TOWES

ESSENTIAL SKILLS ONLINE: A CONSORTIUM APPROACH

Essential Skills Direct

Project Agreement Number: 5332978

Final Project Pilot Report

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- Northern Alberta Institute of Technology (NAIT) (AB)
- College of New Caledonia (BC)
- Douglas College (BC)
- Workplace Education Manitoba (MB)
- New Brunswick Community College- Saint John Campus (NB)
- Academy Canada- Kenmount Campus (NL)
- College of the North Atlantic – St-John's Campus(NL)
- Nova Scotia Community College (NS)
- Teetl'it Gwich'in Band Council- Fort McPherson (NT)
- Atikokan Adult Literacy Centre (ON)
- Fanshawe College of Applied Art and Technology- Woodstock Campus (ON)
- Georgian College (ON)
- La Cité Collégiale (ON)
- Niagara College (ON)
- TriArch Educational Services (ON)
- Saskatchewan Indian Institute of Technology (SK)

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Bow Valley College also gratefully acknowledges the contribution of the hundreds of individuals who participated in this pilot. It is hoped that they found this experience as valuable as the data they contributed.

Executive Summary

This report provides the results of Bow Valley College's portion of the *Essential Skills Online: A Consortium Approach* project that began in 2008 and which was completed by in partnership with Fanshawe College of Applied Art and Technology and the Canadian Virtual College Consortium (CVCC). The primary objective of the project was to increase the literacy proficiency and remove barriers to employment for a minimum of 240 workers or potential workers in specific sector groups in an accessible, supportive and online learning environment.

The TOWES (Test of Workplace Essential Skills) department at Bow Valley College (BVC) developed a sector-based online curriculum for the Automotive, Entrance into Apprenticeship/Trades, Health and Petroleum (Oil & Gas) sectors to improve the Essential Skills of Reading Text, Document Use and Numeracy. In addition, BVC enhanced an existing learning management system (LMS) that enabled online access to the learning materials. The online curriculum and LMS, Essential Skills Direct (ESD), was field tested in two phases across the country; this report outlines the activities of this pilot project and the results.

The following is a brief look at the project deliverables achieved in this project as outlined in Schedule A of the Project Agreement, as well as a brief look at some of the key findings from the analysis and recommendations.

Deliverables Achieved

- 31 formal consultation sessions were held with sector groups and key project stakeholders in five sector areas. These sessions helped determine the Essential Skills training needs of workers or potential workers in the sector areas which were the focus of the project
- An online curriculum was developed using 14 sector specific theme-based modules containing a total of 40 Activity Sets. The focus of these theme-based modules was to teach strategies and techniques for the Essential Skills domains of Reading Text, Document Use and Numeracy relative to the realistic workplace demands of a particular sector area
- A learning management system, called Essential Skills Direct (ESD), was created to provide online access to and enable user interactivity with the sector-specific learning materials
- Hard copy participant and facilitator resources were developed
- Facilitator training was provided to 16 partner organizations who agreed to pilot ESD
- A national pilot of ESD with 375 individuals, of which 247 participating learners completed both pre- and post-TOWES tests- surpassing the original goal of 240 participants
- Feedback was collected from all of the 25 facilitators involved in the national pilot of ESD
- Feedback was collected from 234 out of 247 participants who completed pre- and post-TOWES tests as part of the national pilot of ESD

- Data analysis of pre and post TOWES test scores, ESD usage and feedback was collected and analysed to evaluate the ESD curriculum
- An external evaluator was hired to review the delivery of the curriculum, examine the ESD tool and related training materials, and evaluate the overall success of the project

Highlights

Several highlights from Phase One and Phase Two of the field test include:

- 69% of participating learners improved their Essential Skill scores between pre-and post-TOWES testing
- On average, ESD increased Reading Text scores 12 points, Document Use scores 10 points and Numeracy scores 12 points. In total, 31% of participating learners increased their Combined Mean scores by 20 points or more
    - In all instances, differences between mean pre-and post-TOWES test scores and levels (i.e., gains) are significant at $p < .001$
- Overall, the percentage of participants at Level 3 or Level 4 in each Essentials Skills domain increased between pre-and post-TOWES tests. The largest increase was in post-TOWES Document Use levels where the percentage of participants at Level 3 increased by 9% over pre-TOWES test levels
- In Phase One of the field test:
    - the percentage of participants at Level 1 in the Document Use domain decreased 8% between pre-and post-TOWES testing sessions
    - the percentage of participants at Level 3 in the Document Use domain increased 5% between pre- and post-TOWES testing sessions
- In Phase Two of the field test:
    - the percentage of participants at Level 4 in the Reading Text domain increased 9% between pre-and post-TOWES testing sessions
    - the percentage of participants at Level 2 in the Document Use domain decreased 8% between pre- and post-TOWES testing sessions
    - the percentage of participants at Level 3 in the Document Use domain increased 13% between pre- and post-TOWES testing sessions
    - the percentage of participants at Level 4 in the Numeracy domain increased 12% between pre- and post-TOWES testing sessions
- Participating learners who spent more than 5 hours completing the ESD curriculum scored higher than those who spent less than 5 hours completing the ESD curriculum
- 77% of participating learners in Phase Two of the field test reported an increased in their self-confidence as independent learners, an increase of 10% from Phase One of the field test
- In all categories surveyed, overall satisfaction increased for the ESD project (learning materials, LMS, pilot delivery, content access medium, etc.) between Phase One and Phase Two of the field test

Recommendations

It is recommended that:

- sector specific Essential Skills training materials be used to achieve the largest amount of learner buy-in, for both the learning materials and the learning process as a whole-specifically when learner groups are connected to a specific industry or occupation
- a "strategies model" that teaches strategies and techniques for applying Essential Skills in practice continue to be used as the foundation for creating meaningful and supportive instructional learning materials in future projects
- a facilitated delivery approach is adopted for all future projects involving online learning materials and web based instruction. A facilitated approach is invaluable for resolving comprehension issues, mitigating simple technological and navigational trouble spots and for re-affirming learner self-confidence
- online learning resources such as ESD continue to be delivered using blended delivery styles, combining online and hard-copy options to deliver the content and to access the learning materials
- instructor training in Essential Skills instruction be incorporated into the training process to ensure all project partners, regardless of their background, are adequately prepared to provide instructional support to the participating learners
- for future projects, the recruitment of pilot partner facilitators be targeted towards instructors with existing sector-based knowledge to facilitate the use of sector-specific learning materials
- additional sector-based content be developed for new sector areas. Additional sector areas of interest may include Mining, Manufacturing, Warehousing and Logistics, Food Handling and Food Processing, or additional Red Seal occupations outside of the building trades area
- for future projects, feedback opportunities for project pilot partners are provided at several pre-determined stages of the pilot activities. Along with establishing constant communication, pre-determined communication opportunities maintained over the duration of pilot activities would allow end users to frequently communicate, in real-time, their perceived utility (or lack thereof) of using a newly created instructional resource and related functional components
- honoraria funds tied to stringent completion requirements are used for recruiting pilot partners and participating learners. In all cases, eligibility for receiving honoraria funds must depend on the completion of all pre-determined components of the field test such as the completion of pre- and post-testing, curriculum completion or evaluation surveys
- the body of research is expanded to investigate the effectiveness of online sector-based instructional resources such as ESD, for improving workplace technical training initiatives at the industry level, particularly within businesses. By investigating the link between how improved Essentials Skills levels are translated into improved training outcomes for the private sector workforce, both governmental and industry stakeholders can begin to evaluate the utility and effectiveness of Essential Skill training for increasing worker and workplace productivity

Project Overview

Background

Like most OECD countries, many Canadian's have low literacy levels that will prevent them from fully participating in the economy and society. Canada's literacy problem is best expressed in the statistics found in the International Adult Literacy Survey and the Adult Literacy and Skills Survey reports.

> *Nationally, 48% of the adult population aged 16 and over…perform below level 3 on the prose and document literacy scales…Level 3 proficiency is considered to be the "desired level" of competence for coping with the increased skill demands of the emerging knowledge and information economy.*[1]

Much has been written about the need for workers who are able to solve problems, respond to change, communicate effectively, work in teams and have a good grasp of the Essential Skills that are most closely tied to adult literacy, Reading text, Document Use and Numeracy.

> *A Statistics Canada study found that a 1% increase in literacy relative to other countries produces a 2.5% increase in the level of labour productivity and a 1.5% increase in output per capita, compared to the other nations. These outcomes are almost three times the returns from investment in machinery and equipment and other physical capital.*[2]

Employers increasingly find that new and incumbent employees lack the skills they need to function productively. More employers are investing in training in an effort to remain competitive and to maintain safety. However, while employers are familiar with providing technical training related to their industry they are much less familiar with and prepared to provide training in literacy and Essential Skills.

> *Employers may not know how to begin addressing literacy issues even if they see value in improving workers' literacy skills….Employers typically need help finding the expertise they need when they need it. Literacy skills development is often a new area of training for them.*[3]

Businesses overwhelmingly reward their employees on the basis of skills and not qualifications. This relationship holds true for all Canadian workers. But many workers are reluctant to engage in Essential Skills training because they do not see a connection between the Essential Skills and the types of activities they complete on the job. By providing more realistic sector-based Essential Skills training, individuals are more likely to participate fully in training activities because they see how their literacy skills will be applied at work. As individuals improve their Reading Text, Document Use and Numeracy skills, they should experience a corresponding increase in their earning potential, their ability to adapt to

[1] Building on Our Competencies: Canadian Results of the International Adult Literacy and Skills Survey 2003, Statistics Canada-Catalogue no. 89-617-XIE

[2] Literacy Matters: A Call for Action, TD Bank Financial Group

[3] Conference Board of Canada All Signs Point to Yes: Literacy's Impact on Workplace Health and Safety

workplace and economic change and their own on-the-job capabilities. By improving access to sector-based Essential Skills training workers will be better prepared for safe and productive work in Canada.

Project Summary

For this project the project team developed and tested an online Essential Skills instructional resource named *Essential Skills Direct (ESD).* The objective of ESD was to increase the Essential Skills levels of disadvantage individuals resulting in improved earning potential and labour market outcomes.

Key Activities

The following activities were carried out during *the Essential Skills Online: A Consortium Approach* project. A timeline of activities is outlined in Table 1.1 below:

- Consult with post secondary institutions, apprenticeship programs, workplace training practitioners, employers, Essential Skills experts, sector council programs and other industry stakeholders to understand the unique set of challenges facing new and incumbent workers
- Review literature and previous research completed in this area. Produce an evaluation report that synthesizes the findings of the stakeholder consultations, literature review and statistical information to guide the development of the online Essential Skills instructional resource
- Examine through an *Integration Plan* how the proposed development of the online Essential Skills instructional resource will influence labour market participation for workers/potential workers in five industry groups. Additional resources such as employment agencies, employment opportunities, labour market information and occupational data were examined for suitability and utility during program development
- Create a brief marketing and communications plan to highlight the intended awareness and activities for the project
- Establish the approach, methodology and training requirements for the development of a sector-based online Essential Skills instructional resource. This involved establishing the types of materials needed, the complexity and format of materials, the navigational elements of the tool, and evaluation and feedback mechanisms.
- Create an interactive online Essential Skills tool using existing and new Essential Skills resources and sector-based materials
- Create a Learning Management System to support and enhance delivery
- Develop support materials, including a learning plan, Facilitator and Learner Guides, informal practice assessments, and supplemental Essential Skills resources
- Conduct a national field-tests to evaluate the effectiveness of *Essential Skills Direct*. Field-test activities involved recruiting project partners, facilitating participant recruitment, developing and delivering facilitator training, completing TOWES testing, delivering ESD, data collection, collecting feedback evaluation survey responses and data analyses
- Complete an external review of the project activities and outcomes

Key Activities - Table 1.1

Year	08		08/09												09/10												10/11									
Month	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J
Planning and Consultation Sessions																																				
Literature Review																																				
Integration Plan																																				
Marketing/Communications Plan																																				
Methodology for tool Development																																				
Tool Development																																				
Learning Management System Development																																				
Field Test																																				
Data Analysis and Reporting																																				

ⓘ *See **Appendix A** for the Project Deliverables Status Report (as outlined in agreement number 5332978-Schedule A)*

Primary Objectives and Results Achieved

The expected outcome of this project was the development of a tool that would effectively raise the Essential Skills levels of a minimum of 50% of participants. In the long-term, skills gains should translate into improved work performance, improved learning capacity, higher productivity and earning potential for those involved in the project.

In addition, the project aimed to increase the knowledge of and capacity for online computer-based learning, self-confidence as an independent learner and a willingness to engage in further informal or formal learning for a minimum of 80% of project participants.

The project aimed to increase the literacy proficiency and remove barriers to employment for a minimum of 240 workers/potential works across the sector groups identified.

The *Primary Project Deliverables, Objectives and Results Achieved- Table 1.2* describes the primary project objectives and deliverables outlined in *Schedule A* of the project agreement. It also identifies the activities undertaken by the project team and compares the expected outcomes relative to the actual results achieved over the course of the project.

Primary Project Deliverables, Objectives and Results Achieved - Table 1.2

(located on next page)

Primary Objective	Key Activity	Activities Undertaken	Expected Outcome	Results Achieved
To increase the literacy proficiency and ability of, or remove barriers to employment for a minimum of 240 workers/potential works in the Sector Groups in three workplace essential skills: reading text, document use and numeracy in an accessible, supportive, online learning environment.	Consult with Sector Groups	Consultation with sector groups and stakeholders from 5 sector areas: Apprenticeship, Automotive, Aviation, Health, and Petroleum. Review of Labour Market Information.	Needs Analysis report	31 formal consultations completed. Needs Analysis and Literature Review Report Completed. Target met.
	Curriculum prototype development	Lesson prototypes created by incorporating consultation session and needs analysis findings into development	2 lesson prototypes	2 prototype lessons created and beta tested in Q6 of the project. Target met.
	Conduct literature review of ES work done in the industries of the target audiences	Primary researcher position filled. Research and review of ES work completed in sector area industries and adult literacy.	Report of Literature Review	Needs Analysis and Literature Review Report Completed. Target met.
	Develop 5 sector specific introductory modules	Introductory themes identified for each sector specific curriculum. Introductory modules combined into sector specific theme-based workbooks. Introductory modules referenced NOC job profiles tasks and industry-relevant workplace scenarios.	5 modules	14 sector specific theme-based modules created: • Automotive (3) • Entrance into Apprenticeship/Trades (4) • Health (4) • Petroleum (Oil & Gas) (3) Target exceeded.
	Adaptation and acquisition of learning resources	24 learning module activities developed. Identified and acquired authentic workplace materials (AWM).	24 modules	40 learning module activities created. Integrated theme-based modules grouped into workbooks for each sector. Target exceeded.
	Adaptation of curriculum. Acquisition of any necessary 3rd party learning resources	Reprint permission obtained for AWM. Learning Management System created. Adaptation of curriculum for use with Adobe™ PDF forms. Skill Builder movies created using Adobe Captivate™. Self-assessments and Answer keys created. Direct access to TOWES Essential Skills Online (ESO) on LMS established. Development of support and learning content for learners and facilitators. Create online feedback evaluation survey	5 intro modules for each of the target sectors	4 industry specific curricula were created: • Automotive • Entrance into Apprenticeship/Trades • Health • Petroleum (Oil & Gas) 4 Integrated theme-based module workbooks answer keys created. 18 Skill Builder movies created for use with all Integrated theme-based module workbooks. 3 self-assessments and answer keys created. 4 Answer keys created Learner and Facilitator Guides created. Learning Plan and ESD profile created.

		tracking and data collection mechanisms using Survey Monkey™.		Participant supporting documentation created. Target met.
	Link all essential skills learning modules to NOC job profiles	Reviewed and referenced current NOC information. Learning modules linked to NOC job profiles. Sector specific curricula reviewed by external reviewer.	Report and Revised Curriculum	Needs Analysis and Literature Review Report Completed. Changes implemented to curriculum. Target met.
	Beta test pilot	Internal testing of LMS occurred for Phase One and Phase Two of the project. External reviewer completed online and paper-based beta test of curricula in Phase Two. Software developer recruited to revise existing LMS used in Phase One field test. LMS revisions completed after Phase One field testing to produce an improved and newly designed LMS.	Test completed	LMS revisions resulted in a robust tool capable of all desired functionality and user-friendly for learners and facilitators. LMS user-interface improved to allow superior navigation of learning and support components during field test in Phase Two. Target met.
	Run the field test, instructors with pre-test, train, and post-test 240 learners integrating adaptive technologies	Field test conducted in two phases: Phase One-January to May 2010, Phase Two- August to December 2010. Pre and post-TOWES testing completed. Feedback Evaluation Surveys completed.	Online course with real learners	247 learners completed all components of field test. Target exceeded.
	Collect and analyze field test data	Field test data collected through TOWES database, LMS database and manual tracking spreadsheets. Feedback evaluation survey data collected through Survey Monkey™ database. Provide field test pre and post-TOWES data to psychometric expert Provide feedback evaluation survey data to external reviewer.	Data sets Minimum of 50% of participating learners demonstrate improved scores in Reading Text, Document Use and Numeracy Minimum of 80% of participating learners will report increased knowledge of, and confidence in computer-based learning	3 data sets produced for all field test participants who completed pre and post-TOWES testing. 2 data sets produced for feedback evaluation survey data. 234 learners and 25 facilitators completed feedback evaluation surveys. Target met. Overall, 69% of participants demonstrated increased scores for Reading Text, Document Use and Numeracy. Target exceeded.

