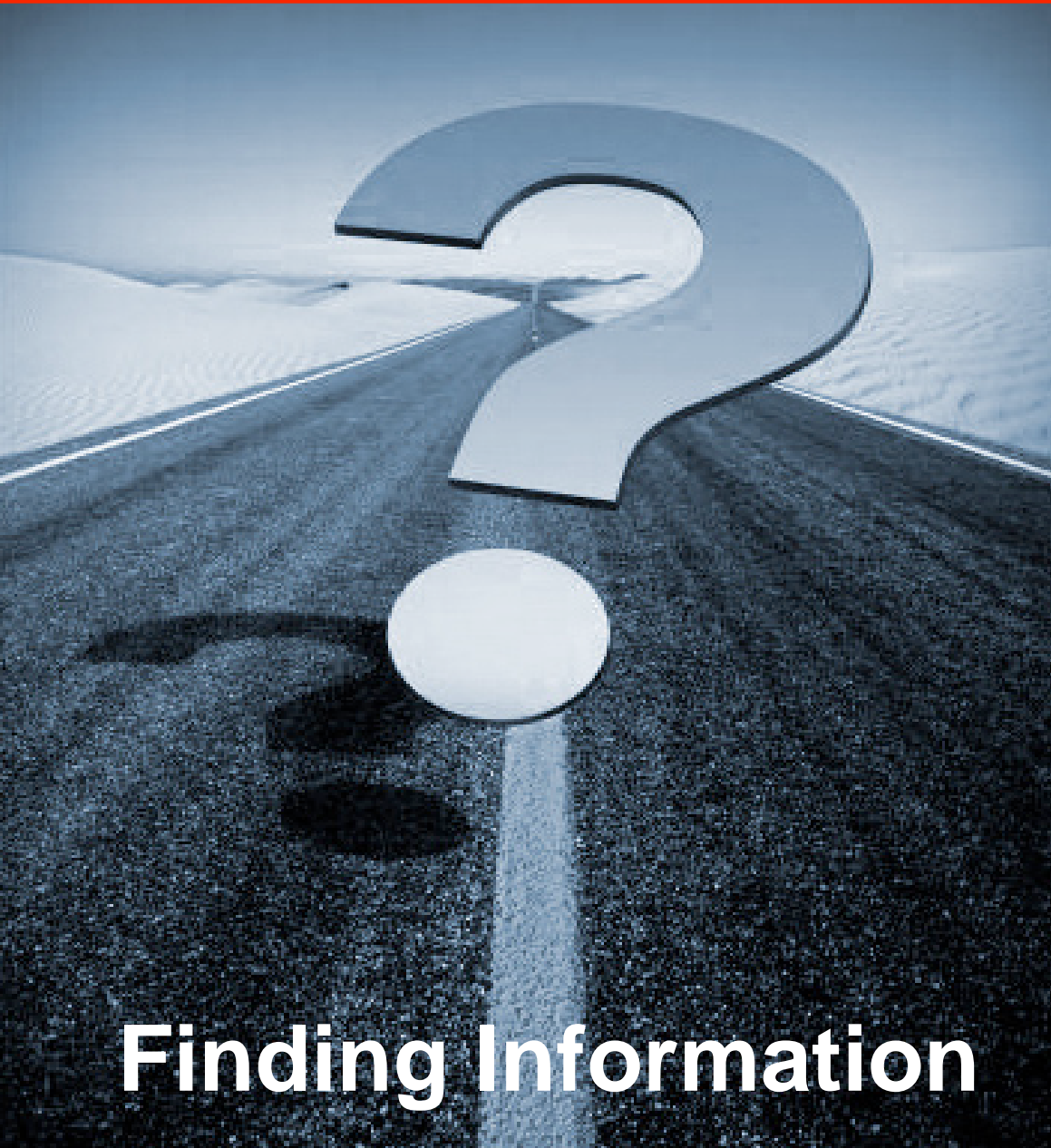


Information Literacy



Finding Information



College Sector Committee
for Adult Upgrading

Prepared by Sandra Hennessey,
for College Sector Committee, April 2009.

Table of Contents

Introduction.....	1
Information Literacy.....	1
National Occupational Classification.....	5
Essential Skills.....	6
Essential Skills Profiles.....	7
Finding Information.....	7
Methodology.....	8
Findings.....	9
Conclusions.....	13
Appendix A.....	15
Appendix B.....	19
Appendix C.....	23
Appendix D.....	24
Appendix E.....	25

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Information Literacy and Finding Information

An area of interest to the College Sector Committee for Adult Upgrading (CSC) in support of Adult Literacy Curriculum (ALC) development relates to the Essential Skill of Finding Information and the overarching theme of Information Literacy. This is especially relevant to the academically-oriented goal paths of apprenticeship and postsecondary as supported by two separate but related CSC research projects: “Essential Skills for Success....In College Postsecondary and Apprenticeship Programs”¹ and “Successful Transitions...To College Postsecondary and Apprenticeship Programs”.² Recent research points to the notion of information literacy as “task”. (Eisenberg, 2008) This paper looks at what the Essential Skill *Finding Information* looks like at each of the four levels through the lens of different occupations relating to Literacy and Basic Skills/Academic Upgrading (LBS/AU) students’ primary postsecondary and apprenticeship goals.

