Thinking Skills: Mind on Matter

People coming from different cultures and school systems have developed different ways of thinking and processing information. In some cultures significant use of memory is stressed more than in others. Decision making is discouraged in cultures where a top- down management style is favoured. In other countries secretaries still manage timetables and schedules with the result that some managers have not developed job task planning skills. Multitasking (managing more than one project or set of deadlines at the same time) is not a universal concept. In countries where the government does not support freedom of information, using skills for finding information and then critiquing that information can be punishable by law. In other cases, schools are not encouraged to help students develop strong thinking skills. As with some of the other Essential Skills, Thinking Skills are never done in isolation.



To solve problems or make decisions, a worker needs to draw on other Essential Skills which might include Reading Text, Document Use, Numeracy, Computer Skills and Oral communication. For all of these reasons, conscious instruction in Thinking Skills belongs in the ESL classroom.

There are six categories of Thinking Skills defined in the Essential Skills framework, including:

- Problem Solving
- Decision Making
- Critical Thinking
- Job Task Planning and Organizing
- Significant Use Of Memory*
- Finding Information

* All but Significant Use of Memory use the same complexity scale of 1 – 4 levels.

Each of these sub-skills will be briefly described in turn with examples drawn from one occupation for ease of comparison.

Problem Solving



Problem solving focuses on the thinking process involved in analyzing problems and determining appropriate solutions. It is described in the Essential Skills Reader's Guide¹ in the following way: four levels of complexity based on four dimensions. Four levels of complexity are defined based on four dimensions for the complexity of:

- the problem
- identifying the problem
- identifying the solution steps
- assessing the solution

Complexity levels range from Level 1 where a limited number of factors are involved to problems involving a broad range of factors which may be clearly defined or vague to problems where unpredictable and contradictory factors play a role (Level 4)

¹ Reader's Guide to Essential Skills Profiles, Skills Information Division, Human Resources and Skills Development Canada (revised April 2005) available on the HRSDC Essential Skills web site http://srv600.hrdc-drhc.gc.ca/esrp/english/general/readers_guide_whole.shtml .

Here are some typical Problem Solving tasks done by General Office Clerks (NOC #1411):

- may find discrepancies in the dollar figures when reconciling the accounting ledger. They compare slips and ledger entries to find the error. (1)
- may have mail to clients returned as undeliverable. They check with co-workers or make phone calls to locate a correct address. (1)
- may encounter a malfunctioning computer or photocopier. They try to fix the problem themselves or call a technician. (2), (frequently)
- may encounter computer crashes when the payroll is due. They consider various options to get pay cheques out on time. (3)

Decision Making

Decision Making refers to choosing among options. This may be a step involved in Problem Solving, but not always. For this reason, it is treated as a separate skill in the Essential Skills Framework. Complexity ratings for Decision Making are defined in the Essential Skills Readers Guide according to four levels, ranging from decisions that will produce few consequences to those producing significant consequences. Risk is a key element. These levels are based on six dimensions:

- the consequence of error
- the reversibility of the decision
- the adequacy of the information
- whether or not there is a set procedure to follow
- availability of similar decisions and
- the extent to which judgement is needed to make an appropriate decision.

Typical decisions made by General Office Clerks (NOC #1411) include:

- decide to whom to refer callers, based on the subject matter and the availability of staff. (1)
- decide when to schedule appointments or set up meetings to best accommodate participants' schedules. (2)
- decide the priority of items of correspondence and process them accordingly. (2)



Critical Thinking

Critical Thinking refers to the process of making judgements, evaluating ideas or information, using a rational, logical thought process and referring to objective criteria, to reach a rational judgement about value, or to identify strength and weakness. (Reader's Guide to Essential Skills Profiles, revised April 2004).

Critical Thinking is a fairly recent addition to the category of Thinking Skills. The Reader's Guide to Essential Skills Profiles states that, "Critical Thinking may be an element in other thinking skills. For example, judgement is sometimes required to evaluate the choices offered during the course of Decision Making and to evaluate the solutions proposed as a result of Problem Solving." Many of the Essential Skills Profiles that were written before the inclusion of Critical Thinking do not include this as a skill.