			Minimum of 80% of participating learners will report increased self-confidence as independent learners A minimum of 80% of participating learners will qualify or demonstrate a willingness to engage in further informal or formal learning.	56% of learners in Phase One and 63% of learners in Phase Two reported increased knowledge of and confidence in computer-base learning. Target not met 67% of learners in Phase One and 77% of learners in Phase Two reported increased self-confidence as independent learners Target not met 60% of learners in Phase One and 66% of learners in Phase Two reported gaining an understanding about other learning opportunities Target not met
	Prepare test pilot report	Test pilot report written Field test data collected, analyzed and separated from analysis for reporting	Pilot report	Pilot report included in final project report. Target met.
	External review and report	Recruit external reviewer. Identify key measures. Compile project information.	Report	External review report completed. Target met.
	Prepare project final report	Compile final project report with findings, recommendations and next steps.	Final project report	Final project report completed. Target met.
To create sustainable capacity with facilitators/instructors with the Sector Group communities of practice to deliver informal literacy programming in essential skills via Internet and assistive technologies and develop best practices to improve completion rates and workplace success.	Recruit partners and instructors	Request for Partners (RFP) letter issued on TOWES website and through TOWES contact & mailing lists. TOWES blog used to invite RFP submission in Phase Two.	Letters of participation	Letters of participation issued. Letter of Intent submitted, reviewed and accepted. Partner organisation acceptance letters issued. Pilot partner contracts established and completed. Target met.
	Support pilot partners in recruiting learners	Participant Selection Guide created to facilitate partner recruitment.	Recruit 240 learners	375 learners recruited to participate in Field test. 375 learners wrote pre-TOWES test.

		Honoraria issued to improve learner recruitment. Honoraria eligibility dependent on completion of field test components.		247 learners wrote post-TOWES test. Honoraria distributed to eligible partner organisations for reimbursement to recruited learners. Target exceeded.
	Plan and prepare training session materials	Development of supporting and learning content for learners and facilitators. Create facilitator training materials. Create and record online training movie tutorials.	Training plan	Training Plan completed and materials created. Facilitator Guide completed. Facilitator Guide and Learner Guide updated for Phase Two field test specifications. Facilitator training movies created in Phase Two. Target met.
	Train instructors to facilitate the online instruction for the adapted tool	Deliver over-the-phone, on-site and online training sessions for using curriculum content. Publish online training movie tutorials.	Training sessions delivered	Essential Skills training developed with 16 field test partners. 4 over-the-phone training sessions delivered. 1 on-site training session delivered. 11 online training sessions delivered. 6 TOWES Test Administration certification examinations completed and new certifications issued. Target met.

ⓘ *See **Appendix B** for the Needs Analysis and Literature Review Report*

ⓘ *See **Appendix C** for the Integration Plan*

ⓘ *See **Appendix D** for the Training Plan facilitator training presentation materials*

National Pilot Project Overview

The pilot of the Essential Skills Direct (ESD) curriculum began in January 2010 and concluded at the end of December 2010. The pilot involved two phases of activity. Phase One took place from January 2010 to May 2010; Phase Two took place from August 2010 to December 2010. During the two phases of the pilot, 375 Canadians from 16 different Organizations across Canada were involved in the pilot project.

The 16 Project Partners included:

- Northern Alberta Institute of Technology (NAIT) (AB)
- College of New Caledonia (BC)
- Douglas College (BC)
- Workplace Education Manitoba (MB)
- New Brunswick Community College- Saint John Campus (NB)
- Academy Canada- Kenmount Campus (NL)
- College of the North Atlantic – St-John's Campus (NL)
- Nova Scotia Community College (NS)
- Teetl'it Gwich'in Band Council- Fort McPherson (NT)
- Atikokan Adult Literacy Centre (ON)
- Fanshawe College of Applied Art and Technology- Woodstock Campus (ON)
- Georgian College (ON)
- La Cité Collégiale (ON)
- Niagara College (ON)
- TriArch Educational Services (ON)
- Saskatchewan Indian Institute of Technology (SK)

ⓘ *See **Appendix E** for the ESD Partner Summaries*

ESD Pilot Activities

The main activities of the national pilot project included:

- ***Partner Selection*** – Partner selection was completed by posting a *Request for Partners* notice on the TOWES and CVCC's project websites and sending the announcement out through the TOWES contact list. Organizations applied to participate in the project and most of the applicants who met the partner criteria were accepted as participants. Partners accepted to the project received a *Partner Confirmation Letter* and *Partner Initiation Package* containing information about project deliverables, timing of project activities, partner roles and responsibilities. The *Partner Initiation Package* also contained a partner contract confirming the proposed schedule of activities at each individual pilot site.

To encourage partner commitment, the project team used an honoraria system during the partner recruitment and selection process. The honorarium amount of $200.00 was selected on a per learner recruited basis. Partners were eligible to receive the honorarium amount providing they were able to recruit participants and ensure recruited participants completed all components of the ESD pilot field test.

ⓘ *See **Appendix F** for ESD partner recruitment documentation*

- ***Facilitator Training*** – The project team conducted a series of training sessions with project partner facilitators over the phone, in-person or using web based instructional movies. A comprehensive overview of the facilitator training is found in the *Content and Curriculum Overview* section of this report.

- ***Participant Recruitment*** - Project Partners recruited learners to participate in the pilot. Participation was voluntary and participants were selected by each project partner. Participants completed consent to participate in research forms indicating their participation. TOWES provided support materials to assist with the recruitment, selection and tracking of participants. To encourage participant recruitment, partner organizations were encouraged to supply on a per learner basis a minimum of $50.00 dollars of their total honoraria amount directly to participants.

ⓘ *See **Appendix G – ESD Facilitator Resources** for associated facilitator documentation*

- ***Pre-TOWES Testing*** - All participants were required to complete a TOWES assessment prior to beginning the ESD curriculum.

- ***ESD Curriculum trial*** - Participants were provided with the opportunity to try out all aspects of the curriculum. The delivery and scope of piloting activities varied significantly between each group of participants (for example, some participants worked through ESD on their own time, while some used ESD as part of an existing classroom-based program). At the onset of the project, participants were asked to spend a minimum of 10 hours working through the curriculum; however, few participants adhered to these requirements, either going above or below the recommended hours of work. TOWES provided an *ESD Participant Project Guide* information package, a participant *ESD Profile* containing a learning plan and an *ESD Learner Guide* to each participant. Facilitators were asked to complete the learning plan section of the *ESD Profile* with their learners prior to using ESD.

ⓘ *See **Appendix H-ESD Introductory Content Materials** for the ESD Participant Project Guide and ESD Profile and **Appendix I-ESD User Guides** for the ESD Learner Guide*

- ***Post-TOWES Testing*** - All participants were required to complete a TOWES assessment when they had finished using ESD.

- ***Feedback Surveys*** - Both participants & facilitators were asked to provide feedback to the project team in both phases of the pilot activities. Surveys in Phase One were completed using a paper based format while surveys in Phase Two were completed online through Survey Monkey™. Facilitators also completed a formal feedback survey; however, informal facilitator feedback was gathered throughout the pilot by the project team.

ⓘ *See **Appendix J** for Facilitator and Participant and Feedback Evaluation Survey materials*

Methodology Overview

The purpose of the project was to evaluate the effectiveness of online learning for improving Essential Skills in three domains: Reading Text, Document Use and Numeracy. To measure the effectiveness of the Essential Skills Direct (ESD) curriculum, a field test was conducted in which:

- ✓ Pilot sites were established with partners across Canada
- ✓ Pilot partners recruited participants to complete the ESD curriculum
- ✓ Pilot -participants wrote pre-and post-TOWES tests
- ✓ Pilot participants and project facilitators completed feedback evaluation surveys
- ✓ TOWES scores were collected for analysis to determine the effectiveness of ESD for improving Essential Skills
- ✓ Feedback evaluation surveys responses were collected and reviewed to evaluate the ESD curriculum and evaluate the success of the project

The following section outlines the methodology used by the project team over the course of the project.

TOWES

Test of Workplace Essential Skills (TOWES) gain scores were collected for analysis. Each participant was given a TOWES test prior to beginning the ESD curriculum, and a TOWES test following completion of the ESD curriculum.

TOWES is a competency-based test that uses problem sets and authentic workplace documents to assess Essential Skills proficiencies in three domains: Reading Text, Document Use, and Numeracy.

***Reading Text (Prose Literacy)* -** includes prose based information such as notes, letters, memos, manuals, specifications, regulations, reports and journals. This includes forms and labels, print and non-print media (for example, text on a computer screen), and paragraph-length text found in charts, tables and graphs.

Document Use (Document Literacy) – includes data presented in lists and tables and in visual displays such as icons, scale drawings, maps and schematics. This includes all materials in which words, numbers, icons and other visual characteristics (lines, colours and shapes) are organized within tables and lists or given meaning by their spatial arrangements.

Numeracy (Quantitative Literacy) - includes numerical information and calculations involving money math, scheduling, budgeting and accounting math, measurement and calculation, data analysis and numerical estimation.

The TOWES **General Series Level 2** test was used for this project in a paper and pencil format. This particular series assess skill levels 1 – 4, but most accurately measures skill levels 2 and 3 (standard error 0.04 or less). The test does not assess skills above level 4 and only provides an estimate of skill at this level. The paper test contains 18 problem sets with a total of 74 questions. Each question requires the test taker to assume the role of a worker in various occupational settings common to the workplace.

TOWES is a preferred measure of workplace literacy skills when compared with conventional assessments because:

- ✓ Standardized achievement tests tend to be created for children in school, not adults.
- ✓ School-based tests look backward to the academic curriculum and miss workplace topics.
- ✓ Adult tests of basic skills generally reflect a community rather than a workplace-based context.
- ✓ Workplace tasks are not benchmarked to grade level equivalents.

TOWES Scoring

TOWES scores are generated using Item Response Theory (IRT) often called Latent Trait methodology. Item Response Theory is a beneficial model to use in the analysis of projects such as Essential Skills Direct because:

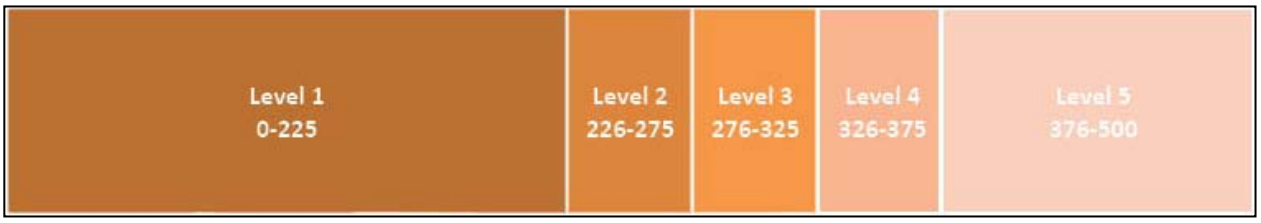
- ✓ IRT measures discrete underlying traits that are difficult to observe (in the case of this project, Reading Text, Document Use and Numeracy skills).
- ✓ IRT measures patterns of responses over a series of items. A test taker's proficiency is established by their ability to perform consistently over a number of test items. As a result, scores are independent of the measurement instrument used (as long as the underlying scale is the same - like with TOWES). In the case of TOWES an 80% proficiency model is used, meaning a test taker is considered proficient at a given level when they are able to demonstrate consistency (80% or higher) at performing tasks at that level.
- ✓ The IRT model assumes that an individual's proficiency (skill) level measured remains consistent over time unless other factors intervene to cause changes (i.e. training intervention, skill loss over time due to lack of use). For example, an individual's reading level should remain consistent unless they take action to acquire additional skills or have lost their reading skills.
- ✓ IRT analysis can determine how other variables (such as age, gender, years of education, etc.) influence proficiency scores.

In addition, the International Adult Literacy Survey (IALS) uses the same IRT scoring model and measurement framework as TOWES, so generalizations may be made about Essential Skills Direct project findings in relation to IALS research results. In other words, the two measurement scales and research findings based on these scales are directly comparable.

ⓘ *See **Appendix K** for the Complexity Levels Explained document*

The International Adult Literacy Survey Measurement Scale

Essential Skills test results report on both the IALS (International Adult Literacy Survey)[4] 500-point scale and the ESRP (Essential Skills Research Project)[5] 5-Level scale used for occupational profiles developed by HRSDC (Human Resources and Skills Development Canada). On the IALS 500-point scale, complexity is measured 0 to 500, with 500 being most complex. On the ESRP 5-level scale, complexity is measured from 1 to 5 with 5 being most complex. The relationship between both scales is presented below.



A test taker is assigned a score at a given level when they can demonstrate an 80 percent (or higher) proficiency at completing questions at a given level. In other words, an individual will be classified at level 3 if they demonstrate an 80 percent (or higher) pass rate on questions rated at level 3. The 80 percent pass rate was selected as the required proficiency level because an 80 percent proficiency level was the standard established by IALS, and most workplaces require a similar standard of proficiency.

TOWES test results are standardized. As such, the following assumptions can be made about scores:

- ✓ Individuals with scores at level 4 can accurately complete TOWES questions rated at level 1, 2, 3, and 4, at the required proficiency rate of 80 percent or higher.
- ✓ Individuals with scores at level 3 can accurately complete TOWES questions rated at Level 1, 2, and 3, at the required proficiency rate of 80 percent or higher. They may be able to complete questions with complexities rated at 4 or higher, however not at the required 80 percent proficiency rate. This pattern repeats at level 2 and level 1.

[4] Statistics Canada. (2003). Building on our Competencies: Canadian Results of the International Adult Literacy and Skills Survey (Catalogue no. 89-617-XIE). Ottawa, Ontario: Canada.

[5] Human Resources & Social Development Canada (2007). Essential Skills Research Project. Retrieved May 30, 2008, from: http://www.hrsdc.gc.ca/en/workplaceskills/publications/essential_skills/esrpfc.shtml

TOWES Testing & Data Collection

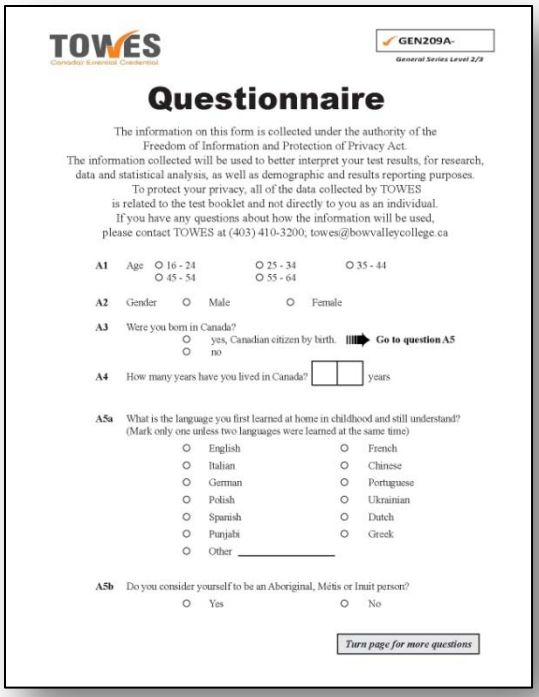
TOWES Test Administration

As TOWES is a formal invigilated standardized assessment, it is important that the proper test administration procedures and protocols are followed. Only certified TOWES Test Administrators may invigilate the assessment. This ensures all test takers across the country receive the same quality of testing instruction and that fair and equitable testing practices are maintained at all times. As many of the project partner organizations were TOWES Distributors, most staff involved in this project had previously been certified as trained TOWES test administrators. Staff from non-TOWES distributor organizations received Test Administrator Certification training as part of the preparation process.

Demographics

TOWES test takers complete a demographic survey located at the beginning of each test booklet. The demographic survey is identical to the IALS demographic survey. Participants are encouraged to respond to each questionnaire item as accurately as possible, with the understanding that data collected is for research purposes only and will never be directly associated to them. Information collected remains confidential and may only be accessed by TOWES. Completing the TOWES questionnaire is not mandatory for participants to receive test results.