Introduction

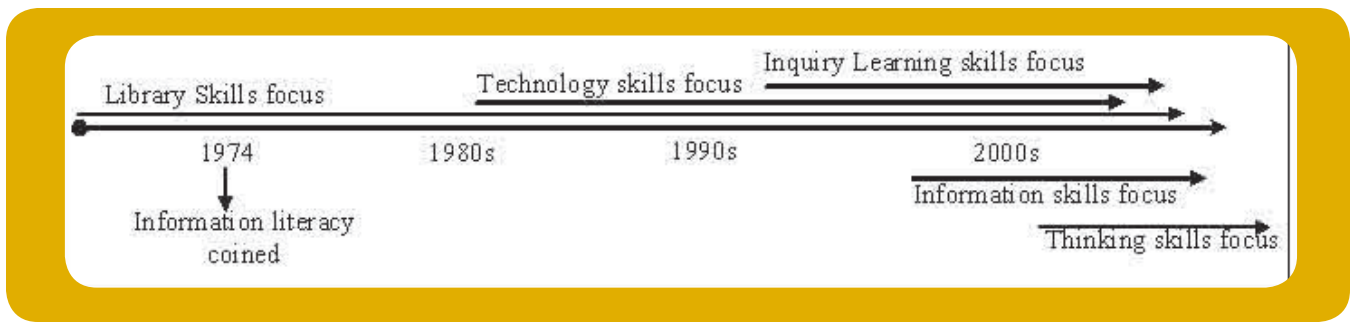
An overview of Information Literacy (IL) is provided to introduce the IL process. A brief overview of the National Occupational Classification (NOC), a system of classifying Canadian occupation is presented, followed by information on Essential Skills (ES) and Essential Skills profiles. These four systems, or structures, were used to find and examine the Essential Skill of Finding Information within the context of Information Literacy in ES profiles of occupations requiring college postsecondary education or apprenticeship training. The occupational areas were determined using previous research documents identified above.

Information Literacy

Information Literacy, both as a concept and term, was coined in 1974 by Paul Zurkowski, then President of the Information Industry Association. Originally, the term described the use of library research tools and materials. Over the last 35 years the definition has evolved to include or encompass technology, problem-based learning and thinking skills. The timeline below provides a simple view of some of the major concepts that have impacted on and continue to impact on the concept and definition of Information Literacy.

¹ College Sector Committee. *Essential Skills for Success ...In College and Postsecondary and Apprenticeship Programming* (2007). Retrieved from: <http://www.collegeupgradingon.ca/current.htm>

² College Sector committee. *Successful Transitions...To College Postsecondary and Apprenticeship Programs* (2008). Retrieved from: <http://www.collegeupgradingon.ca/current.htm>



- Trevor Bond, *Quality Education Support and Training, Next Step Reading: Information Literacy*

(A brief information literacy history, overview and educational implementation summary is available on Wikipedia at http://en.wikipedia.org/wiki/Information_Literacy.)

There are numerous Information Literacy definitions and models, many of which are also labelled as Research or Information Problem Solving models. The most generally accepted definition was created by the American Library Association in 1989:

“To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information.”³

The Alexandria Proclamation of 2005, adopted by UNESCO’s Information for All Programme (IFAP) included a definition and supporting background information:

Information Literacy⁴ is the capacity of people to:

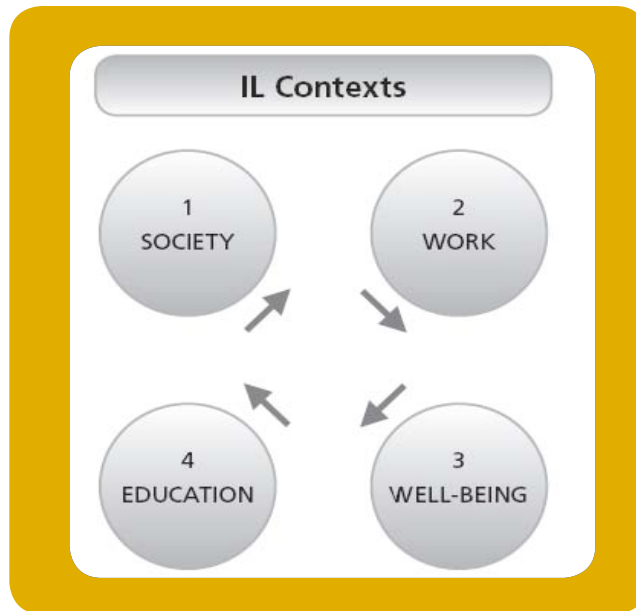
- Recognise their information needs;
- Locate and evaluate the quality of information;
- Store and retrieve information;
- Make effective and ethical use of information, and
- Apply information to create and communicate knowledge.

The supporting documentation which accompanies this definition distinguishes between Information and Computer Technology (ICT) and Information Literacy (IL) and explicitly includes oral traditions of information gathering and sharing. The Alexandria Proclamation on information literacy and lifelong learning strongly suggests that IL needs to be considered not only in relation to education, but also in the broader context of work, civil society and well-being.⁵

³ American Library Association Presidential Committee on Information Literacy. Final Report. Chicago: American Library Association, 1989.

⁴ UNESCO. *Towards Information Literacy Indicators* (2008). Retrieved from: www.uis.unesco.org/template/pdf/cscl/InfoLit.pdf

⁵ Garner, S.D. (Ed) (2006) Final Report of High-Level Colloquium on Information Literacy and Lifelong Learning Alexandria, Washington DC IFLA. Retrieved from www.ifla.org/III/wsis/



-Ralph Catts and Jesus Lau, *Towards Information Literacy Indicators*, 2008

Information Literacy frameworks, standards, competencies, performance indicators, etc. have been developed and implemented for education and training purposes in various countries including Canada, Australia, New Zealand, England, Scotland and many U.S. states. UNESCO is currently funding the development of IL indicators for developing countries. Australia and New Zealand have collaborated in the development of an Information Literacy Framework. Initially, this framework was intended for further or higher education, but piloting of the initial framework led to the understanding of Information Literacy “in a broader context of generic skills, of which information literacy is the core component.”⁶ The framework document identifies skills and attributes associated with Information Literacy as essential to lifelong learning and as a continuum of capacities demonstrated in conjunction with other skills and attributes.