It is further defined using the following complexity levels and dimensions:

- Four levels of complexity ranging from few simple criteria with no complicating factors to very high risk.
- Based on three dimensions;
 1. assessment of criteria used,
 2. assessment of process,

3. effects of critical thinking

The Essential Skills Profile for General Office Clerks (NOC # 1411) and many other profiles have no examples of Critical Thinking listed. This might mean that this profile was written before the inclusion of this skill OR that Critical Thinking is not an element in this occupation.

Job Task Planning and Organizing

Job Task Planning and Organizing refers to the extent to which the workers plan and organize their own tasks. It does not include how involved they might be in the planning for the organization in which they work. The Essential Skills Reader's Guide further defines this based on the following complexity levels and dimensions:

Four levels of complexity ranging from little variety with similar repetitive tasks to significant variety with no set routine (every day is different).

Based on seven dimensions:

1. extent of variety in work activities
2. if the task sequence provided for or determined by worker
3. if priorities are set for or determined by the worker
4. number/extent of disruptions to the workplan
5. integration of work plan with plans of others
6. number of sources for work assignments and
7. effect of the order of tasks on the total efficiency of the workplace



Typical Job Task Planning skills used by General Office Clerks (NOC # 1411):

- General office clerks organize their own job tasks based on priorities set by their organization. Their tasks are mostly repetitive but are frequently interrupted by phone calls from clients or suppliers or requests from supervisors. They often do work for several managers and need to juggle deadlines to ensure that service is provided to all of them in a balanced way.
- Job Task Planning is considered a most important skill for this occupation.

Significant Use of Memory

This does not include normal memory use but rather more job specific memory use such as remembering codes, numbers or details related to a particular job. It has not yet been further defined in the Readers guide. ESL learners employ significant use of memory every day when trying to remember new vocabulary and grammar structures.

Note: This skill does not include a complexity rating and consists of only one component, significant or unusual use of memory.

Typical Memory skills used by General Office Clerks:

- may remember the individual format and style preferences of all the officers or managers they serve and what letterhead is required for their correspondence.
- may remember a variety of rarely used procedures in the software manual.
- may memorize file codes and safe combinations.

Finding Information

Finding Information is often an overlooked Thinking Skill that is very important. Researching is the key to surviving in this information age where there are amazing resources available in various media. The computer and the Internet are becoming necessary tools for everyone. It is often hard in North America to go to the store, get gas, or do work without interacting with computer technology. Elementary school children are taught to “surf the Net”. Family owned restaurants have menus online. A successful job search requires research and often applications are online. Cell phones can be used to search the web, calculate information and schedule appointments .

Teaching learners to access information really strengthens many Essential Skills used in a broad range of tasks and prepares learners to take on new learning. By using databases and search engines one can learn about almost anything. The challenge for the ESL learner is to access this information in English by asking the right questions first and generating the right vocabulary to input into the search.



In the Essential Skills Readers Guide Finding Information is categorized as:

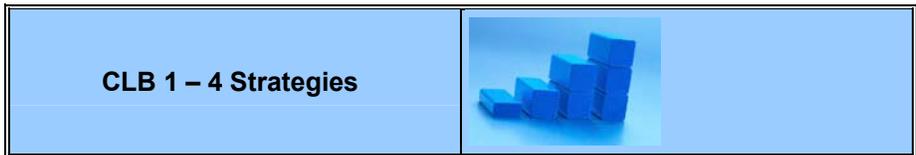
- Four levels of complexity ranging from consulting established sources of information that do not have to be changed into another form, to finding several different sources, analyzing or synthesizing information or creating a source. This is then used to find a solution to a problem.

- Based on two dimensions;
 - Locating the desired information
 - Extracting and processing the information

The finding of information requires all of the above thinking skills. Being able to create the questions that require answers and to find the correct information is instrumental in an information gathering activity. For example, finding a job that suits a person's skills and needs is entirely dependent upon his ability to find information, evaluate it and act on it.