ⓘ *See **Appendix L** to view the TOWES Questionnaire*



TOWES

GEN209A-
General Series Level 2/3

Questionnaire

The information on this form is collected under the authority of the Freedom of Information and Protection of Privacy Act. The information collected will be used to better interpret your test results, for research, data and statistical analysis, as well as demographic and results reporting purposes. To protect your privacy, all of the data collected by TOWES is related to the test booklet and not directly to you as an individual. If you have any questions about how the information will be used, please contact TOWES at (403) 410-3200; towes@bowvalleycollege.ca

A1 Age ○ 16 - 24 ○ 25 - 34 ○ 35 - 44 ○ 45 - 54 ○ 55 - 64

A2 Gender ○ Male ○ Female

A3 Were you born in Canada?
○ yes, Canadian citizen by birth. ➡ **Go to question A5**
○ no

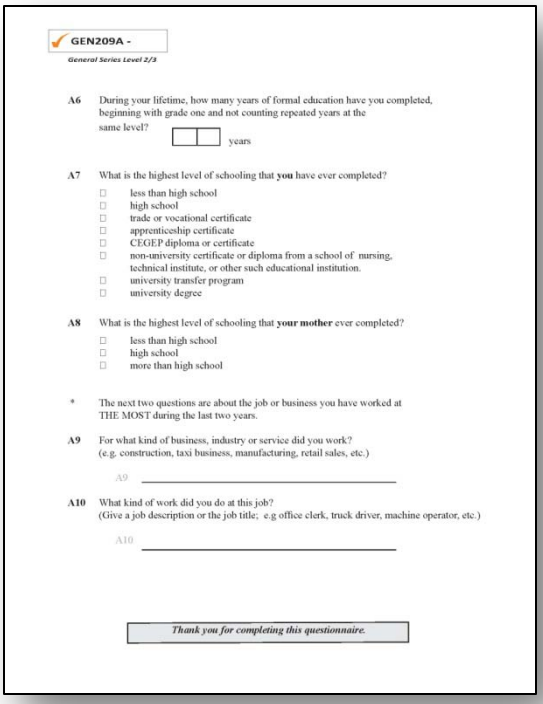
A4 How many years have you lived in Canada? ☐☐ years

A5a What is the language you first learned at home in childhood and still understand? (Mark only one unless two languages were learned at the same time)

○ English	○ French
○ Italian	○ Chinese
○ German	○ Portuguese
○ Polish	○ Ukrainian
○ Spanish	○ Dutch
○ Punjabi	○ Greek
○ Other _____	

A5b Do you consider yourself to be an Aboriginal, Métis or Inuit person?
○ Yes ○ No

Turn page for more questions



GEN209A -
General Series Level 2/3

A6 During your lifetime, how many years of formal education have you completed, beginning with grade one and not counting repeated years at the same level? ☐☐ years

A7 What is the highest level of schooling that **you** have ever completed?
- ☐ less than high school
- ☐ high school
- ☐ trade or vocational certificate
- ☐ apprenticeship certificate
- ☐ CEGEP diploma or certificate
- ☐ non-university certificate or diploma from a school of nursing, technical institute, or other such educational institution.
- ☐ university transfer program
- ☐ university degree

A8 What is the highest level of schooling that **your mother** ever completed?
- ☐ less than high school
- ☐ high school
- ☐ more than high school

* The next two questions are about the job or business you have worked at THE MOST during the last two years.

A9 For what kind of business, industry or service did you work? (e.g. construction, taxi business, manufacturing, retail sales, etc.)

A9 _____

A10 What kind of work did you do at this job? (Give a job description or the job title; e.g office clerk, truck driver, machine operator, etc.)

A10 _____

Thank you for completing this questionnaire.

Test Results

TOWES test results for each participant were compiled in association with the collected demographics. This enables TOWES to look for common themes and trends among the entire participant group as well as select population groups. Demographic information along with the corresponding test results and are not distributed individually, but as a group, to ensure results and personal information remains anonymous.

For data analysis purposes, the project team attempted to have all participants write a G2 Series TOWES test (Level 2 and Level 3) for consistency and comparison of results. However, some of the partners chose to pilot ESD in existing programs which already had a specific TOWES test allotted to the participants (based on individual program or occupational requirements for example). Therefore, some participants wrote a G3 series TOWES test (Level 3 and Level 4) depending on the type of program they were enrolled in. However, the underlying measurement scale is consistent on all versions of TOWES, so research findings will not be influenced by the version of TOWES completed.

Sample Size Limitations

Many researchers strive for sufficient sample sizes to result in confidence levels of 95% and margins of error of +/-5%. These parameters ensure significant results can be used to generalize to the population and to make data driven decisions and recommendations. Confidence levels and margins of error are largely dictated by sample sizes which include the overall size of the population and the size of the sample population.

The Essential Skills Direct project had a target sample population of 240 participants - a number far too small to make generalizations based on the findings.

However, the goal of the ESD analysis is to begin to determine the effectiveness of the online tool and to gather an indication of user patterns. As such, the sample size was sufficient for this purpose.

Participant Tracking

A Learning Management System (LMS) was built into the Essential Skills Direct tool to facilitate the tracking of user data. The learning management system was designed to incorporate some user tracking features. Users were tracked within the LMS by their *ESD User ID* – unique identifiers assigned to each participant. These ESD identifiers were also associated with assigned Participant and Facilitator feedback evaluation survey identifiers. The tracked LMS data paired with the qualitative data collected in the Participant and Facilitator feedback evaluation surveys provided the project team with a reasonable representation of how the tool was used by each participant.

LMS Limitations

The refinement of the ESD LMS provided Phase II participants with a much enhanced experience when compared with the experience of Phase I participants. The data collected in each phase was incomparable due to functional limitations of learner access in Phase One and the blended nature of curriculum access in Phase Two. The improved tool available to participants in Phase II of this pilot, gave participants the flexibility of completing all, none, or any combination of components online and/ or offline.

Because each participant took advantage of this capability in the way that was most suitable to their individual needs, the frequency and duration the learner is recorded as logged into the tool is not representative of the amount of time spent on the curriculum. This was also encountered when tracking time spent on the sector specific workbooks which were completed offline.

However, to achieve a measure of time spent on the curriculum, the project team used the *Estimated time spent on ESD* results collected within the Participant evaluation survey. While the *Estimated time spent on ESD* survey results represented a range of time spent by the participants, it was provided directly by the participants themselves and as a result, was viewed to be the most realistic and reflective measure of time spent by participants on the ESD curriculum. When correlated to TOWES scores data, the project team could use the *Estimated time spent on ESD* survey results to determine if any relationship exists between time spent on the ESD curriculum and an individual's level of Essential Skills proficiency.

Tool Development

During the development phase of the ESD tool, necessary technical and practical changes occurred on an ongoing basis that were intended to improve both the curriculum and the learning management system.

The Learning Content Development Model

The following development model was used to create learning content for Essential Skills Direct:

i. Primary Research and Needs Analysis

To confirm which sectors would be selected for inclusion in this project a needs analysis and literature review were undertaken examining the Canadian labour market. Based on the research findings, five industry sectors were chosen which were deemed likely to have ongoing labour supply shortages and substantive technical changes within their existing occupations-changes that would likely necessitate Essential Skills training.

The chosen sectors include:

- ✓ Automotive
- ✓ Aviation*
- ✓ Entrance into Apprenticeship/ Trades
- ✓ Health
- ✓ Petroleum (Oil & Gas)

ii. Collection of Authentic Workplace Materials

Authentic workplace documents were collected and reviewed for use as source materials when beginning the development of sector specific content. The revisions included workplace documents previously collected and maintained in the project team's archives, new documents collected through consultation sessions with industry stakeholders and documents identified by sector groups, employers and educators as being useful towards the creation of relevant learning materials or which were representative of actual workplace scenarios.

The authentic workplace materials collected and reviewed by the project team also served as models for generic versions of these documents integrated within the learning materials.

*****_Although originally identified as a sector in need of workforce Essential Skills training, the very nature of the Aviation industry made it difficult to meet this need. The aviation industry by nature is risk-averse and very proprietary, particularly with documents regarding specific policies and procedures. The project team was unable to source enough documents to create sufficient materials for an aviation-focused module. Although materials were developed based on some very generic aviation documents, the scope of what was needed to develop all the activities required to thoroughly teach Essential Skills was not attainable._

iii. Delivery Approach

A learning management system for *Essential Skills Direct (ESD)* was created to host sector- specific learning materials. This system integrated emerging technologies with certain valuable components of *TOWES Essential Skills Online (ESO)* tool to create an enhanced tool that offered delivery options not possible with traditional paper-based resources.

The ability to complete the learning materials in either online or paper-based format was incorporated with flexibility in mind. The dual delivery approach allowed learners to access ESD learning material online wherever an internet connection is available or complete ESD learning materials offline when an internet connection is not available. The dual delivery approach was ideal for learners who were not comfortable working in an online environment or for learners completing Essential Skills training in remote locations.

The flexible system design offered facilitators many options for incorporating the materials into existing training programs and allowed for a blended delivery model. Comprehensive support components are

useful for learners taking a more self-directed approach and for employers and workers who wanted to use it in a workplace setting.

The Learning Material Development Model

The following development model was used to create the learning material components of Essential Skills Direct:

i. Overall Content Development

As in typical workplace situations, Essential Skills are not applied in isolation; rather, key components of Reading Text, Document Use and Numeracy skills may be incorporated to successfully complete a workplace task. Using this methodology, learners completing ESD are given the opportunity to assume the role of a Canadian worker who must use a combination of skills to complete realistic workplace tasks. It was anticipated that by increasing user buy-in towards the learning material content, learners who were less inclined to participate in traditional learning models would find relevancy and meaning in the ESD learning material. It was also anticipated that this type of content development would lead learners to completing a substantial amount of the available learning material, resulting in improved levels of Essential Skills.

ii. Learning Plan (ESD profile)

The learning plan document was originally designed to provide learners with important labour market information from their chosen sector and recommend useful learning components to complete within ESD.

The Learning plan was originally envisioned to auto-populate with information such as:

- ✓ Occupational information
- ✓ Profiles/ NOC data
- ✓ Job Futures
- ✓ Sector Information

This information would auto-populate based on personal information collected from the learner through:

- ✓ Demographic information
- ✓ TOWES test scores
- ✓ Chosen occupation(s)
- ✓ Work experience
- ✓ Occupational requirements (i.e. the occupation's certification requirements, employment trends, employment industries)

- ✓ How much time learners anticipated completing course materials (i.e. 2 hours, 5 hours)
- ✓ Learner goals (i.e. improving their understanding of Essential Skills, additional practice, skills improvement)

The adjustments to this component resulted in a learning plan that is completed by the learner with or without input from the facilitator. The information originally intended to auto-populate is provided instead in the form of external resources by facilitators. These external resources are web links to documents and websites that facilitators may access or share with their learners through the learning management system.

By no longer auto-populating recommended ESD content, facilitators were encouraged to review learner pre-test TOWES scores and suggest ESD components to learners based on those scores. A mandatory learner survey was used to provide information on how much time a learner intends to dedicate to the learning materials. This additional information helps to inform the design of the learning plan by or with the facilitator. This learning plan is available in both a digital and a paper-based format and was renamed the *ESD Profile*.

iii. Introduction and Learning Objectives module

The Introduction and Learning Objectives module was originally designed to provide a 10-15 minute sector-specific introduction to the learner and identify learning objectives and learning outcomes related to specific integrated theme-based module workbooks.

Adjustments to this component resulted in associating specific elements of the learning objectives directly within integrated them-based workbooks rather than a standalone module. Sector specific introductory overviews at the beginning of each workbook provided a context for the learning activities to follow and inform the learner about the importance of developing the associated skills identified within the workbooks.

iv. Integrated Theme-based modules

Integrated theme-based modules were originally designed as paper-based only documents that taught Essential Skills in the context of sector specific workplace themes. The integrated theme-based modules were intended to serve as the basis of the ESD learning components.

Due to emerging technologies, it was possible to design the integrated theme-based modules identically for either digital or paper-based delivery. The adjustments resulted in learner flexibility when completing their work. User could now use the digital format through the learning management system or use a printable version of digital format offline once downloaded from the learning management system.

v. Skill Builder modules

Skill Builder modules were originally designed to be short, interactive web-based movies using Adobe Captivate®. Skill Builder movies would offer instruction on specific strategies and techniques, and provide targeted practice opportunities for applying or improving specific components of Essential Skills. The Skill Builder modules followed their original conception throughout the learning material development phase.

vi. Self-Assessment modules

Self-Assessment modules were originally designed as supplementary workbooks that would provide additional practice and informal assessment opportunities for learners. Self-Assessment modules were used primarily to verify whether the concepts introduced within the integrated theme-based workbooks were understood. The Self-Assessment modules followed their original conception throughout the learning material development phase.

Data Analysis

Data Analysis

The goal of the Essential Skills Direct project was to collect and analyze pre-and post- test TOWES scores for 240 participants who completed both TOWES tests and the ESD curriculum. The data was collected and compiled by the project team. The data was analyzed using the SPSS program (version 19) for all analyses. The analyses were performed by an independent psychometric analysis expert, Theresa J.B. Kline, Ph.D., Department of Psychology, University of Calgary.

The project pilot activities were completed in two phases. Subsequently, the data was analyzed separately in three sets to ensure that the analyses could accurately reflect the effectiveness of the ESD intervention. The first analysis included data from all project participants who completed the pre-TOWES test, the ESD curriculum and post-TOWES test. A second analysis was carried out using data from project participants in Phase One and a third analysis was carried out using data from project participants in Phase Two.

Of the 247 participants in the data sets, five participants had outlying negative gains scores on one or more of the three Essential Skills domain scales. Therefore, they were deleted, leaving 242 cases to be subjected to analyses.[6]

[6] Page 2, OLT-data analyses and results (All Cases), December 27, 2010. Dr. Theresa J.B. Kline, University of Calgary

The analysis of field test participant descriptive data and TOWES test scores in this report analyzes the data only from those 242 participants. For all analyses, results are reported only where significant relationship were determined.

Data collected for the project includes:

- ✓ TOWES pre-test scores
- ✓ TOWES post-test scores
- ✓ Demographic information (gathered during TOWES testing)
- ✓ Facilitator Feedback Evaluation Survey results
- ✓ Participant Feedback Evaluation Survey results

*ⓘ See the **Findings** section of this report for project data analyses findings and **Appendix M** for the OLT Data Analyses and Results Reports prepared by Theresa J.B. Kline, Ph. D, Department of Psychology, University of Calgary*

External Evaluation

An evaluation of the project was conducted by an independent external evaluator and a report was produced outlining the external evaluation findings. The external evaluation consisted of an evaluation of the project deliverables as outlined in Schedule A of the project contribution agreement. It also included an analysis and evaluation of the Feedback Evaluation Survey responses collected from project facilitators and participants over both phases of the field test. Highlights of the Evaluation Report are presented in the *Findings* section of this report.

The external evaluation was conducted by *Barrington Research Group, Inc.*, an independent external evaluator located in Calgary, AB.

Feedback Evaluation Surveys

Formal feedback evaluation surveys were sent to the facilitators and participants involved in the project. Evaluations were given to each project partner to distribute to all the facilitators and participants involved in the project. The evaluations allowed the project team to receive a first-hand look at how the curriculum did or did not work for the facilitators and participants. The evaluations were collected in paper format in Phase One and using an online third party survey collection service in Phase Two .The survey results were analyzed separately for this report due to the widely differing nature of the Phase One and Phase Two pilots.

In both pilot phases:

- ✓ Facilitator feedback evaluation surveys were designed to gain a profile of the participants involved, the program piloting ESD, and how it was facilitated. Facilitators were also asked to comment on the content, instructional strategies, navigational and technical aspects of ESD.
- ✓ Participant feedback evaluation surveys were designed to get a first-hand idea of how ESD worked for the users. Participants rated all aspects of the curriculum including the content, instructional strategies, navigational elements and technical aspects.

ⓘ *See **Appendix N** for the Essential Skills Online: A Consortium Approach Evaluation Report prepared by Barrington Research Group, Inc. of Calgary, Alberta.*

ⓘ *See **Appendix J** for both the Facilitator and Participant Feedback Evaluation Survey materials*

Content and Curriculum Overview

The following section provides an overview of the content and sector-based curriculum developed for the Essential Skills Direct project.

Introductory content

i. Essential Skills Direct login survey (online)

At the time of first login, participants were required to complete a login survey prior to accessing any of the ESD learning or support components. The login survey collected baseline information from the participant regarding their chosen sector of interest. Information collected included the participant's current occupation within the sector, years of experience within the current occupation, knowledge of the occupational certification and re-certification requirements, and employment trends and industry outlooks for the chosen sector. The login survey also collected information related to the participant's intended time commitment and overall learning goals while working through ESD.

ii. Essential Skills Direct Profile (online with hard-copy option)

The *Essential Skills Direct Profile* was designed to support each project participant in their learning. The ESD profile contained sector-based occupational information about Essential Skills and was used to establish a learning plan.

The ESD Profile was designed to be user specific and was completed by the learner with guidance from their facilitator. The ESD profile provides general information on Essential Skills requirements related to a participant's chosen occupation. Occupation specific Essential Skills requirements are identified to improve participant knowledge of occupational requirements. The ESD Profile also includes an initial TOWES skill gap analysis where the participant's TOWES test scores are compared to the scores required for a specific occupation.

The ESD Profile features a learning plan section designed to help participants identify personal areas of skill improvement and guide their navigation through the curriculum. The goal was to make the learning plans flexible, customizable, and meaningful to learners and their specific learning environment.

ii. Essential Skills Direct Profile - Facilitator Functionality

To create an individualized learning plan, facilitators worked in partnership with their participants. Facilitator functionality included the ability to provide participants with web links to external resources on such topics such as employment trends, job searching and industry or occupational awareness. Additional features included the ability to assign or un-assign specific learning components depending on participant learning plans or individual needs, and the ability to review workbooks completed by individual participants.

iii. Essential Skills Direct Participant Project Guide (online with hard-copy option)

The *Essential Skills Direct Participant Project Guide* was created to help participants clearly understand their involvement with the OLT project. The ESD Participant Project Guide provided specific information to the participants regarding the different components of their involvement. The *Essential Skills Direct Participant Project Guide* included information on pre-and post-TOWES testing, the trial of the ESD curriculum and LMS, and their feedback evaluation. Explanations about the purpose of the field test and the confidentiality of participant information was also included.