The national IL framework developed in Scotland identifies “The skills and competencies are stages in the process of undertaking an information task in personal, social, vocational, educational or occupational contexts. They are used sequentially and repeatedly in every type of context. They encompass the components of problem solving; critical thinking; planning and organising; and reviewing and evaluating. Each skill or competence can also be a major focus of activity on its own. It encompasses all media types and formats – electronic, people and printed information sources.”⁷

The following chart identifies the 6 stages in the IL process and steps associated with each stage. Although focused on the school environment, it is easily transferred to the contexts of society, work and well-being.

⁶ Australian and New Zealand Institute for Information Literacy. Australian and New Zealand Information Literacy Framework, principles, standards and practice, 2004. Retrieved from <http://www.anziil.org/index.htm>

⁷ Irving, C. and Crawford, J. A National Literacy Information Framework Scotland, Skills for Everyone, 2007. Retrieved from http://www.ltscotland.org.uk/informationliteracy/images/information_literacy_framework_draft_tcm4-433724.pdf

The process of Information Literacy identifies the steps in information seeking required to complete a task. (It should be noted that the process is iterative or circular, although it is often presented as linear. The process may start with any of the steps and each step may be returned to a number of times before completing the process.)

It is within this framework that Finding Information tasks are examined. A number of models were reviewed and although the number of steps identified and the specific terms used to label the steps varied, the six steps above were common throughout many of them. For the purposes of this paper, these are identified as:

1. **Recognize/Define**
2. **Locate/Find**
3. **Select/Process**
4. **Organize**
5. **Create/Share**
6. **Assess/Evaluate**

National Occupational Classification (NOC)

The National Occupational Classification (NOC) was used to identify Essential Skills profiles of occupational goals associated with postsecondary and apprenticeship goal-paths consistent with program areas identified in previous CSC research documents. The NOC describes Canadian occupations using a standard format and language. NOC classifies occupations according to skill type and skill level using a four-digit code.

The first digit describes the type of occupation:

	NOC Skill Type
0	Management Occupations
1	Business, Finance and Administration Occupations
2	Natural and Applied Sciences and Related Occupations
3	Health Occupations
4	Occupations in Social Science, Education, Government Service and Religion
5	Occupations in Art, Culture, Recreation and Sport
6	Sales and Service Occupations
7	Trades, Transport and Equipment Operators and Related Occupations
8	Occupations Unique to Primary Industry
9	Occupations Unique to Processing, Manufacturing and Utilities

The second digit describes the required level of education:

Skill Level (Alpha)	Skill Level (Digit)	Nature of Education/Training
A	1	University degree at the bachelor's, master's or doctorate level.
B	2 or 3	Two to three years of post-secondary education at a community college, institute of technology or CEGEP <i>or</i> Two to five years of apprenticeship training <i>or</i> Three to four years of secondary school and more than two years of on-the-job training, specialized training courses or specific work experience. Occupations with supervisory responsibilities and occupations with significant health and safety responsibilities, such as firefighters, police officers and registered nursing assistants are all assigned the Skill Level B.
C	4 or 5	One to four years of secondary school education <i>or</i> Up to two years of on-the-job training, specialized training courses or specific work experience.
D	6	Short work demonstration or on-the-job training <i>or</i> No formal educational requirements.

Essential Skills

Essential Skills are the skills needed for work, learning and life. They provide the foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change. (HRSDC) Nine Essential Skills were identified and defined as part of the Essential Skills Research Project:

- Reading Text
- Document Use
- Writing
- Oral Communication
- Numeracy
- Thinking Skills
 - Problem Solving
 - Decision Making
 - Critical Thinking
 - Job Task Planning and Organizing
 - Significant Use of Memory
 - Finding Information
- Working With Others
- Computer Use
- Continuous Learning

Essential Skills Profiles

As part of the Essential Skills Research Project, a methodology to create Essential Skills profiles of occupations was developed. ES profiles describe how Essential Skills (identified above) are used in occupations included in the National Occupational Classification. Essential Skills Profiles use NOC codes and introductory statements to describe the occupation, and provide task examples of how each of the Essential Skills is used in the occupation. The task examples are rated using the complexity scale developed for each skill. Essential Skills Profiles and skill complexity scales can be found in the Readers' Guide on the Human Resources and Skills Development (HRSDC) Essential Skills web site at: http://www.hrsdc.gc.ca/eng/workplaceskills/essential_skills/general/home.shtml

Finding Information

Included as one of HRSDC's Essential Skills, Finding Information is one of six different but interconnected cognitive functions included in "Thinking Skills" (Problem Solving, Decision Making, Critical Thinking, Job Task Planning and Organizing, Significant Use of Memory and Finding Information). The Essential Skills Readers' Guide⁹ defines Finding Information:

Finding Information involves using any of a variety of sources including text, people, computerized databases or information systems. Finding Information is highlighted in this section of the Profile as an essential job skill. However, workers' use of various information sources may be referred to in other sections such as *Reading Text, Document Use, Oral Communication and Computer Use*.

Essential Skills methodology includes rating the complexity of Finding Information on a four-level scale based on two dimensions:

- the complexity of locating the desired information; and
- the complexity of extracting and processing the information

See the complexity scale below.