Typical Finding Information tasks done by General Office Clerks include:

- refer to databases to locate information on clients or companies. (1)
- obtain financial, legal, medical, security and policy and procedure information by contacting co-workers or departments and checking reference books. (2)
- use computer manuals for assistance when using computer programs. (2)



CLB 1- 4 Strategies for Teaching Thinking Skills

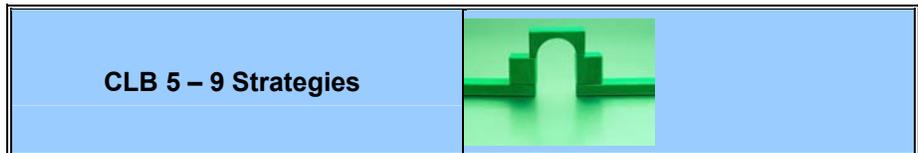
The Measure Up web site has many tasks based on authentic workplace materials that help practice thinking skills with reading, document use, or numeracy.
<http://measureup.towes.com/>

All of the above Thinking Skills are used at one time or another in applying any of the other Essential Skills. It is impossible to teach or use them in isolation. For example; people learning a second language are already employing the Thinking Skill of Significant Use of Memory. However, to build strategies for continuous and lifelong learning all of the Thinking Skills need to be practiced, and these opportunities need to be built into ESL instruction. Having learners work through methods or solutions first as groups, then on their own gives them the confidence to do this in the workplace.

Suggestions for this level:

- Teach, practice and reinforce the Thinking Skills needed to make inferences. Identifying a task to be done, identifying key words, inferring the meanings of words, and choosing the correct steps to complete the task are all higher level Thinking Skills. Introducing these in CLB 2, 3, or 4 classrooms will build steps for higher levels of complexity.
- Use the *Measure Up* website. Select an activity based on the Reading, Numeracy or Document Use skill you wish to practice. Refer to the Steps to the Answers, found on the site, to walk learners through the thinking skills needed to find the answers.
- Have learners develop a flow chart of these processes so they can see the steps and understand when they have reached a decision point.
- After learners trust you and after they have accepted that they will have to think their way through instructions, occasionally give ambiguous

instructions or no instructions with a task and have learners figure it out themselves. Explain that the intent is for them to arrive at the solution and to practice critical thinking skills. For example; when having learners form groups give the instructions of how many people in each group, and the rules for the group formation, such as: include more than two different language groups and at least one man and one woman in each group. Indicate that the goal is for everyone in the class to be in a group that conforms to these rules. Observe the process and only when the rules are met declare the process finished. The debriefing process could include a discussion of their feelings of confusion, indecision or decision. What were some of the other criteria that one might use to select group members?



CLB 5 – 9 Strategies for Thinking Skills

1. In the section on Document Use, was the suggestion to develop a mid-term report using a spreadsheet or day timer software that lists all assignments completed thus far (See Document Use, Instructional Design Ideas.) Discuss ways to improve organizational and time management skills. Make a list of ways to improve Job Task Planning and Organizing skills. Link this behaviour to the workplace.



2. Finding Information involves combining many of the other Thinking Skills. Designing an activity where learners have to develop research questions, find information through a variety of sources, evaluate the authenticity of sources and present the information to the class helps learners practice many skills. A suggested activity might be to have learners research a company or industry in which they are interested. Some questions to use:
 - What information would be needed to decide if a company or industry would be a good place to work?
 - Who are the players in that industry?
 - What do they do in their jobs?

- Do they have corporate values and mission statements that match your own?
- What is the long-range prognosis for this company?
- What kind of reputation does the company have for treating employees fairly and ethically?
- Where can you find more information than just the company's point of view?

Through this research learners will develop research skills and a better understanding of the market economy. Be sure learners name and clearly define each of the skills involved so that their thinking becomes increasingly precise and their confidence increases as they improve and practice each skill.