A *Participant Checklist* was embedded within the *Participant Project Guide* to help participants keep track of their ESD login information and ensure they were on-track to complete all components of the field test activities. The participant checklist, when followed and completed, ensured participant eligibility for the honorarium that was delivered by project partners at the end of the field test.

The ESD Participant Project Guide document was available to facilitators on the facilitator resources web page.

iv. Help, Support and Training content (online with hard-copy option)

A series of documents were created by the project team to provide help, support and training to either facilitators or participants.

A general help document was created primarily for participants and uploaded directly to the LMS. The *ESD Tips and Tricks* document provided guidance for resolving basic login difficulties, locating PDF interface features found within workbook forms and useful tips and tricks for improving the overall learning experience.

A support document was created to help facilitators keep track of their participants ESD usernames and associated pre-and post- TOWES test booklets. The *ESD Participant Tracking Sheet* was completed by the project team and provided directly to facilitators after creating ESD usernames and login credentials. The *ESD Participant Tracking Sheet* was used and updated on an ongoing basis by either the project facilitators or the project team.

ⓘ *See **Appendix H** for all ESD Introductory Content documentation*

Curriculum Content

Participants completed the ESD field test by completing learning materials for one of four specific sector areas. The sector area learning materials available to participants were: Automotive, Entrance into Apprenticeship/Trades, Health and Petroleum (Oil & Gas). Each set of learning materials contained similar learning components; however, each learning component contained subject matter and themes that were relevant only to one specific sector.

Below is an overview of the curriculum contents that form the ESD sector specific curricula. A general ESD navigation overview follows, which outlines the primary navigational flow of curriculum contents intended for participants.

*ⓘ See **Appendix O** for individual sector specific ESD Navigation Overviews*
ⓘ The ESD curricula is viewable through the following URL: http://esd.towes.com

The following login credentials provide access to the individual sector-based modules as a learner and also as the facilitator of the HRSDC demo learner group:

Sector	Username	Password
Automotive	hrsdcdemo_auto	welcome1
Entrance into Apprenticeship/Trades	hrsdcdemo_trades	welcome2
Health	hrsdcdemo_health	welcome3
Petroleum (Oil & Gas)	hrsdcdemo_petro	welcome4
Facilitator Account-HRSDC Demo learner group	hrsdcdemo_fac	welcome5

i. Integrated Theme-based Module Workbooks (online and hard-copy option)

Integrated theme-based modules are workbooks that teach Essential Skills in the context of how they are applied on the job, mainly to solve complex workplace problems or complete workplace tasks. This scenario-based approach provides participants with realistic practice opportunities.

Between three and four integrated theme-based modules (workbooks) were developed for each sector area. An introduction section at the beginning of each workbook introduces Essential Skills in the context of their chosen sector and highlight key learning concepts. The short introductions include:

- ✓ An introduction to ESD
- ✓ An introduction to each Essential Skill being covered (Reading, Document Use, Numeracy, Problem Solving, Writing, etc.)
- ✓ Examples of how each Essential Skills are used in each industry
- ✓ Reasons why it is important to acquire these skills (i.e. for safety, productivity, improved learning and/or employability)

The workbooks provide practice opportunities to develop Essential skills though specific learning activities. Each activity is supported by a relevant and sector-specific workplace document. Similar to TOWES, the participant must assume the role of the worker in the context provided and use the workplace document to solve a problem or complete a task. Although each activity has a particular focus on one Essential Skills domain, the integrated nature of the curriculum ensures that the Essential Skills are neither taught nor practiced in isolation.

ii. Source Document Booklets (online and hard-copy option)

Source document booklets contained all of the authentic workplace materials referenced within the workbooks. Participants were able to access individual source documents through the LMS interface, allowing participants to reference the documents independently while working on workbook activities. For participants that preferred to work offline, a printable PDF version of the source document booklet was available. Source document booklets were created for each workbook in the curricula.

iii. Skill Builder movies (online)

Skill Builders are specific learning, demonstration and practice activities that teach strategies and techniques for applying Essential Skills. Created as short, interactive movies using Adobe Captivate®, the *Skill Builders* taught or refreshed participant knowledge of strategies and techniques for completing specific workplace tasks or solving problems. *Skill Builders* could be reviewed at anytime during the learning process.

In total, 18 generic *Skill Builders* were created for Reading Text, Document Use and Numeracy skills. The *Skill Builders* were used primarily in association with the integrated theme-based modules workbooks as support material when completing workbook activities. The *Skill Builders* were also used to provide extra practice opportunities for participants who may have scored low on their pre-TOWES test or were identified as having difficulties with certain elements of the curriculum. For example, a skill builder on *Skimming and Scanning* (an important reading skill) was created; the learner applied this skill when completing the workbook on *Workplace Reading Techniques* in the Automotive sector.

The *Skill Builders* created for ESD included the following themes:

- ✓ Bar graphs
- ✓ Context clues
- ✓ Flowcharts
- ✓ Entry forms
- ✓ Fractions & Decimals
- ✓ Imperial conversions
- ✓ Keywords
- ✓ Line graphs
- ✓ Lists
- ✓ Metric conversions
- ✓ Percentages 1
- ✓ Percentages 2
- ✓ Pie charts
- ✓ Rates, Ratios & Proportions
- ✓ Rounding
- ✓ Skimming & Scanning
- ✓ Symbols, Icons & Technical drawings
- ✓ Tables

iv. Informal Practice Assessments (online with hard-copy option)

Informal TOWES like assessments were created to help learners and facilitators monitor progress and skill acquisition. The assessments were completed online as part of the normal course content but could also be downloaded in paper format for offline completion. Reviewing themes presented in the integrated theme-based module workbooks, the informal assessments allowed participants to practice and verify their skill acquisition before writing the post-TOWES test. If needed, further practice could be accessed by revisiting the ESD curriculum. All assessments were accompanied by answer keys.

Throughout the field test, facilitators had the option of "locking" the assessment content and answer keys and administering the assessment as evaluation tools.

v. Answer Keys (online with hard-copy option)

Answer keys were created for each *Integrated Theme-based Module Workbook* and *Informal Practice Assessment*. Answer keys for the workbooks were accessible to the participants so they could receive instant feedback on their performance and direct their own learning of the curriculum. For the informal assessments, answer keys were often locked out by the facilitator and provided only after the informal assessment was submitted by the participant for review by the facilitator.

vi. TOWES Essential Skills Online (online)

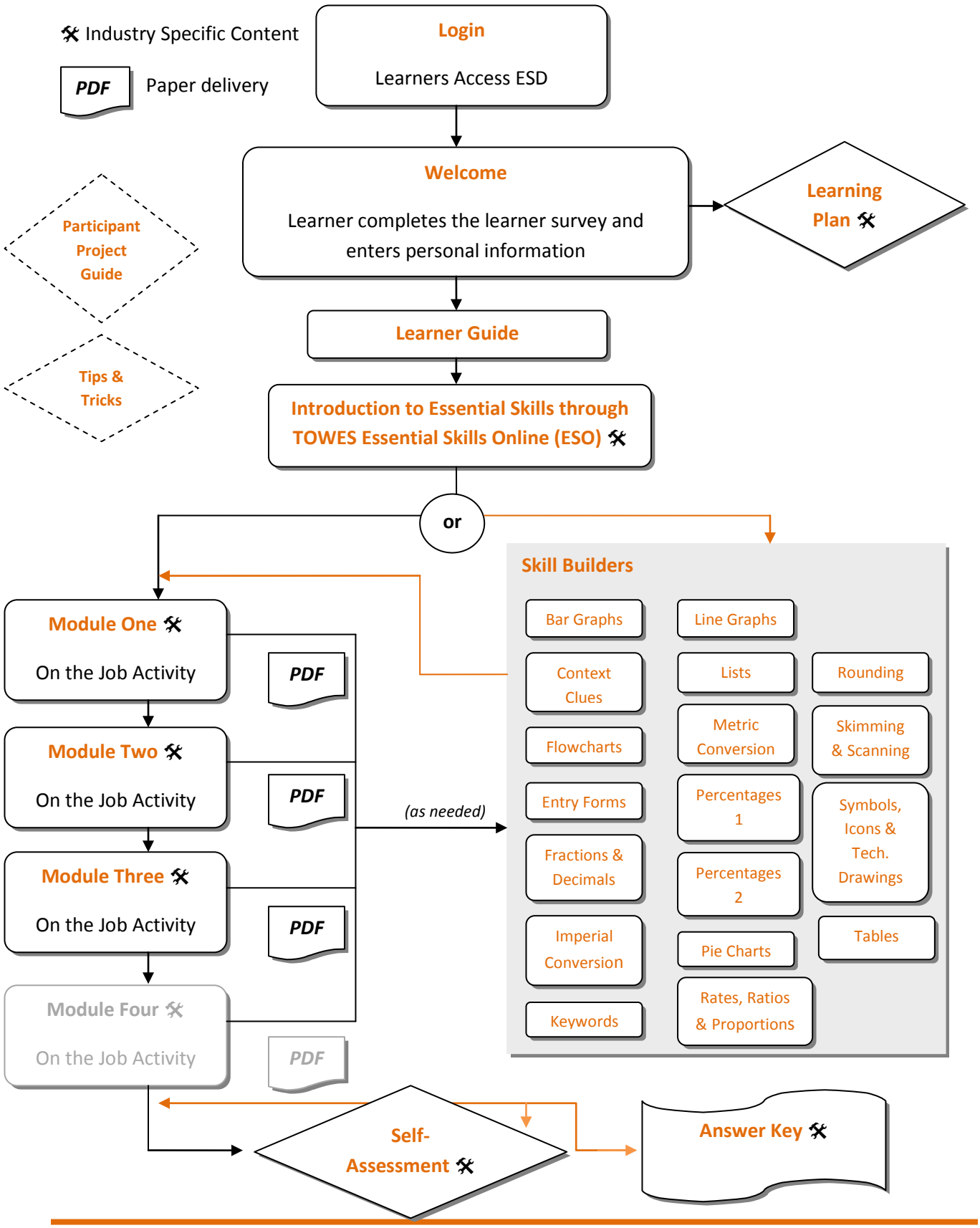
TOWES Essential Skills Online (ESO) is an online, interactive Essentials Skills curriculum that teaches the Essentials Skills of Reading Text, Document Use and Numeracy in a generic workplace context. Intended primarily for individuals who are new to the Canadian workforce or individuals with lower literacy skills, TOWES ESO provides exposure to real Canadian workplace scenarios. TOWES ESO uses more than 300 authentic Canadian workplace documents to present realistic problems and tasks encountered by workers in over 200 front-line Canadian occupations.

The beginner to intermediate level of the curriculum was intended to provide participants with additional practice opportunities for developing their Essential Skills. Used as a starting point for many participants who scored lower on their pre-TOWES test, TOWES ESO allowed comprehensive basic skill development before attempting the more intermediate-based ESD curriculum.

ESD participants were provided unlimited access to TOWES ESO through a hotlink on the ESD LMS.

ⓘ Visit the following URL to view an online demonstration of TOWES ESO:
http://www.towes.com/eso_demo/

General ESD Navigational Overview



Support Materials

i. Learner Guide (online with hard-copy option)

A *Learner Guide* was created for use by each participant. The purpose of the *Learner Guide* was to supply a background of Essential Skills and an overview of the ESD tool. The *Learner Guide* outlined the functional components of the LMS, identified the structure of the ESD curriculum content and provided additional support materials and resources for the learner.

The *Learner Guide* contained:

- an introduction to Essential Skills
- links to free tools and resources related to Essential Skills and industry
- instructions for using and navigating Essential Skills Direct
- instructions for using and navigating Essential Skills Online
- tips and tricks for using the ESD tool
- contact information for mentorship and support

ii. Facilitator Guide (online with hard-copy option)

The *Facilitator Guide* was created for use by all project partner facilitators. As the blended delivery nature of the training environment encouraged facilitator and participant interaction, facilitators were the first point of contact for many project participants. Facilitators were often required to be well informed of all components of the ESD tool, overall project goals and required project activities. The purpose of the *Facilitator Guide* was to supply an overview of the project, outline key project activities, provide a comprehensive overview of the ESD tool and supply additional resources useful in the delivery of the pilot field test.

The *Facilitator Guide* contained:

- an introduction to Essential Skills and the research supporting Essential Skills training
- links to free tools and resources related to Essential Skills and industry
- instructions for accessing facilitator training movies
- instructions for using and navigating Essential Skills Direct as a facilitator
- a copy of the *Learner Guide*
- tips and tricks for using the ESD tool
- an introduction to TOWES and an overview of the TOWES test administration process

A separate *Facilitator Guide* was created for each phase of the project, which accurately reflected the functionality of the ESD tool at the time of the associated project activities.

iii. Facilitator Training (face-to-face, phone, online)

In Phase One of the project, facilitator training was delivered primarily over the phone. In one instance, the project team had the opportunity to conduct a face-to-face training session with a project partner and provided an on-site demonstration of the ESD tool.

The changes made to the ESD tool in Phase Two of the project necessitated a new approach to facilitator training. Formal training sessions in Phase Two of the project were delivered via online training movies.

The facilitator training movies created in Phase Two ensured facilitators were well prepared to assist learners in navigating the ESD curriculum or explain the features of the LMS. The training movies were short two to four minute flash movies and demonstrated the various features of the LMS.

The facilitator training movies covered the following topics:

- ✓ ESD Introduction I
- ✓ ESD Introduction II
- ✓ Setting up ESD
- ✓ Part 1: ESD Overview
- ✓ Part 2: ESD Overview
- ✓ Part 3: Facilitator Functions I
- ✓ Part 4: Facilitator Functions II
- ✓ Part 5: Learner Functions I
- ✓ Part 6: Learner Functions II
- ✓ Part 7: Learner Functions III
- ✓ Part 8: Learner Functions IV
- ✓ Part 9: Essential Skills & TOWES

Additional TOWES Test Administrator training was provided over the phone in Phase One of the project and using the new online TOWES Test Administrator Certification training in Phase Two of the project.

ⓘ Visit the following URL to view the Facilitator training movies:
http://www.towes.com/en/esd-field-test

iv. Essential Skills Direct Facilitator Resources (online with hard-copy option)

Essential Skills Direct facilitator resources were created by the project team to help facilitators successfully complete the field tests at each individual pilot site. The facilitator resources were a series of documents and other media designed to inform facilitators about specific project activities or provide instructions to facilitators on how to use the ESD tool. The facilitator resources were provided to project partners involved in the field test and located on the TOWES website through a hidden web page accessible only through a custom URL.

Facilitator resources included:

- ✓ Facilitator training movies
- ✓ Facilitator Guide
- ✓ Learner Guide
- ✓ Facilitator Checklist
- ✓ Participant Selection Guide
- ✓ Participant Project Guide
- ✓ Consent to Participate in Research form
- ✓ OLT/ESD TOWES booklet order form

v. Technical Support (phone or email)

Technical Support was provided on an as needed basis to assist with common technical issues encountered with online learning. These include things like login issues, navigation problems, functional limitations, etc. Technical support was available during business hours (08:00-17:00 MST) through the TOWES email and 1-877 toll-free line.

ⓘ *See **Appendix G** for all remaining ESD Facilitator Resources documentation* and ***Appendix I** for the ESD Facilitator Guide and ESD Learner Guide.*

Data Analysis Overview

Underlying Research Assumptions

A series of underlying assumptions were used in the project analysis. Participant results were compared to these underlying assumptions in the evaluation of project success. Assumptions included:

- ✓ The goal of this project was to increase participants' skills to Level 3 or higher. As such, **Level 3** was established as the "desired or target" skill level for the participants. This assumption was backed up by a comprehensive body of research on literacy. One such study, the International Adult Literacy and Skills Survey (2003) identifies Level 3 as "the 'desired level' of competence for coping with the increasing skill demands of the emerging knowledge and information economy."[7] Why? "Individuals who score at Level 1 on the [literacy] proficiency scales have very limited abilities to locate, understand and use information, or do simple, one-step numeric operations." [8] At Level 2, individuals can deal only with materials that are simple, clearly presented, and that requires very limited interpretation. At this level, an individual will not be able to transfer the knowledge from one environment to another. Approximately 42% of adult Canadians aged 16-65 are at Level 1 or Level 2 in prose literacy. [9]

- ✓ A second assumption of this project was that most of the participants would have weak literacy skills despite receiving some level of secondary or post-secondary education. This is because the relationship between educational attainment and literacy is not as clearly linked as once believed. For example, about 23 percent of Canadian University graduates have skills at Levels 1 and 2 (poor or weak).[10] This is true for Canadian born individuals as well as immigrants.

- ✓ Third, because most participants were likely to have significant skill gaps they would require a substantial intervention to improve their skills to the desired level (Level 3), or to the level required in their chosen occupation. ESD was designed to introduce basic literacy concepts to learners and provide foundational materials for instructors. As such, the general objective was to improve participants' literacy skills and thus increase their awareness of Essential Skills and their capacity for further academic and/or workplace training.