Dimension	Level 1	Level 2	Level 3	Level 4
The complexity of locating the desired information	Consulting established sources, e.g., looking up a phone number in a phone book, calling an airline information number for flight schedule information, consulting a manual, calling a software hotline. Source is supplied to worker, e.g., telephone interviewer who is supplied with the names or numbers to call.	No established source but a source can be easily identified, e.g., workers may enquire of their supervisor or co-workers, "Who would know . . . A	Worker must conduct a more complex search for the information, e.g., locating witnesses to a crime, setting up appropriate interviews for a research project, collecting appropriate samples for environmental tests.	Information from several different sources must be brought together or there is no source; the information must be created, e.g., conducting research to find a new vaccine.
The complexity of extracting/ processing the information	Information is usable in the form in which it is obtained, e.g., a phone number, a flight time, information on which key indents text in a particular word processing package.	Simple processing, such as selecting information according to some predetermined criteria, e.g., putting together a bibliography, making a list of suppliers for some service in a particular area.	Some analysis required. Information must be understood to be acted upon.	Complex analysis or synthesis. Information from various sources is synthesized. Information is used in the process of generating a solution to a problem. Information is created.

⁹Essential Skills Research Unit. (n.d.). *Readers' Guide to Essential Skills Profiles*. Retrieved from Human Resources and Skills Development Canada: http://www.hrsdc.gc.ca/eng/workplaceskills/essential_skills/general/readers_guide_whole.shtml#a51

Methodology

The focus of this paper is on the Literacy and Basic Skills/Academic Upgrading academically-oriented pathways relating to occupations requiring college postsecondary education and apprenticeship training as identified in “Successful Transitions...To College Postsecondary and Apprenticeship Programs”.¹⁰

Occupations that relate to LBS/AU students’ primary postsecondary and apprenticeship goals begin with any of the NOC skill type digits (1 – 9) with 2 or 3 as a second digit. For example, the NOC code for Licensed Practical Nurses, 3233 indicates an occupation in Health requiring 2 to 3 years of education at a community college. Similarly, the NOC code for Industrial Electricians, 7242, indicates an occupation in Trades, Transport and Equipment Operators and Related Occupations requiring two to five years of apprenticeship training.

The Essential Skills Profiles were searched (by means of the site search engine) using Finding Information as the selection criteria at each of the four levels. Most profiles include task examples for each skill and skill level required by the occupation (usually) beginning at Level 1. This results in most profiles being identified by a search of Finding Information Level 1. Therefore, Finding Information Level 4 was used as the initial search, with subsequent searches based on Levels 3, 2 and 1. Profiles not identified in previous searches and identified as NOC skill level 2 or 3 were added to a list. (See Appendix A)

Profiles returned from each Finding Information level search were selected based on a NOC skill level digit of 2 or 3. These occupational profiles were compared to the program areas identified in “Successful Transitions...To College Postsecondary and Apprenticeship Programs”¹¹ to identify a cross section of occupations and Finding Information levels. Examples of Finding Information tasks from ES profiles for Industrial Electrician, Carpenter, Automotive Service Technician, Tilesetter, Architectural Technologist and Technician, Employment Counsellor and Licensed Practical Nurse were initially selected for analysis.

A chart was developed to document Finding Information tasks at each level required by the occupation, LBS domain component, other Essential Skills applied to the task and Information Literacy process steps. For the purposes of documenting the steps of the IL process, descriptors previously identified were used: (See Appendix B.)

1. Recognize/Define
2. Locate/Find
3. Select/Process
4. Organize
5. Create/Share
6. Assess/Evaluate

¹⁰ College Sector committee. *Successful Transitions...To College Postsecondary and Apprenticeship Programs* (2008). Retrieved from: <http://www.collegeupgradingon.ca/current.htm>

¹¹ College Sector committee. *Successful Transitions...To College Postsecondary and Apprenticeship Programs* (2008). Retrieved from: <http://www.collegeupgradingon.ca/current.htm>

Findings

There are currently 337 Essential Skills Profiles completed and posted on the HRSDC web site (as of 09 03 20), and new profiles are being added regularly. The site search engine was used to return profiles of occupations requiring Finding Information at each level.

Finding Information, Level 4 returned 30 profiles, of which 9 are NOC skill level 2 or 3 (NOC B).

Finding Information, Level 3 returned 144 profiles. Sixty-two of the profiles are NOC skill level 2 or 3 (NOC B) not including the 9 identified above.

Finding Information, Level 2 returned 298 profiles. This search identified an additional 57 profiles at NOC skill level 2 or 3 (NOC B).

Finding Information Level 1 returned 2 additional profiles at NOC skill level 2 or 3 (NOC B).

The majority of NOC skill level 2 or 3 (NOC B) occupations identify Finding Information complexity levels 2 and 3.

(See Appendix A for NOC B occupational lists by Finding Information at each level.)

The scope of Information Literacy (using the six steps of Recognize/Define, Locate/Find, Select/Process, Organize, Create/Share and Assess/Evaluate) is larger than the Essential Skill of Finding Information and the associated 4-level complexity scale. Example Finding Information tasks assume or infer that the need for information has been recognized and defined. The example tasks at all levels address locating information. Most examples identify specific or general sources of information. Examples at levels 1 and 2 provided specific sources of the information being sought. At levels 3 and 4, information sources are not as specific, e.g.:

Levels 1 and 2 Identified Sources

tags and identification plates
Electrical Code
blueprints
stickers, labels, assembly drawing
corporate databases
co-workers, brochures

Levels 3 and 4 Identified Sources

different Internet sites
find and download different software
technical bulletin boards
manufacturer representatives
trade publications, best practice guides, Internet
interviews, assessments, observation

Finding Information task examples did not provide enough information to make decisions regarding the IL steps. Tasks from Reading Text, Document Use, Oral Communication and Computer Use, as identified in the FI definition, were reviewed to help support a determination of which IL steps might be identified. Reviewing Writing and the Thinking Skills of Problem Solving, Decision Making and Critical Thinking task examples was also required to provide enough information to determine which IL steps could reasonably be identified. Working With Others was also reviewed. This led to the creation of a second chart to document the levels of these Essential Skills to see whether a pattern was evident. An additional 7 occupations were selected to include in this charting exercise. (See Appendix C)

Interestingly, Writing was not identified as a skill area that may identify the use of information, but in fact provided good insight relative to Organizing and Creating/Sharing information. The summary tables accompanying Writing and Oral Communications, which outline the purpose of the skill application, were especially useful when task examples did not provide significant insight. Note that level 4 Finding Information includes creation of information. Writing also has a direct application to the IL step of “Creating/Sharing”. The Writing example tasks and summary table were very useful to this exercise so the Writing complexity level was included in the ES levels chart.