One of the challenges in many workplaces is to multitask, or determine priorities, estimate time to complete a task and move back and forth from one task to another. Multitasking is a required activity in many occupations in the workplace. See the Teaching Idea to follow for some ideas in honing this skill.



Teaching Idea #1 – Multitasking

To practice this skill, try the following activity:

Note: Sometimes this activity may cause stress. This will be discussed in the debriefing session.

1. Hand out a reading activity that is quite lengthy with a number of tasks that have to be completed for this reading. Allow the learners to get about one quarter of the way through it.
2. Stop the reading and hand out a Document Use activity that you say needs to be completed right away. A good choice is a real document for funding or student fees or bus passes. Collect all of these completed activities and allow them to return to first activity. Give them another ten minutes of work and stop them again with an announcement. Something to do with changing class times or new policies at your school would be great.
3. In another ten minutes hand out two more documents, one that has to be finished right away but the other can wait until the end of the class. Collect document #2.
4. Announce that the first person to complete the reading task will get a prize. Wait a few more moments.

5. Announce that deadlines have been changed and you need Document #3 right now!
6. If the learners have not gone on strike or protested too much, allow them to finish the reading and discuss how they coped with all the interruptions and distractions. Compare this activity to what happens in the workplace. Ask learners questions such as “How does it make you feel? How many forgot about document #3? What time management strategies could you use to keep all of these tasks in order?”
7. Take up the answers to the reading. Ask learners “How many were accurate in answering the questions? How did all the interruptions affect their performance on that task?”

As a final debriefing for this activity, the class could brainstorm a list of the occupations that would require this skill on an ongoing basis and perhaps some examples of situations in those occupations.

Instructional Design Ideas

Instructional Design Idea		
	Classroom Idea	Link to the Workplace
<p>The teaching of Thinking Skills is embedded in all aspects of instructional design. Keeping an eye on this list reminds instructors to create lessons where learners can practice these skills in a safe environment before they have to go to work and face greater risks when making decisions. Our learners have already made a huge decision to come to Canada. They are risk takers to some degree to have made that choice. For the most part, they have been developing their Memory skills through the learning of vocabulary and language. The skill they may not have had much practice with is Finding Information. This skill needs to be practiced and practiced and practiced. So, don't give them all the answers. Have them find the answers on their own.</p>	<p>Embed thinking skills in all aspects of instructional design.</p> <p>Create lessons where the answers are not as important as the process to get to the answer. Encourage learners to take the risk and make decisions for themselves, state opinions and debate issues. Some learners have come from environments where teachers, parents or supervisors have made a lot of decisions for them. Our learners have already made a huge decision to come to Canada. They are risk takers to some degree to have made that choice. Understanding they have the power to continue to make these decisions for themselves and teaching them how to collect information and make an educated choice is very empowering for some.</p>	<p>- Make career decisions and set career goals. This requires decision making and critical thinking skills.</p>
	<p>- Finding information and research skills need to be practiced and practiced and practiced. The invention of the World Wide Web has made available incredible amounts of information but now deciding if the source is valid and reputable adds difficulty and complexity.</p>	<p>- Find and evaluate information. These are thinking skills needed for many jobs.</p>

Notes:

Glossary of Terms

Critical Thinking

Critical Thinking refers to the process of making judgements, evaluating ideas or information, using a rational, logical thought process and referring to objective criteria, to reach a judgement about value, or to identify strength or weakness.

Decision Making

Decision Making refers to choosing among options, which is sometimes part of Problem Solving.

Flow chart

Flow chart is a schematic, visual interpretation of a process or sequences. The chart usually includes several labelled shapes or bubbles connected by arrows or lines to show progression or relationships. Originally used in manufacturing and in engineering-related materials or in computer programming, but now more common in other types of resources as well.

Job Task Planning

Job Task Planning is usually paired with Organizing and refers to the extent to which the workers plan and organize their own tasks. It does not include the level of their involvement in the organization's planning.

Problem solving

Problem solving focuses on the thinking process involved in analyzing problems and determining appropriate solutions. It has 4 complexity levels.

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