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[7] Page 9, Building on our Competencies: Canadian Results of the International Adult Literacy and Skills Survey. 2003. Human Resources and Skills Development Canada and Statistics Canada. ©2005

[8] Page 28, Building on our Competencies: Canadian Results of the International Adult Literacy and Skills Survey. 2003. Human Resources and Skills Development Canada and Statistics Canada. ©2005

[9] Page 26, Text Box 1. Building on our Competencies: Canadian Results of the International Adult Literacy and Skills Survey. 2003. Human Resources and Skills Development Canada and Statistics Canada. ©2005

[10] Page 127, Table 2.9, Building on our Competencies: Canadian Results of the International Adult Literacy and Skills Survey. 2003. Human Resources and Skills Development Canada and Statistics Canada. ©2005

- The final assumption of this project was that by increasing literacy skills of the project participants they would improve their labour market outcomes. The foundation for this assumption is research which suggests that reading, document use and numeracy skills (literacy skills) have a significant impact on a number of employment, earnings, and labour market outcomes.
  - First, individuals with literacy skills at level 3 or higher are less likely to be unemployed.[11] For example, at 76.4 percent of individuals with document literacy Level 3 are employed in comparison to 57.0 percent of individuals with document literacy Level 1.[12]
  - In addition, during unemployment individuals with skills above level 3 are likely to re-enter the labour market more quickly. The Adult Literacy and Life Skills Survey examined the likelihood of returning to work (a 50% probability of finding employment) and found that those with skills at Level 3 or higher have probability of exiting unemployment within 9 weeks compared with individuals at Levels 1 and 2 who have a probability of exiting unemployment within 38 weeks.
  - Finally, employment earnings are closely tied with literacy proficiency. Green and Riddell (2001) demonstrate that literacy has a large effect on earnings, equivalent to about one-third of the estimated 'wage return on education'. They find that an increase in an individual's position of the literacy scores of ten percentiles results in a three percent increase in earnings.[13]

[11] Page 74, Figure 4.2, Building on our Competencies: Canadian Results of the International Adult Literacy and Skills Survey. 2003. Human Resources and Skills Development Canada and Statistics Canada. ©2005

[12] Page 162, Table 4.3, Building on our Competencies: Canadian Results of the International Adult Literacy and Skills Survey. 2003. Human Resources and Skills Development Canada and Statistics Canada. ©2005

[13] Page 82, Building on our Competencies: Canadian Results of the International Adult Literacy and Skills Survey. 2003. Human Resources and Skills Development Canada and Statistics Canada. ©2005

Data Analysis Parameters

The following parameters formed the basis of the data analyses:

- ✓ The duration of the Essential Skills Direct pilot was short in length (participants had access to the tool for approximately four to six weeks) and skill levels would be expected to remain consistent on TOWES unless: a) an intervention improved scores, or, b) skills declined due to lack of use over a long period of time. "Latent Trait Theory (or IRT) assumes that examinees will make consistent performance on any test of cognitive skill, achievement or ability."[14] As such, changes (increases) in participant's proficiency levels would be a result of the Essential Skills Direct intervention, or a result of other factors such as a participant's loss of interest in the project (decreases).

- ✓ The volunteer nature of the project made it difficult to ensure participants put forth equal effort on their pre-and post-TOWES test. This was magnified by the fact that test scores would not be used outside of the scope of the project and thus participants would not be negatively impacted by low scores (reduced efforts). In addition, some project partners required their participants to complete the testing process regardless of their interest or enthusiasm for participation in the project. In other words, many participants' scores did not demonstrate their best efforts or accurately reflect their skills. It was also believed that learners who's scores remained consistent or improved had demonstrated effort and genuine interest in participating in the project.

[14] Page 2, Item Response Theory Workshop. February 22, 2007. Dr. Theresa J.B. Kline. University of Calgary.

Findings

The following section contains self-reported participant demographic descriptive data and TOWES test results for the ESD field test. TOWES test results are observed in relation to the overall performance of participants between pre-and post-TOWES testing sessions, participant demographics collected by the TOWES questionnaire, labour market outcomes and by pilot partner group (see Methodology).

All scores are reported using the IALS 500-point scale. Please note that the Combined Mean scores were calculated by averaging a participant's scores across all three domains (Reading Text, Document Use, and Numeracy).

For all analyses, results are reported only where significant relationship were determined.

The Findings section also contains highlights of facilitator and participant feedback evaluation survey responses collected over the course of the project. Additional, less formal responses collected by the project team were also included where relevant.

*ⓘ See **Appendix M** for the OLT Data Analyses and Results Reports prepared by Theresa J.B. Kline, Ph. D, Department of Psychology, University of Calgary*

*ⓘ See **Appendix N** for the Essential Skills Online: A Consortium Approach Evaluation Report prepared by Barrington Research Group, Inc. of Calgary, Alberta.*

Field Test Participant Descriptive Data

Pilot Participation

The goal of the Essential Skills Direct project was to collect pre and post test scores for 240 participants in total. As mentioned, the project pilot activities were completed in two phases and the pilot achievements are separated accordingly where appropriate. The following was achieved:

- 375 participants pre-TOWES tested
  - 188 participants pre-TOWES tested in Phase One
  - 187 participants pre-TOWES tested in Phase Two
- 247 participants accessed the ESD curriculum and post-TOWES tested
  - 124 participants accessed the ESD curriculum and post-TOWES tested in Phase One
  - 123 participants accessed the ESD curriculum and post-TOWES tested in Phase Two
- 234 participants completed and submitted the Participant Feedback Evaluation Survey
  - 118 participants completed and submitted the Participant Feedback Evaluation Survey in Phase One
  - 116 participants completed and submitted the Participant Feedback Evaluation Survey in Phase Two
- 25 project facilitators completed and submitted the Facilitator Feedback Evaluation Survey
  - 12 facilitators completed and submitted the Facilitator Feedback Evaluation Survey in Phase One
  - 13 facilitators completed and submitted the Facilitator Feedback Evaluation Survey in Phase Two

Of the 375 participants who wrote the pre-TOWES test, 66% (n=247) went on to access the ESD curriculum and complete a post-TOWES test.

Of the 247 participants who wrote the pre-TOWES test, accessed the ESD curriculum and wrote the post-TOWES test, 95% (n=234) completed the Participant Feedback Evaluation Survey.

All project facilitators completed the Facilitator Feedback Evaluation Survey.

TOWES Tests Written

Due to a number of factors not all participants completed the post testing or accessed the ESD curriculum. The following table displays the TOWES tests written by project pilot partner:

TOWES tests written by project pilot partner - Table 6.1

	TOWES Tests written		TOWES Tests written *(negative outliers removed)*
	Pre	Post	Post
Northern Alberta Institute of Technology	17*	11*	11*
College of New Caledonia	18	8	8
Douglas College	21	6	6
Workplace Education Manitoba	17	0	0
New Brunswick Community College	16	9	9
Academy Canada	17	17	17
College of the North Atlantic	11	5	5
Nova Scotia Community College	8	8	7
Teetl'it Gwich'in Band Council	26	14	14
Atikokan Adult Literacy Centre	31	25	24
Fanshawe College	37	27	27
Georgian College	14	12	11
La Cité Collégiale	60	43	43
Niagara College	60	45	45
TriArch Educational Services	2	1	1
Saskatchewan Indian Institute of Technology	20	16	14
Total	**375**	**247**	**242**

* Northern Alberta Institute of Technology used the G3 TOWES test for both pre and post testing.

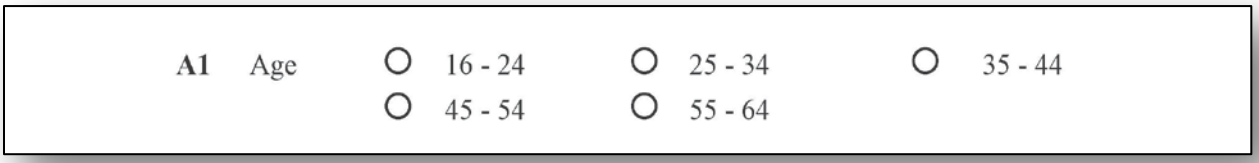
Participant Demographics

Participant demographics were collected through the TOWES questionnaire, located at the beginning of each test booklet. Participants are encouraged to respond to each questionnaire item as accurately as possible, with the understanding that data collected will never be directly associated to names or test booklet numbers. Completion of the TOWES questionnaire does not affect test results in any way.

The following tables outline the self-reported participant demographic descriptive data collected over the course of ESD field test.

Participation by Age

Participants were asked to self-identify the following:



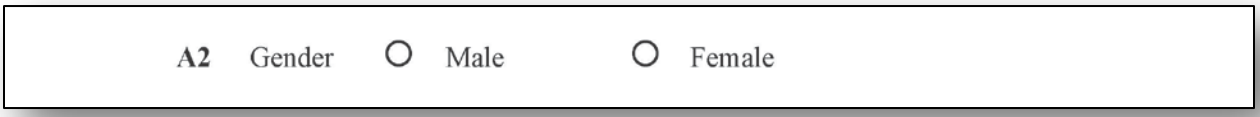
Participation by Age - Table 6.2

Age	16-24	25-34	35-44	45-54	55-64
TOTAL	70	54	54	30	13

(**21** did not answer) N=221

Participation by Gender

Participants were asked to self-identify the following:



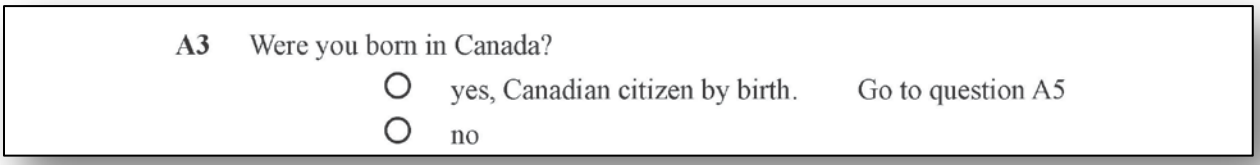
Participation by Gender - Table 6.3

Gender	Male	Female
TOTAL	117	103

(**22** did not answer) N=220

Participation by Born in Canada

Participants were asked to self-identify the following:


A3 Were you born in Canada?

○ yes, Canadian citizen by birth. Go to question A5

○ no

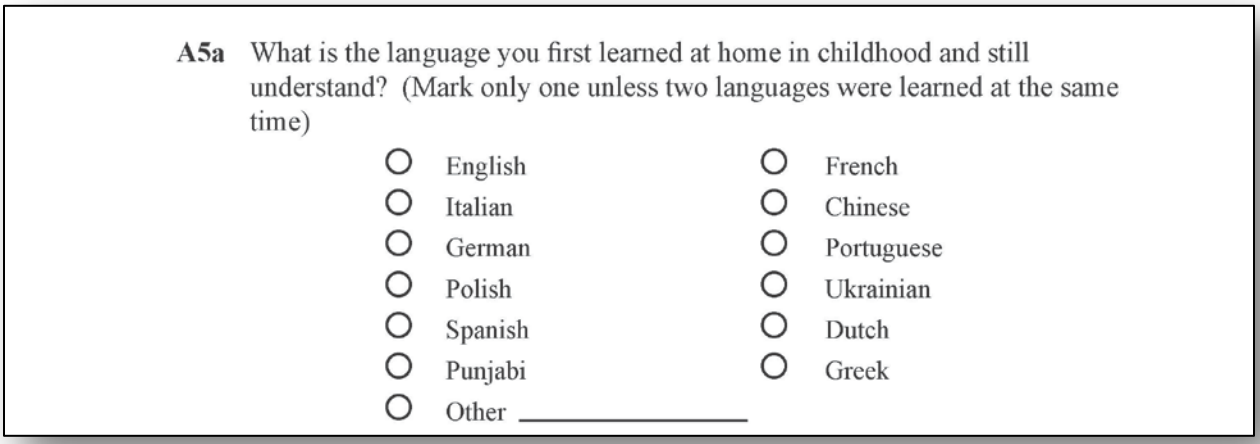
Participation by Birth Country - Table 6.4

	Born in Canada	Born Outside of Canada
TOTAL	168	54

(**20** did not answer) N=222

Participation by First Language

Participants were asked to self-identify the following:


A5a What is the language you first learned at home in childhood and still understand? (Mark only one unless two languages were learned at the same time)

○ English ○ French

○ Italian ○ Chinese

○ German ○ Portuguese

○ Polish ○ Ukrainian

○ Spanish ○ Dutch

○ Punjabi ○ Greek

○ Other _____

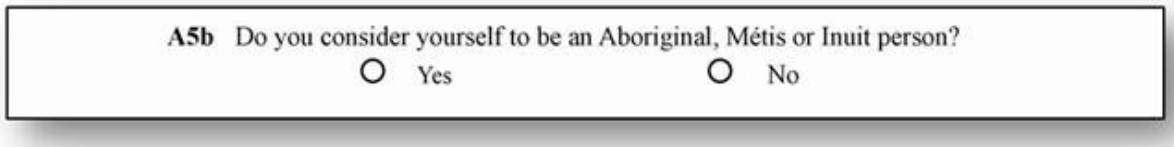
Participation by First Language - Table 6.5

	English	Other
TOTAL	175	46

(**21** did not answer) N=221

Participation by Aboriginal, Métis or Inuit Person

Participants were asked to self-identify the following:


A5b Do you consider yourself to be an Aboriginal, Métis or Inuit person?
○ Yes ○ No

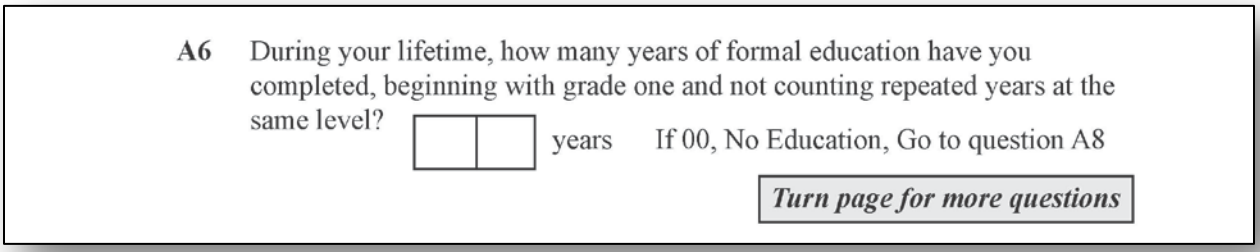
Participation by Aboriginal Persons - Table 6.6

	Yes	No
TOTAL	54	168

(**20** did not answer) N= 222

Participation by Years of Formal Education Completed

Participants were asked to self-identify the following:


A6 During your lifetime, how many years of formal education have you completed, beginning with grade one and not counting repeated years at the same level? ☐☐ years If 00, No Education, Go to question A8

Turn page for more questions

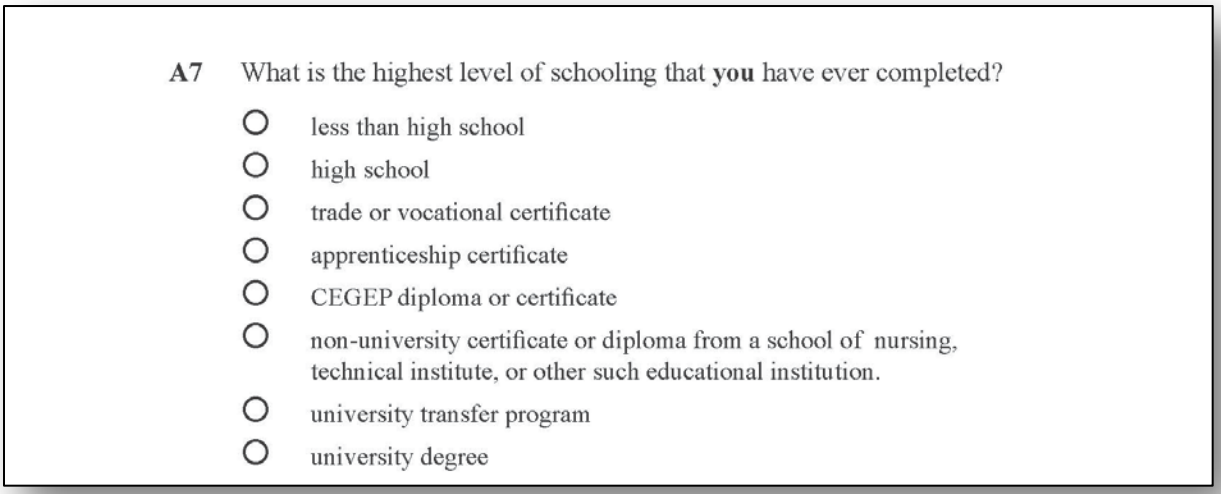
Participation by years of Formal Education Completed - Table 6.7

	≤11 Years	**12 – 13 Years**	**≥14 Years**
TOTAL	78	86	58

(**20** did not answer) N=222

Participation by Highest Level of Schooling Completed

Participants were asked self-identify the following:



A7 What is the highest level of schooling that **you** have ever completed?