There are easily identified linkages or “threads” between many task examples in Reading Text, Document Use, Writing, Oral Communications, Numeracy and some Thinking Skills. The linkages between Finding Information and these skills are not always apparent. The Working With Others complexity scale and profile ratings were helpful in providing some insight.

Four of the 6 Information Literacy steps were used in the occupational documentation, i.e., Locate, Select/Process, Organize, Create/Share. (See Appendix B) The determination required reviewing task examples from Finding Information and other profile sections to find information that supported including the IL step. It is difficult to determine from the information in the profiles whether recognition of the need for information is determined by the worker or another individual, such as a supervisor or team lead. Although not identified, the learning to recognize an information need is important in all life contexts - work, society, education and well-being – and is well documented in Information Literacy literature. This speaks to the importance of Information Literacy as a competency to be incorporated into the adult learning environment, and the incorporation of strategies at various complexity levels such as sourcing information from others, from printed text and in using technology.

FI task examples do not include evaluation or assessment of the process, product or result, and evaluation is therefore assumed outside the scope of FI. This step is crucial to identifying successful completion of the information seeking task or the need to revisit the IL process, and important in an educational environment as part of the learning process.

Finding Information is embedded in the process of Information Literacy. The task requirements, based on the occupational Finding Information tasks, are embedded in the steps of Locate, Select/Process, Organize and Create/Share. Recognize/Define and Assess/Evaluate seems to be assumed or provided in Finding Information tasks. It is important, therefore, to ensure that learners are introduced to, understand the importance of and able to develop a level of competency with the Information Literacy stages of Recognize/Define and Assess/Evaluate not explicitly identified in Finding Information tasks in Essential Skills profiles.

The IL/FI research led to questions about the possible relationship between IL/FI and other Essentials Skills as identified in the Finding Information definition (Reading Text, Document Use, Oral Communication and Computer Use). Writing and other Thinking Skills – Problem Solving, Decision Making and Critical Thinking – proved as useful, if not more useful, in viewing FI within the context of Information Literacy, especially in relationship to the IL steps of Organizing and Creating/Sharing. A chart to document these skill levels for the selected occupations and an additional 7 occupations was created anticipating a pattern or correlation between FI and one or more of the other skills reviewed. (See Appendix C) A pattern or relationship between FI and the other skills was not apparent, i.e., FI levels do not predict other Essential Skills levels. However, some noteworthy observations emerged:

1. The Finding Information complexity level identified in various NOC skill level 2 or 3 (NOC B) Essential Skills profiles had little, if any, relationship to the levels identified for Reading Text, Document Use, Writing, Oral Communication, Problem Solving, Decision Making, Critical Thinking or Computer Use. (Fourteen NOC B profiles reviewed.)
2. All profiles reviewed identified Document Use, Writing, Oral Communication, Problem Solving, Decision Making Critical Thinking, Computer Use and Working With Others at level 2 and above. (Working With Others skill level was not originally included in profiles. Five of the 14 occupations do not include a level.) It should be noted that complexity scales for Reading Text, Document Use and Writing are based on a 5-level complexity scale. Oral Communication, Problem Solving, Decision Making, Critical Thinking, Working With Others and Computer Use complexity levels are based on a 4-level scale.
3. Despite the FI level identified in the profile, the level of Reading Text identified is 3 or above. This is the only skill where this is the case for all occupations.
4. Regardless of the Finding Information level identified, other skills used to review FI were at level 2 or above. Seventy-five percent of the skill levels identified are at level 3 or above. (Based on 8 skill areas, not including Finding Information, reviewed – 28 skill levels at level 2 or below, 84 at level 3 or above.)

- Finding Information, Oral Communication and Working With Others linkages in most occupational profiles examined include a focus on internal or external “customer” service activities. These linkages are also suggested in the Australia New Zealand framework documentation:

“Information is often transmitted between people working together. It is natural, therefore, to expect that people will demonstrate their capacity for teamwork by the way they transfer information. Communicating ideas and information is integral to information literacy.”¹²

- Information Literacy is a process which involves stages or steps. It requires the application or bundling of various Essential Skills and their component skills. Below is a chart identifying the importance that postsecondary and apprenticeship faculty place on the nine Essential Skills.¹³ They are the skills (except Numeracy and Continuous Learning) that were reviewed relative to the process of Information Literacy. (The ratings below were averaged based on a 5-point scale.)

FIGURE 3: Essential Skills by Degree of Importance

Postsecondary	Ave.	Apprenticeship	Ave.
Reading Text	4.6	Reading Text	4.9
Writing	4.6	Writing	4.6
Continuous Learning	4.6	Continuous Learning	4.5
Working with Others	4.6	Working with Others	4.4
Thinking Skills	4.6	Thinking Skills	4.4
Document Use	4.3	Document Use	4.3
Numeracy	4.2	Numeracy	4.2
Oral Communications	4.2	Oral Communications	3.9
Computer use	3.6	Computer use	3.8

¹² Australian and New Zealand Institute for Information Literacy. Australian and New Zealand Information Literacy Framework, principles, standards and practice, 2004. Retrieved from <http://www.anziil.org/index.htm>

¹³ College Sector committee. *Successful Transitions...To College Postsecondary and Apprenticeship Programs* (2008). Retrieved from: <http://www.collegeupgradingon.ca/current.htm>

Conclusions

Finding Information is embedded in the Information Literacy process. Information Literacy is a core component of generic skills applied in the context of society, work, well-being and education and plays a central role in lifelong learning in the 21st century. IL is learned and applied at various levels of complexity and utilizes people, print resources and technology to satisfy information needs. Finding Information tasks in Essential Skills profiles are one demonstration of Information Literacy in the context of work.