- ○ less than high school
- ○ high school
- ○ trade or vocational certificate
- ○ apprenticeship certificate
- ○ CEGEP diploma or certificate
- ○ non-university certificate or diploma from a school of nursing, technical institute, or other such educational institution.
- ○ university transfer program
- ○ university degree

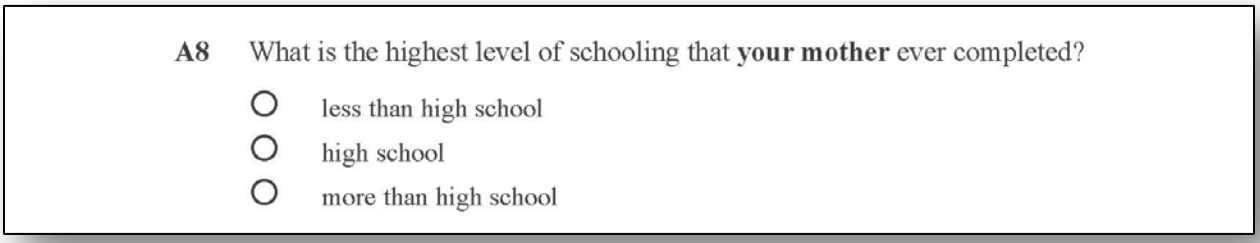
Participation by Highest Level of Schooling Completed - Table 6.8

	Less than High School	High School Diploma	CEGEP Diploma or Certificate	Apprenticeship Certificate	Non-University Certificate	Trade or Vocational Certificate	University Transfer Program	University Degree
TOTAL	58	93	14	5	19	14	1	16

(22 did not answer) N=220

Participation by Mother's Highest Level of Completed Schooling

Participants were asked to self-identify the following:



A8 What is the highest level of schooling that **your mother** ever completed?

- ○ less than high school
- ○ high school
- ○ more than high school

Participation by Mother's Highest Level of Completed Schooling - Table 6.9

	Less than High School	High School Diploma	More than High School
TOTAL	78	66	76

(22 did not answer) N=220

TOWES Scores

The following sub-section contains the TOWES test results findings of the ESD field test by conducted data analysis categories. Findings are included for both phases of the ESD field test.

For TOWES test results:

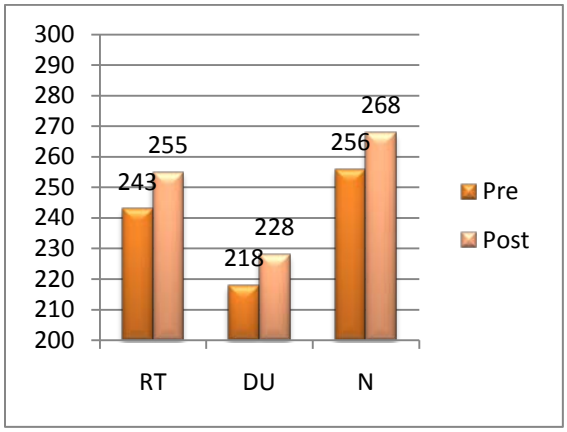
- ✓ In all instances for the *All Participants* analysis, the differences between mean pre-and post-scores and levels (i.e. gains) are significant at $p < .001$.
- ✓ In all instances for the *Phase One Participants* analysis, the differences between mean pre-and post-scores and levels (i.e. gains) are significant at $p < .05$.
- ✓ In all instances for the *Phase Two Participants* analysis, the differences between mean pre-and post-scores and levels (i.e. gains) are significant at $p < .01$.

TOWES scores by Essential Skills domain (All participants) - Table 6.10 A

	Combined Mean		Reading Text (RT)		Document Use (DU)		Numeracy (NU)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Mean Raw Score (IRT)	239	250	243	255	218	228	256	268
Minimum (IRT)	110	110	107	119	81	81	113	113
Maximum (IRT)	335	340	339	339	326	326	354	354

Participants on average scored higher in numeracy than the other domains, with the lowest scores being in the domain of document use.

TOWES scores by Essential Skills domain (All participants) – Figure 6.10 A



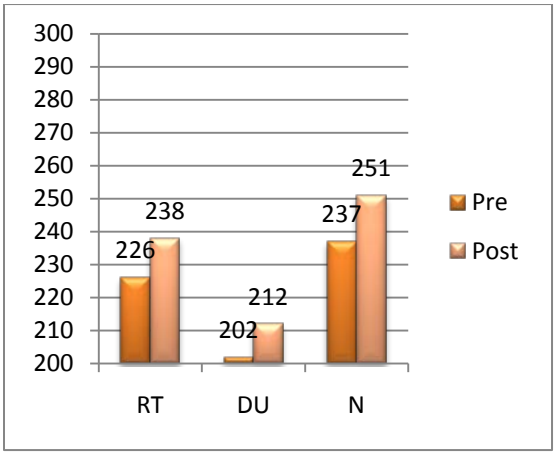
The mean pre TOWES scores are 243 (mid-Level 2) for Reading Text, 218 (high-Level 1) for Document Use, and 256 (mid-Level 2) for Numeracy. The average post TOWES scores are 255 (mid-Level 2) for Reading Text, 228 (low-Level 2) for Document Use, and 268 (high-Level 2) for Numeracy.

TOWES scores by Essential Skills domain (Phase One participants) – Table 6.10 B

	Combined Mean		Reading Text (RT)		Document Use (DU)		Numeracy (NU)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Mean Raw Score (IRT)	222	234	226	238	202	212	237	251
Minimum (IRT)	100	110	107	119	81	81	113	113
Maximum (IRT)	335	340	339	339	326	326	354	354

Participants on average scored higher in numeracy than the other domains, with the lowest scores being in the domain of document use.

TOWES scores by Essential Skills domain (Phase One participants) - Figure 6.10 B



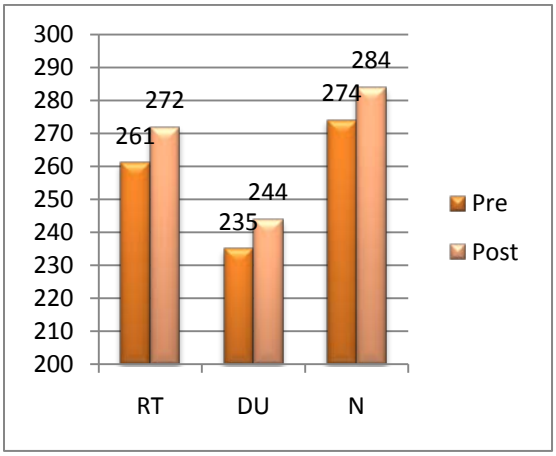
The average pre TOWES scores are 226 (low-Level 2) for Reading Text, 202 (high-Level 1) for Document Use, and 237 (low-Level 2) for Numeracy. The average post TOWES scores are 238 (low-Level 2) for Reading Text, 212 (high-Level 1) for Document Use, and 251 (mid-Level 2) for Numeracy.

TOWES scores by Essential Skills domain (Phase Two participants) - Table 6.10 C

	Combined Mean		Reading Text (RT)		Document Use (DU)		Numeracy (NU)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Mean Raw Score (IRT)	257	267	261	272	235	244	274	284
Minimum (IRT)	100	110	107	119	81	81	113	113
Maximum (IRT)	335	340	339	339	326	326	354	354

Participants on average scored higher in numeracy than the other domains, with the lowest scores being in the domain of document use.

TOWES scores by Essential Skills domain (Phase Two participants) – Figure 6.10 C



The average pre TOWES scores are 261 (high-mid -Level 2) for Reading Text, 235 (low-Level 2) for Document Use, and 274 (high-Level 2) for Numeracy. The average post TOWES scores are 272 (high-Level 2) for Reading Text, 244 (mid-Level 2) for Document Use, and 284 (low-Level 3) for Numeracy.

Average score gain by Essential Skills domain (All participants) - Table 6.11 A

	Combined Mean	Reading Text (RT)	Document Use (DU)	Numeracy (NU)
Mean Raw Score Gains (IRT)	11	12	10	12
Minimum Gains (IRT)	-48	-58	-57	-68
Maximum Gains (IRT)	94	87	99	176

On average participants increased their Essential Skill scores in each domain (reading text, document use and numeracy) as tested by TOWES by 11 points on the 500 point scale which corresponds to an average level increase of 0.16. There appears to be a larger increase of scores in the domains of reading text and numeracy (12 points on average) than the domain of document use.

Average score gain by Essential Skills domain (Phase One participants) - Table 6.11 B

	Combined Mean	Reading Text (RT)	Document Use (DU)	Numeracy (NU)
Mean Raw Score Gains (IRT)	11	12	11	13
Minimum Gains (IRT)	-48	-58	-55	-61
Maximum Gains (IRT)	94	87	99	176

On average participants increased their Essential Skill scores in each domain (reading text, document use and numeracy) as tested by TOWES by 11 points on the 500 point scale which corresponds to an average level increase of 0.12. There appears to be a larger increase of scores in the domain of numeracy (13 points on average) than the other two domains.

Average score gain by Essential Skills domain (Phase Two participants) - Table 6.11 C

	Combined Mean	Reading Text (RT)	Document Use (DU)	Numeracy (NU)
Mean Raw Score Gains (IRT)	10	11	10	10
Minimum Gains (IRT)	-47	-55	-57	-68
Maximum Gains (IRT)	67	83	67	107

On average participants increased their Essential Skill scores in each domain (reading text, document use and numeracy) as tested by TOWES by 10 points on the 500 point scale which corresponds to an average level increase of 0.19. There appears to be a larger increase of scores in the domain of reading text (11 points on average) than the other two domains.

TOWES scores by skill level and Essential Skills domain (All participants) - Table 6.12 A

On the TOWES pre test:

- 86 percent of participants had weak or poor overall literacy skills (67% Reading, 86% Document, and 57% Numeracy)
- 14 percent of participants had adequate overall literacy skills (29% Reading, 12% Document, and 36% Numeracy)
- Less than 1 percent of participants had strong overall literacy skills (5% Reading, 2% Document, and 7% Numeracy)

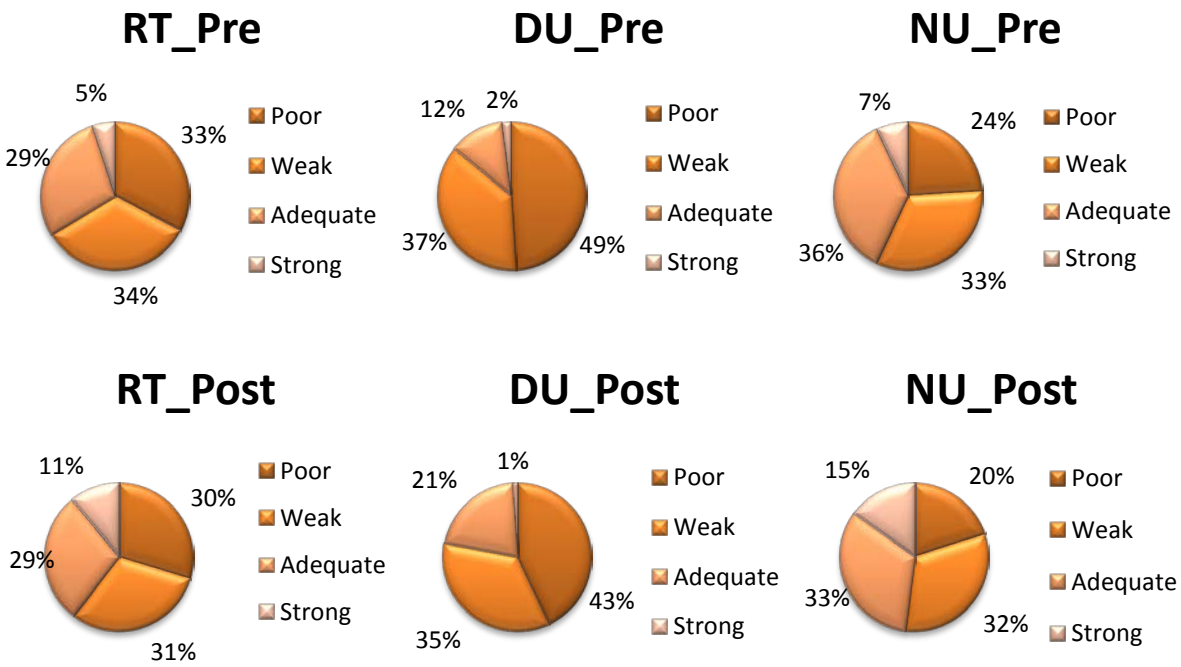
On the TOWES post test:

- 76 percent of participants had weak or poor overall literacy skills (61% Reading, 78% Document, and 52% Numeracy)
- 24 percent of participants had adequate overall literacy skills (29% Reading, 21% Document, and 33% Numeracy)
- 1 percent of participants had strong overall literacy skills (11% Reading, 1% Document, and 15% Numeracy)

Table 6.12 A	Combined Mean		Reading Text		Document Use		Numeracy	
Essential Skill Level	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Level 1	43%	40%	33%	30%	49%	43%	24%	20%
Level 2	43%	36%	34%	31%	37%	35%	33%	32%
Level 3	14%	24%	29%	29%	12%	21%	36%	33%
Level 4	<1%	1%	5%	11%	2%	1%	7%	15%

*note: Level 1 is considered “poor”, Level 2 is considered “weak”, Level 3 is considered “adequate”, Level 4/5 is considered “strong”. The combined mean column represents overall literacy skill.

***TOWES scores by skill level and Essential Skills domain (All participants)* - Figure 6.12 A**



TOWES scores by skill level and Essential Skills domain (Phase One participants) - Table 6.12 B

On the TOWES pre test:

- 89 percent of participants had weak or poor overall literacy skills (75% Reading, 90% Document, and 66% Numeracy)
- 11 percent of participants had adequate overall literacy skills (21% Reading, 9% Document, and 27% Numeracy)
- 1 percent of participants had strong overall literacy skills (3% Reading, 2% Document, and 7% Numeracy)

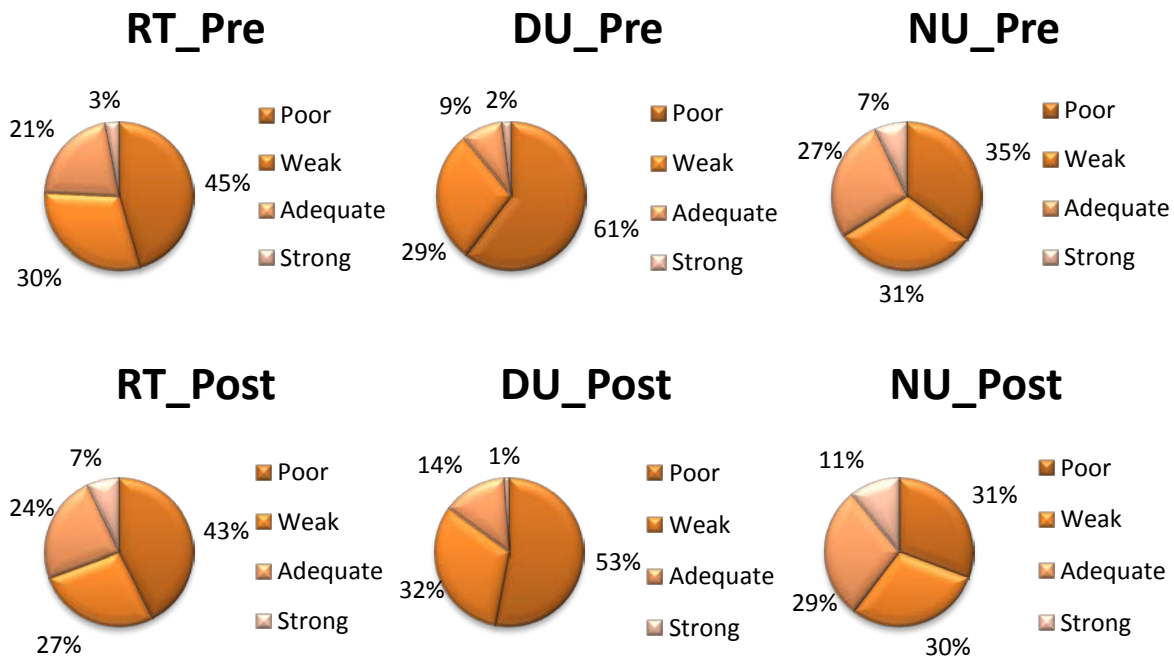
On the TOWES post test:

- 84 percent of participants had weak or poor overall literacy skills (70% Reading, 85% Document, and 61% Numeracy)
- 16 percent of participants had adequate overall literacy skills (24% Reading, 14% Document, and 29% Numeracy)
- 1 percent of participants had strong overall literacy skills (7% Reading, 1% Document, and 11% Numeracy)

Table 6.12 B	Combined Mean		Reading Text		Document Use		Numeracy	
Essential Skill Level*	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Level 1	55%	53%	45%	43%	61%	53%	35%	31%
Level 2	34%	31%	30%	27%	29%	32%	31%	30%
Level 3	11%	16%	21%	24%	9%	14%	27%	29%
Level 4	1%	1%	3%	7%	2%	1%	7%	11%

*note: Level 1 is considered “poor”, Level 2 is considered “weak”, Level 3 is considered “adequate”, Level 4/5 is considered “strong”. The combined mean column represents overall literacy skill.

***TOWES scores by skill level and Essential Skills domain (Phase One participants)* - Figure 6.12 B**



TOWES scores by skill level and Essential Skills domain (Phase Two participants) - Table 6.12 C

On the TOWES pre test:

- 84 percent of participants had weak or poor overall literacy skills (58% Reading, 84% Document, and 47% Numeracy).
- 17 percent of participants had adequate overall literacy skills (37% Reading, 15% Document, and 46% Numeracy).
- 0 percent of participants had strong overall literacy skills (6% Reading, 2% Document, and 8% Numeracy).

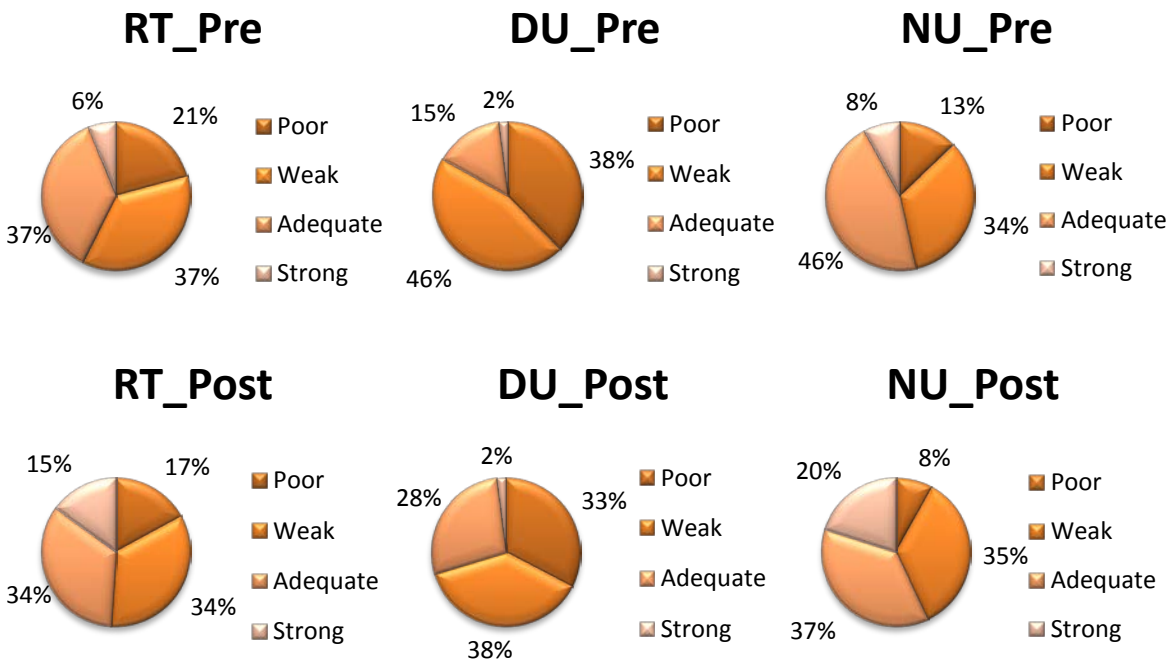
On the TOWES post test:

- 53 percent of participants had weak or poor overall literacy skills (51% Reading, 71% Document, and 43% Numeracy).
- 32 percent of participants had adequate overall literacy skills (34% Reading, 28% Document, and 37% Numeracy).
- 1 percent of participants had strong overall literacy skills (15% Reading, 2% Document, and 20% Numeracy).

Table 6.12 C	Combined Mean		Reading Text		Document Use		Numeracy	
Essential Skill Level	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Level 1	31%	13%	21%	17%	38%	33%	13%	8%
Level 2	53%	40%	37%	34%	46%	38%	34%	35%
Level 3	17%	32%	37%	34%	15%	28%	46%	37%
Level 4	0%	1%	6%	15%	2%	2%	8%	20%

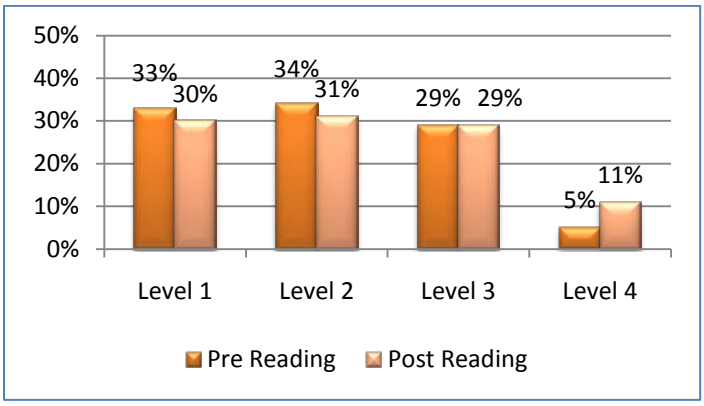
*note: Level 1 is considered “poor”, Level 2 is considered “weak”, Level 3 is considered “adequate”, Level 4/5 is considered “strong”. The combined mean column represents overall literacy skill.

***TOWES scores by skill level and Essential Skills domain (Phase Two participants)* -Figure 6.12 C**



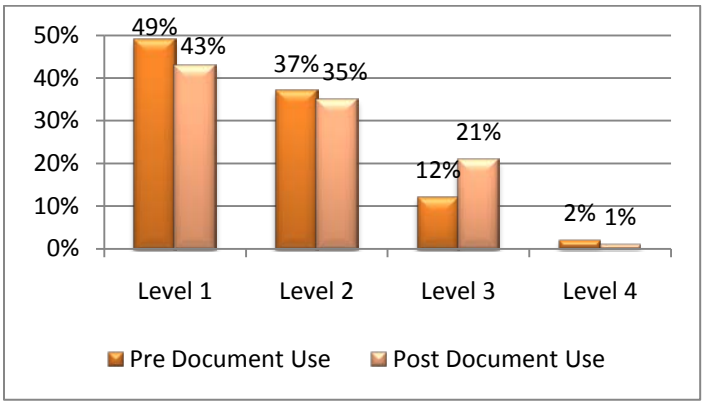
TOWES scores by skill level and Essential Skills domain: Pre vs. Post (All participants) – Figures 6.13.1-6.13.3 A

Figure 6.13.1 A: Reading Text



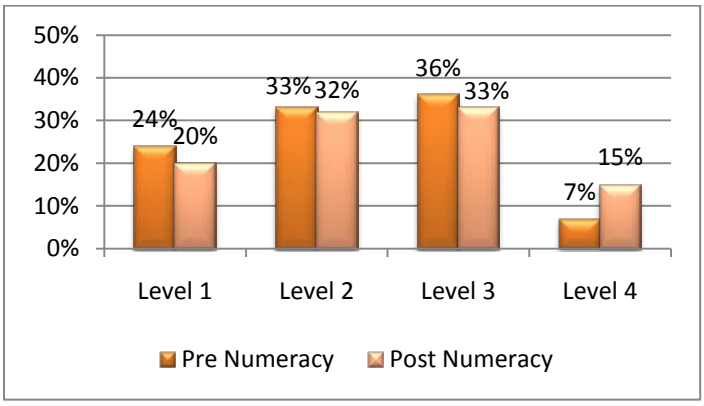
- Between pre and post TOWES testing the overall percentage of participants with Reading Text skills at Level 1 decreased 3%, and decreased 3% at Level 2. The overall percentage of participants with Reading Text skill at Level 3 remained constant and increased 6% at Level 4.

Figure 6.13.2 A: Document Use



- Between pre and post TOWES testing the overall percentage of participants with Document Use skills at Level 1 decreased 6%, decreased 2% at Level 2, and decreased 1% at Level 4. The overall percentage of participants with Document Use skills at Level 3 increased 9%.

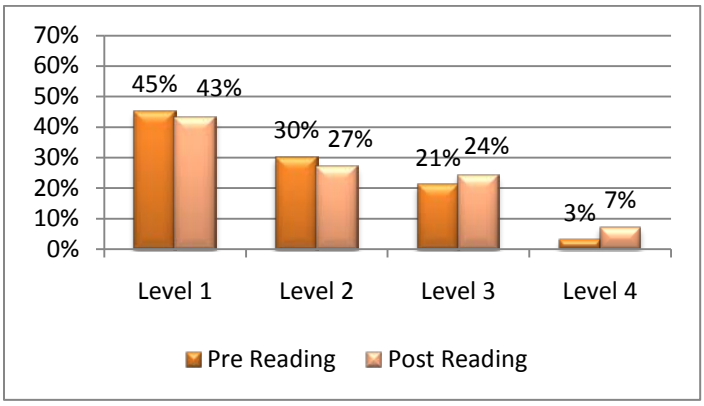
Figure 6.13.3 A: Numeracy



- Between pre and post TOWES testing the overall percentage of participants with Numeracy skills at Level 1 decreased 4%, decreased 1% at Level 2, and decreased 3% at Level 3. The overall percentage of participants with Numeracy skills at Level 4 increased 8%.

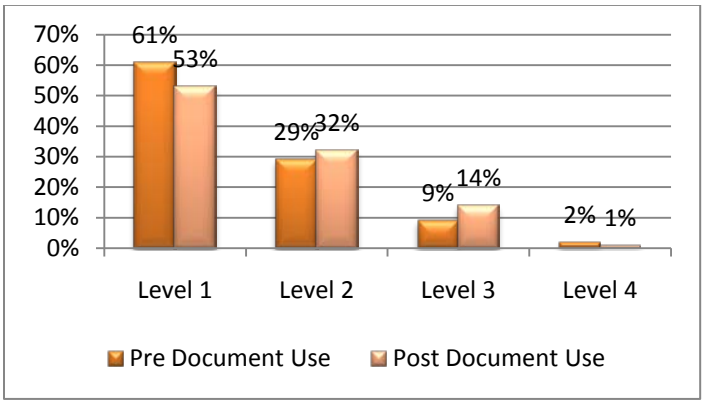
TOWES scores by skill level and Essential Skills domain: Pre vs. Post (Phase One participants) – Figures 6.13.1-6.13.3 B

Figure 6.13.1 B: Reading Text



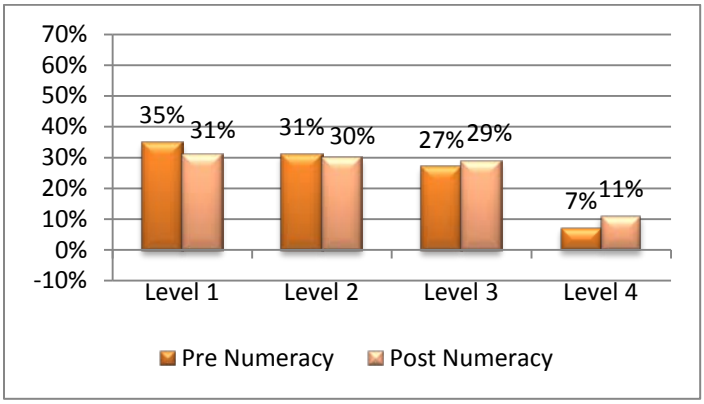
- Between pre and post TOWES testing the overall percentage of participants with Reading Text skills at Level 1 decreased 2%, and decreased 3% at Level 2. The overall percentage of participants with Reading Text skills at Level 3 increased 3%, and increased 4% at Level 4.

Figure 6.13.2 B: Document Use



- Between pre and post TOWES testing the overall percentage of participants with Document Use skills at Level 1 decreased 8% and decreased 1% at Level 4. The overall percentage of participants with Document Use skills at Level 2 increased 3% and increased 5% at Level 3.

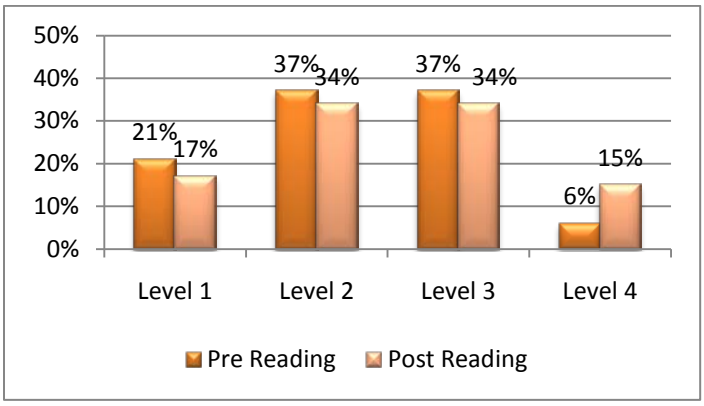
Figure 6.13.3 B: Numeracy



- Between pre and post TOWES testing the overall percentage of participants with Numeracy skills at Level 1 decreased 4%, and decreased 1% at Level 2. The overall percentage of participants with Numeracy skill at Level 3 increased 2% and increased 4% at Level 4.

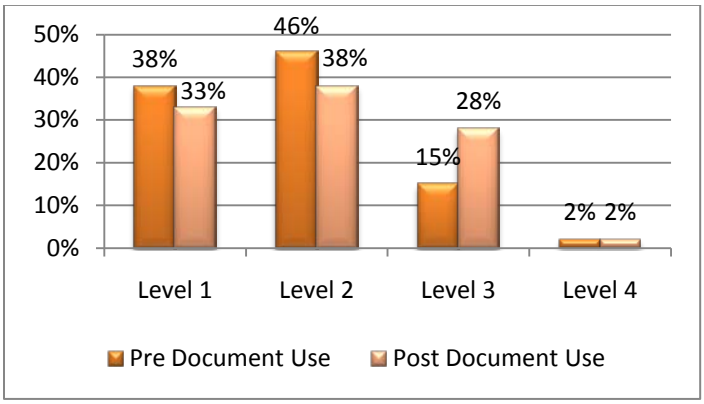
TOWES scores by skill level and Essential Skills domain: Pre vs. Post (Phase Two participants) – Figures 6.13.1-6.13.3 C

Figure 6.13.1 C: Reading Text



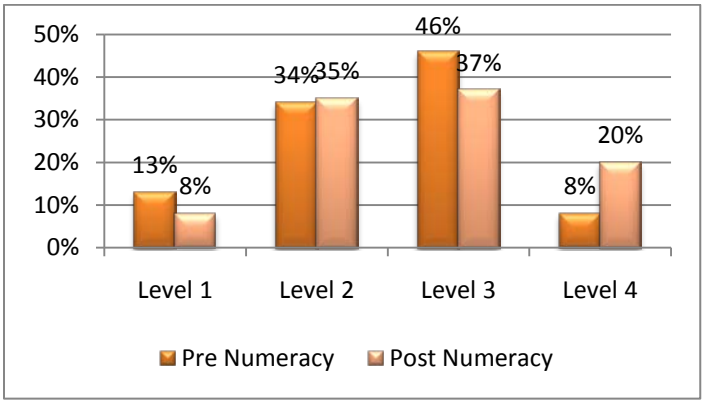
- Between pre and post TOWES testing the overall percentage of participants with Reading Text skills at Level 1 decreased 4%, decreased 3% at Level 2, and decreased 3% at Level 3. The overall percentage of participants with Reading Text skills at Level 4 increased 9%.

Figure 6.13.2 C: Document Use



- Between pre and post TOWES testing the overall percentage of participants with Document Use skills at Level 1 decreased 5% and decreased 8% at Level 2. The overall percentage of participants with Document Use skills at Level 3 increased 13% and remained constant at Level 4.

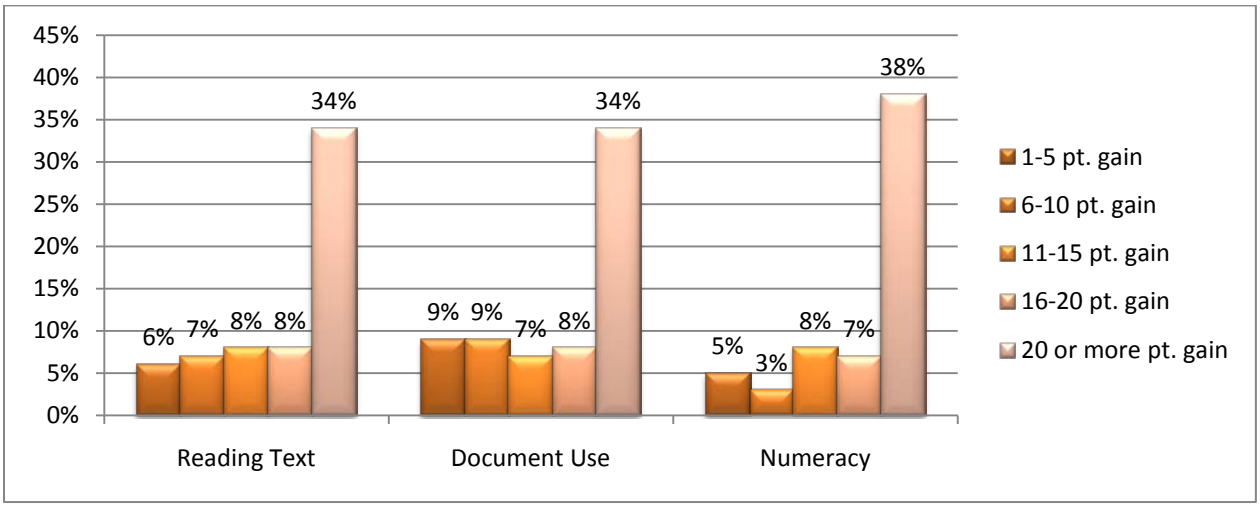
Figure 6.13.3 C: Numeracy



- Between pre and post TOWES testing the overall percentage of participants with Numeracy skills at Level 1 decreased 5%, and decreased 9% at Level 3. The overall percentage of participants with Numeracy skill at Level 2 increased by 1% and increased 12% at Level 4.