Reading Text, Document Use, Writing, Oral Communication, Problem Solving, Decision Making, Critical Thinking and Working With Others are also embedded in the Information Literacy process. The review of 14 NOC occupations suggests level 3 Reading Text is required for transition to apprenticeship and postsecondary. This Essential Skill was identified as “most important” in previous CSC research with apprenticeship and postsecondary faculty.

This Information Literacy and Finding Information research was intended to inform the Adult Literacy Curriculum development work by providing an overview of Information Literacy as it applies, primarily, to the goal paths of apprenticeship and postsecondary. However, the application of IL to other life contexts is equally important and relevant to all five goal paths – independence, employment, secondary school credit, apprenticeship and college postsecondary – and is aimed at helping learners use information effectively to accomplish a specific purpose.

Clarifying the role of Information Literacy in the Adult Literacy Curriculum across the 5 goal paths requires consideration of some key questions:

- What kinds of information is it important for learners to be able to deal with? (i.e., facts, concepts, procedures, process, policy; factual, analytical, objective, subjective, primary, secondary, specialized)
- What other skills need to be strengthened to support learner information skills? (e.g., reading, writing, problem solving, finding information, critical evaluation, computer use, etc.)
- What information literacy skills will learners need to transition to the “next step”? (i.e., Recognize/Define, Locate/Find, Select/Process, Organize, Create/Share, Assess/Evaluate)
- Is information literacy a core competency for all goal paths based on the answers to the above questions?

Educational and training institutions from many jurisdictions have integrated information literacy into curriculum and frameworks. The reasons and value are clearly stated by the Partnership for 21st Century Skills in their publication “The Intellectual and Policy Foundations of the 21st Century Skills Framework”:

“Information literacy enables them (learners) to give meaning and value to the facts, figures, messages, and texts that fill our lives. When they know how to access data, they are better able to navigate the vast data ocean that surrounds our world. When they know how to evaluate that data, they can make sense of it, thus turning it into information. And by knowing how to effectively use information, they are able to convert it into useful knowledge. Thus, information literacy has a truly transformative effect, one that makes possible the acquisition of other skills necessary for 21st century life.”

NOC B Occupations by Finding Information Levels

(Duplications have been removed from each subsequent list.)

Finding Information, Level 4 returned 30 profiles, of which 9 are at NOC skill level 2 or 3:

Architectural Technologists and Technicians (2251)
Contractors and Supervisors, Electrical Trades and Telecommunications (7212)
Farm Equipment Mechanics (7312)
Forestry Technologists and Technicians (2223)
Heritage Interpreters (5212)
Industrial Electricians (7242)
Library and Archive Technicians and Assistants (5211)
Supervisors, Motor Transport and Other Ground Transit Operators (7222)
Supervisors, Motor Vehicle Assembling (9221)

Finding Information, Level 3 returned 144 profiles including the 9 above. Sixty-seven profiles at NOC skill level 2 or 3 (not including the 9 identified above) were returned:

Agricultural and Fish Products Inspectors (2222)
Air Pilots, Flight Engineers and Flying Instructors (2271)
Air Traffic Controllers and Related Occupations (2272)
Aquaculture Operators and Managers (8257)
Bookkeepers (1231)
Bricklayers (7281)
Carpenters (7271)
Chemical Technologists and Technicians (2211)
Commercial Divers (7382)
Community and Social Service Workers (4212)
Construction Electricians (7241)
Construction Estimators (2234)
Construction Inspectors (2264)
Contractors and Supervisors of Heavy Construction (7217)
Contractors and Supervisors, Mechanic Trades (7216)

Contractors and Supervisors, Pipefitting Trades (7213)
Customs, Ship and Other Brokers (1236)
Denturists (3221)
Drafting Technologists and Technicians (2253)
Early Childhood Educators and Assistants (4214)
Electronic Service Technicians (2242)
Employment Counsellor (4213)
Engineer Officers, Water Transport (2274)
Executive Assistants (1222)
Firefighters (6262)
First-line supervisors in the seafood industry (9213)
Fishing Vessel Skippers and Fishermen/women (8262)
Gas Fitter (7253)
Geological and Mineral Technologists and Technicians (2212)
Glaziers (7292)
Immigration, Employment Insurance and Revenue Officers (1228)
Industrial Engineering Technicians (2233)
Industrial Engineering and Manufacturing Technologists and Technicians (2233)
Industrial Instrument Mechanics (2243)
Instructors and teachers of persons with disabilities (4215)
Landscape and Horticultural Technicians and Specialists (2225)
Loan Officers (1232)
Machine Fitters (7316)
Mapping and Related Technologists and Technicians (2255)
Medical radiation technologists (3215)
Midwives and Practitioners of Natural Healing (3232)
Opticians (3231)
Other Medical Technologists and Technicians (Except Dental Health) (3219)
Painters and Decorators (7294)
Paramedics (3234)
Police Officers (Except Commissioned) (6261)
Printing Press Operators (7381)
Property Administrators (1224)
Recreation Vehicle Service Technician (7383)
Retail First Level Managers (6211)

Sign Pre-production Technicians (5223)
Special Events Co-ordinators and Special Events Managers (1226)
Sprinkler System Installers (7252)
Stationary Engineers and Auxiliary Equipment Operators (7351)
Supervisors, Machinists and Related Occupations (7211)
Supervisors, Mineral and Metal Processing (9211)
Supervisors, Mining and Quarrying (8221)
Supervisors, Printing and Related Occupations (7218)
Telecommunications Installation and Repair Workers (7246)
Textile Machinery Mechanics and Repairers (7317)
Veterinary and Animal Health Technologists and Technicians (3213)

Finding Information, Level 2 returned 298 profiles. An additional 57 occupations at NOC 2 and 3 not identified in the lists above were identified from this list.

Aircraft Instrument, Electrical and Avionics Mechanics, Technicians and Inspectors (2244)
Apparel Production Supervisors (9225)
Automotive Service Technicians (7321)
Automotive Painters (7322)
Bakers (6252)
Biological Technologists and Technicians (2221)
Butchers, Meat Cutters and fishmongers - Retail and Wholesale (6251)
Cabinet Makers (7272)
Cable Television Service and Maintenance Technicians (7247)
Civil Engineering Technologists and Technicians (2231)
Concrete Finishers (7282)
Contractors and Supervisors, Carpentry Trades (7215)
Contractors and Supervisors, Metal Forming, Shaping and Erecting Trades (7214)
Contractors and Supervisors, Other Construction Trades, Installers, Repairers and Servicers (7219)
Cooks (6242)
Dental Hygienists (3222)
Dental Technologists, Technicians and Laboratory Bench Workers (3223)
Electroencephalographic and Other Diagnostic Technologists, n.e.c. (3218)
Elevator Constructors and Mechanics (7318)
Floor Covering Installers (7295)
Food Service Supervisors (6212)
Hairstylists (6271)
Ironworkers (Generalist) (7264)

Lathers (Interior Systems Mechanics) (7284)
Licensed Practical Nurses (3233)
Machinists (7231)
Mechanical Engineering Technologists and Technicians (2232)
Medical Secretaries (1243)
Metal Fabricators (Fitters) (7263)
Meteorological Technicians (2213)
Mobile Crane Operators (7371)
Motorcycle and Other Related Mechanics (7334)
Non-Destructive Testers and Inspectors (2261)
Other Instructors (4216)
Other Small Engine and Equipment Mechanics (7335)
Other Technical Occupations in Therapy and Assessment (3235)
Plumbers (7251)
Power Systems and Power Station Operators (7352)
Quality Control Technicians (2233)
Railway Traffic Controllers and Marine Traffic Regulators (2275)
Railway and Yard Locomotive Engineers (7361)
Refrigeration and Air Conditioning Mechanics (7313)
Respiratory Therapists (3214)
Retail and Wholesale Buyers (6233)
Roofers (7291)
Secretaries (Except Legal and Medical) (1241)
Sheet Metal Workers (7261)
Steamfitter-Pipefitter (7252)
Supervisors, Furniture and Fixtures Manufacturing (9224)
Tool and Die Makers (7232)
Transport Trailer Technicians (7321)
Truck and Transport Mechanics (7321)
Water Well Drillers (7373)
Welders (7265)
Welders and Related Machine Operators (7265)

Finding Information, Level 1 returned 211 profiles. Two additional occupations at NOC 2 were identified:

Boilermakers (7262)
Tilers (7283)

Appendix B

Finding Information Examples (By Occupation and Level)

Apprenticeship – Industrial Electrician (7242)			
Finding Information Levels 1 – 4 Example Tasks	LBS	Other ES Applied (in addition to FI)	IL
<i>Level 1</i> find motor specifications on tags and identification plates	Read with understanding for various purposes	Document Use	Locate/Find
<i>Level 2</i> consult the Electrical Code to find requirements for non-routine installations	Read with understanding for various purposes	Reading Text Document Us	Locate/Find Select/Process
<i>Level 3</i> when troubleshooting electronic equipment, use different Internet sites to get technical information such as the pin assignments, or "pinouts," for integrated circuit (IC) chips; find and download current software such as "bios upgrades" and "utility programs"; and read technical bulletin boards and FAQ (Frequently Asked Questions) databases. In many cases, the Internet is the only practical and timely source for this information	Read with understanding for various purposes	Reading Text Document Use Problem Solving Decision Making Critical Thinking Computer Use	Locate/Find Select/Process Organize Create/Share
<i>Level 4</i> draw upon information from operation manuals, electrical engineers and manufacturers and then use the gathered information to arrive at a solution to a difficult problem such as installing a new ultrasonic switch	Read with understanding for various purpose	Reading Text Document Use Problem Solving Decision Making Critical Thinking Computer Use Continuous Learning	Locate/Find Select/Process Organize Create/Share

Apprenticeship – Carpenter (7271)			
Finding Information Level 1 – 3 Task Examples	LBS	ES	IL
<i>Level 1</i> example at this level not provided	NA	NA	NA
<i>Level 2</i> refer to blueprints and specifications to obtain detailed project information	Read with understanding for various purposes	Document Use	Locate/Find Select/Process Organize Create/Share
<i>Level 3</i> read installation manuals and, if necessary, phone manufacturer representatives to understand the manufacturers' installation procedures	Read with understanding for various purposes Speak and listen effectively	Reading Text Document Use Oral Communication Problem Solving Decision Making Critical Thinking Continuous Learning	Locate/Find Select/Process Organize Create/Share

Apprenticeship – Automotive Service Technician (7321)			
Finding Information Levels 1 – 2 Example Tasks	LBS	ES	IL
<i>Level 1</i> find information on stickers, labels, assembly drawings and repair manuals to determine proper use, application and installation of parts and supplies	Read with understanding for various purposes	Reading Text Document Use Decision Making	Locate/Find Select/Process
<i>Level 2</i> call technical support lines, provided by automotive dealers and parts suppliers, to answer specific service and repair operations questions	Speak and listen effectively	Oral Communications Problem Solving Decision Making Critical Thinking Continuous Learning	Locate/Find Select/Process Organize Create/Share

Apprenticeship – Automotive Service Technician (7321)			
Finding Information Levels 1 – 2 Example Tasks	LBS	ES	IL
<i>Level 1</i> find information on stickers, labels, assembly drawings and repair manuals to determine proper use, application and installation of parts and supplies	Read with understanding for various purposes	Reading Text Document Use Decision Making	Locate/Find Select/Process
<i>Level 2</i> call technical support lines, provided by automotive dealers and parts suppliers, to answer specific service and repair operations questions	Speak and listen effectively	Oral Communications Problem Solving Decision Making Critical Thinking Continuous Learning	Locate/Find Select/Process Organize Create/Share

Postsecondary – Architectural Technologist and Technician (2251)			
Finding Information Levels 1 – 4 Example Tasks	LBS	ES	IL
<i>Level 1</i> example at this level not provided	N/A	N/A	N/A
<i>Level 2</i> find information about past architectural projects by searching corporate databases	Read with understanding for various purpose	Reading Text Document Use Computer Use	Locate/Find
<i>Level 3</i> find information about the various rules and regulations applying to their projects in building codes, zoning regulations, energy consumption regulations, by-laws and other national, provincial and municipal documents	Read with understanding for various purposes	Reading Text Document Use Decision Making Critical Thinking	Locate/Find Select/Process Organize Create/Share
<i>Level 4</i> find solutions for architectural design problems by searching trade publications, best practice guides and the internet. They need to analyze, synthesize and integrate information from a wide range of sources to develop innovative, environmentally sustainable and cost-effective solutions	Read with understanding for various purposes	Reading Text Document Use Problem Solving Decision Making Critical Thinking Computer Use	Locate/Find Select/Process Organize Create/Share

Postsecondary – Employment Counsellor (4213)			
Finding Information Levels 1 – 3 Example Tasks	LBS	ES	IL
<i>Level 1</i> Example at this level not provided	NA	NA	NA
<i>Level 2</i> find information about programs and services in their communities by speaking to co-workers and colleagues, through reading program brochures and information packages and by conducting research	Read with understanding for various purposes Speak and listen effectively	Reading Text Document Use Oral Communication	Locate/Find Select/Process Organize
<i>Level 3</i> find information about clients. They conduct interviews with clients, review their résumés, give them tests and assessments and observe them during workshops and job placements. They may speak to co-workers and other community and health providers involved with clients		Reading Text Document Use Oral Communications Numeracy Decision Making Critical Thinking	Locate/Find Select/Process Organize Create/Share

Postsecondary – Licensed Practical Nurse (3233)			
Finding Information Levels 1 – 2 Example Tasks	LBS	ES	IL
<i>Level 1</i> question clients and family members about medical conditions	Speak and listen effectively	Document Use Oral Communication	Locate/Find Select/Process Organize Create/Share
<i>Level 2</i> consult references such as the Compendium of Pharmaceutical and Specialties to find information about pharmaceutical products	Read with understanding for various purposes	Reading Text Document Use Critical Thinking	Locate/Find Select/Process

Essential Skills profiles for occupations requiring postsecondary education with Finding Information at level 1 only were not found.

Appendix C

Finding Information and Associated Essential Skills Levels By Occupation

Title	NOC Code	FI	RT	DU	WR	OC	PS	DM	CT	CU	WWO
Industrial Electrician	7242	4	3	4	2	3	3	3	2	3	NA
Carpenter	7271	3	3	4	3	3	3	3	3	1	NA
Automotive Service Technician	7321	2	3	2	3	2	2	2	2	2	2
Tilesetter	7283	1	3	3	3	3	2	3	3	1	NA
Architectural Design Technologist and Technician	2251	4	3	4	4	3	2	3	3	4	3
Employment Counsellor	4213	3	4	3	3	4	3	3	3	3	3
Licensed Practical Nurse	3233	2	3	2	2	3	2	3	3	2	2

An additional 7 occupations were also reviewed for ES levels:

Title	NOC Code	FI	RT	DU	WR	OC	PS	DM	CT	CU	WWO
Retail & Wholesale Buyer	6233	2	3	3	3	2	3	3	3	2	3
Biological Technician & Technologist	2221	1	3	3	2	3	3	2	2	3	2
Paramedic	3234	3	4	4	4	4	4	4	4	2	NA
Early Childhood Educators and Assistants	4214	3	3	2	3	3	3	3	3	2	NA
Mapping and Related Technologist & Technician	2255	3	4	3	3	2	2	3	3	4	2
Community & Social Service Worker	4212	2	3	2	3	3	3	2	2	2	3
Police Officers	6261	3	4	2	3	3	3	2	2	2	4

Glossary

ALC	Adult Literacy Curriculum
AU	Academic Upgrading
CSC	College Sector Committee for Adult Upgrading
ES	Essential Skills
	- FI Finding Information
	- RT Reading Text
	- DU Document Use
	- WR Writing
	- OC Oral Communication
	- PS Problem Solving
	- DM Decision Making
	- CT Critical Thinking
	- CU Computer Use
	- WWO Working With Others
HRSDC	Human Resources and Skills Development Canada
ICT	Information and Computer Technology
IFAP	Information for All Programme
IL	Information Literacy
LBS	Literacy and Basic Skills
NOC	National Occupational Classification
UNESCO	United Nations Educational, Scientific, and Cultural Organization

Appendix E

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