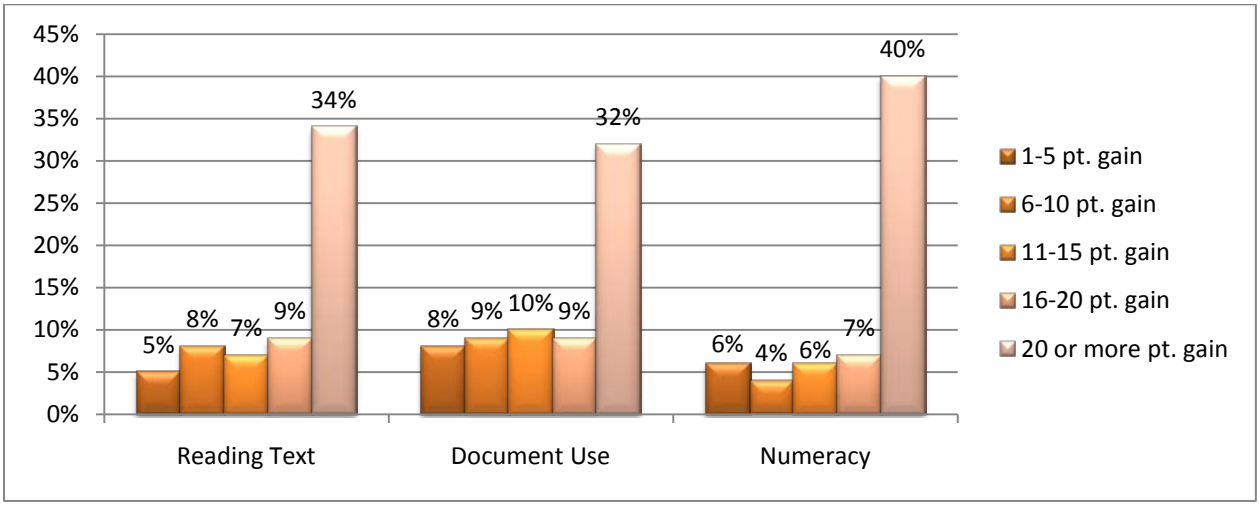
Percentages with point score gains by domain (All participants) – Figure 6.14 A

Overall, a majority of participants, or 69%, were able to improve their combined mean Essential Skills scores. In Reading Text, 50% of participants increased their scores by 11 or more points; in Document Use 49% of participants increased their scores by 11 or more points; and in Numeracy, 53% of participants increased their scores by 11 or more points. In all domains, the greatest proportion of participants increased their Essential Skills scores by 20 or more points.



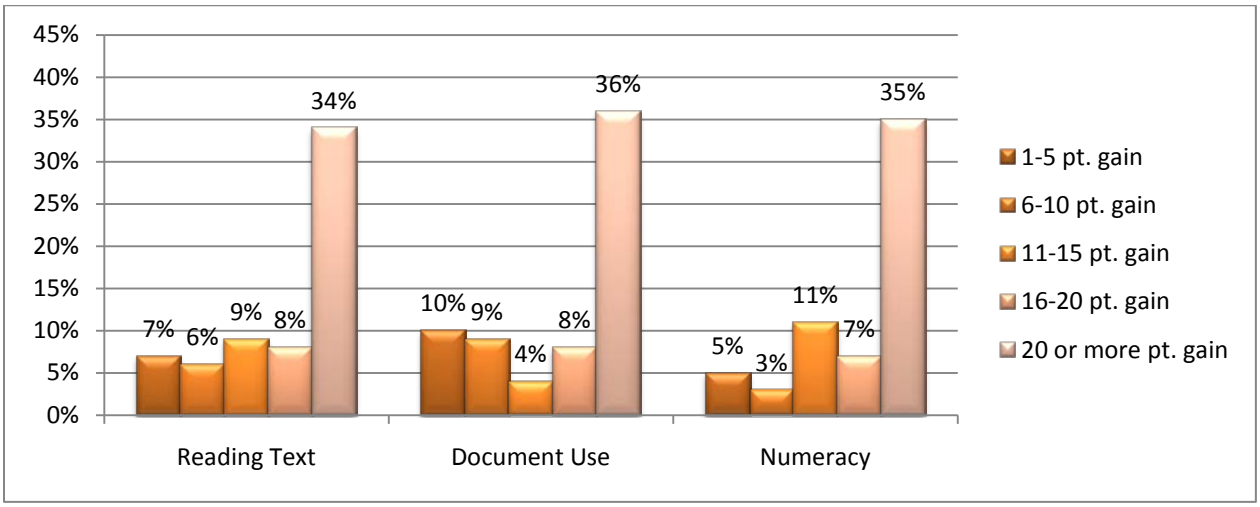
Percentages with point score gains by domain (Phase One participants) – Figure 6.14 B

Overall, a majority of participants, or 68%, were able to improve their combined mean Essential Skills scores. In Reading Text, 50% of participants increased their scores by 11 or more points; in Document Use 51% of participants increased their scores by 11 or more points; and in Numeracy, 53% of participants increased their scores by 11 or more points. In all domains, the greatest proportion of participants increased their Essential Skills scores by 20 or more points.

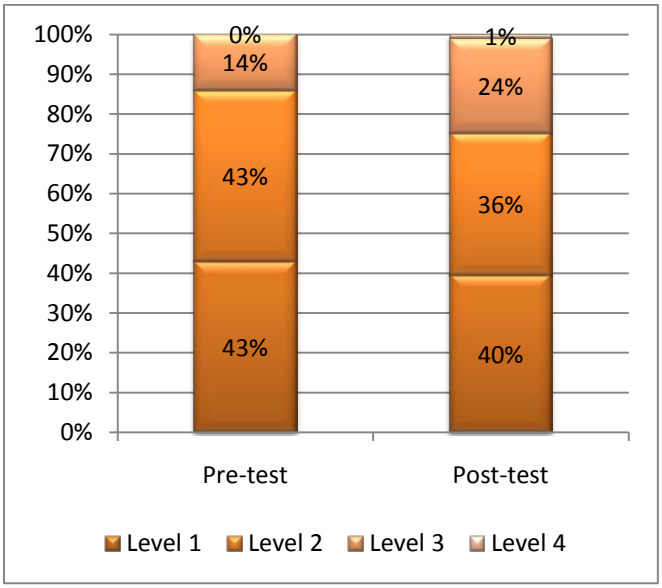


Percentages with point score gains by domain (Phase Two participants) – Figure 6.14 C

Overall, a majority of participants, or 71%, were able to improve their combined mean Essential Skills scores. In Reading Text, 51% of participants increased their scores by 11 or more points; in Document Use 48% of participants increased their scores by 11 or more points; and in Numeracy, 53% of participants increased their scores by 11 or more points. In all domains, the greatest proportion of participants increased their Essential Skills scores by 20 or more points.

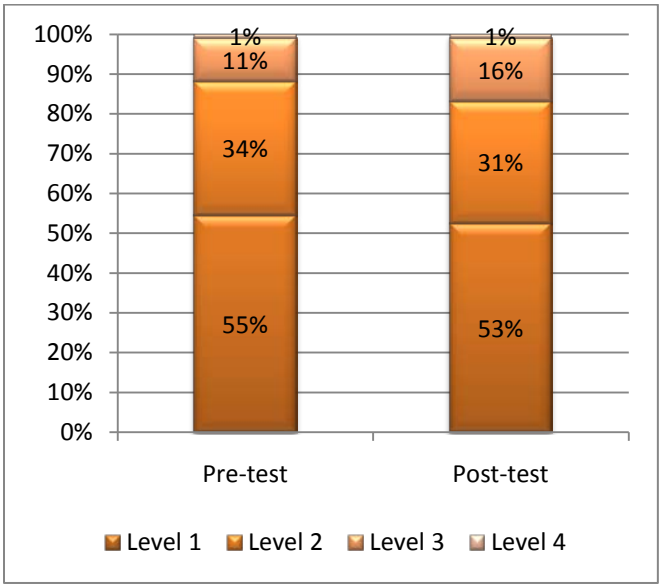


Combined mean TOWES scores by skill level: Pre vs. Post (All participants) – Figure 6.15 A



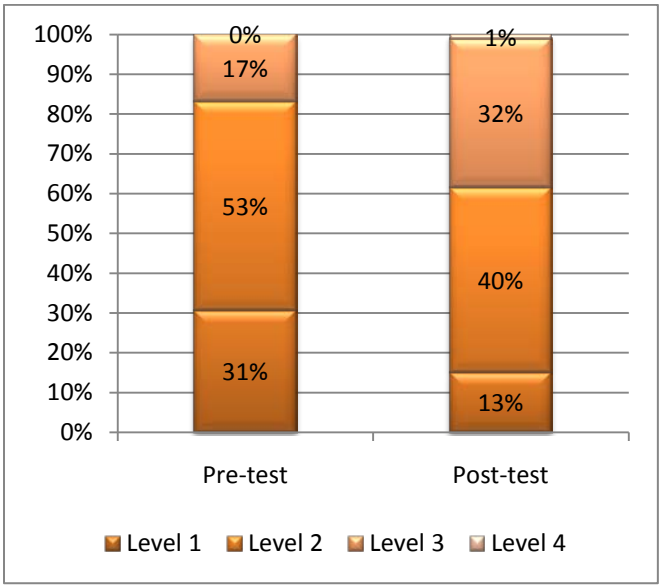
- The number of participants with a Combined Mean score of Level 1 decreased by 2% and by 9% at Level 2. The number of participants with a Combined Mean Score at Level 3 increased by 10% and by 1% at Level 4.

Combined mean TOWES scores by skill level: Pre vs. Post (Phase One participants) – Figure 6.15 B



- The number of participants with a Combined Mean score of Level 1 decreased by 2%, and by 3% at Level 2. The number of participants with a Combined Mean Score at Level 3 increased by 5%, and remained constant at Level 4.

Combined mean TOWES scores by skill level: Pre vs. Post (Phase Two participants) – Figure 6.15 C



- The number of participants with a Combined Mean score of Level 1 decreased by 18% and by 13% at Level 2. The number of participants with a Combined Mean Score at Level 3 increased by 15%, and by 1% at Level 4.

TOWES Scores by Participant Demographics

Age

TOWES scores by Age (All participants) – Table 6.16 A

Age	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
16-24	70	244	251	250	254	225	231	257	269
25-34	54	240	251	241	254	222	232	257	269
35-44	54	234	248	239	254	212	223	252	267
45-54	30	220	234	240	240	195	216	239	245
55-64	13	229	242	241	264	193	207	253	256

(21 did not answer)

TOWES scores by Age (Phase One participants) – Table 6.16 B

Age	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
16-24	32	238	244	243	243	219	228	252	261
25-34	26	229	242	229	246	212	218	245	263
35-44	34	216	233	220	236	196	209	232	253
45-54	23	207	219	212	226	185	200	224	231
55-64	7	198	210	210	233	165	177	218	220

TOWES scores by Age (Phase Two participants) – Table 6.16 C

Age	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
16-24	38	249	258	257	263	230	234	261	276
25-34	28	250	260	251	261	230	245	268	274
35-44	20	266	274	272	285	240	246	285	292
45-54	7	261	283	267	289	229	267	287	292
55-64	6	265	280	276	301	226	242	294	298

(21 did not answer)

There was one significant difference in any TOWES score by Age-Gain in Document Use scores, with participants aged 16-24 (gaining 3.6 points on average) –a much lower gain than those aged 45-54, who gained an average of 38 points.

Gender

TOWES scores by Gender (All participants) – Table 6.17 A

Gender	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Male	117	241	252	245	257	222	232	255	269
Female	113	233	243	237	248	209	219	252	261

(22 did not answer)

TOWES scores by Gender (Phase One participants) – Table 6.17 B

Gender	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Male	69	228	241	231	244	209	220	243	258
Female	52	216	225	221	229	194	203	232	243

(1did not answer)

TOWES scores by Gender (Phase Two participants) – Table 6.17 C

Gender	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Male	48	259	269	267	275	240	249	271	284
Female	51	250	261	254	267	224	236	272	279

(21 did not answer)

Born in Canada

TOWES scores by Born in Canada (All participants) – Table 6.18.1 A

Born in Canada	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Yes	168	253	261	258	267	231	240	268	276
No	54	185	204	188	206	163	180	205	226

(20 did not answer)

Average score gain by Born in Canada (All participants) - Table 6.18.2 A

Born in Canada	N	Combined Mean	Reading Text (RT)	Document Use (DU)	Numeracy (NU)
Yes	168	9	9	8	8
No	54	19	18	17	22

(20 did not answer)

All TOWES scores and gains were significantly lower for those not born in Canada (“no”) vs. those born in Canada (“yes”).

TOWES scores by Born in Canada (Phase One participants) – Table 6.18.1 B

Born in Canada	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Yes	76	249	257	254	262	229	236	264	271
No	46	177	196	180	197	157	173	195	218

Average score gain by Born in Canada (Phase One participants) - Table 6.18.2 B

Born in Canada	N	Combined Mean	Numeracy (NU)
Yes	76	8	7
No	46	19	23

(20 did not answer)

All TOWES scores and gains (except gains in Reading Text and Document Use) were significantly lower for participants not born in Canada (“no”) vs. participants born in Canada (“yes”).

TOWES scores by Born in Canada (Phase Two participants) – Table 6.18 C

Born in Canada	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Yes	92	256	265	262	272	234	243	272	281
No	8	234	252	237	258	203	223	261	276

(20 did not answer)

Years in Canada

TOWES scores by Years in Canada (All participants) - Table 6.19 A

Years in Canada	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Less than 1 year	5	177	204	168	194	161	185	203	234
1-5 years	30	166	181	171	187	145	157	182	200
6-10 years	6	188	221	187	221	165	190	211	251
More than 10 years	10	252	268	252	260	225	248	279	295

(3 did not answer)

There were significant group differences on all Pre- and Post-TOWES scores. However, no differences in gain scores were found.

Those participants who had been in Canada for more than 10 years had:

- ✓ higher scores on Pre-Reading Text than all other groups
- ✓ higher scores on Pre-Document Use, Pre-Numeracy and Post-Reading Text than those in the *1-5 years* and *6-10 years* groups
- ✓ higher score than those in the *1-5 years* group on Post-Document Use, Post-Numeracy and Post-Combined Mean
- ✓ higher scores than those in the *less than 1 year* and *1-5 years* groups on the Pre-Combined Mean

TOWES scores by Years in Canada (Phase One participants) - Table 6.19.1 B

Years in Canada	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Less than 1 year	5	177	204	168	194	161	185	203	234
1-5 years	29	162	177	167	182	142	154	178	165
6-10 years	4	173	206	174	208	156	166	188	243
More than 10 years	7	251	270	254	256	224	252	275	301

(1 did not answer)

NOTE: No analyses were conducted due to the small numbers of cases in each group.

TOWES scores by Years in Canada (Phase Two participants) - Table 6.19 C

Years in Canada	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
6-10 years	2	218	251	213	247	182	238	258	267
More than 10 years	3	255	263	247	270	229	238	288	282

(2* did not answer)**

* 1-5 years category data is not included because there is only one case reported that group.

** Less than 1 year category data is not included because there are no cases reported.

NOTE: No analyses were conducted due to the small numbers of cases in each group.

First Language

TOWES scores by First Language (All participants) - Table 6.20.1 A

Years in Canada	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
English	175	252	262	258	268	231	240	268	277
Other	46	177	195	179	195	157	172	195	217

(21 did not answer)

Average score gain by First Language (All Participants) - Table 6.20.2 A

First Language	N	Combined Mean	Numeracy (NU)
English	175	9	9
Other	46	18	22

(21 did not answer)

There were significant differences for all except two of TOWES scores and gains by First Language (English vs. Other), with those participants speaking English scoring higher and making more gains. The two exceptions were Gain scores for Reading Text and Gain scores for Document Use.

TOWES scores by First Language (Phase One participants) - Table 6.20.1 B

Years in Canada	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
English	76	249	258	255	264	229	238	265	272
Other	45	177	194	179	195	157	172	194	217

(1 did not answer)

Average score gain by First Language (Phase One participants) - Table 6.20.2 B

First Language	N	Combined Mean	Numeracy (NU)
English	175	9	8
Other	46	18	23

(1 did not answer)

There were significant differences for all except two of the TOWES scores and gains by First Language (English vs. Other), with participants speaking English scoring higher and making more gains. The two exceptions were gains scores for Reading Text and Gain scores for Document Use.

TOWES scores by First Language (Phase Two participants) - Table 6.20 C

Years in Canada	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
English	99	255	264	260	271	232	242	271	281

(21* did not answer)

* Other category data is not included because there is only one case reported for that group.

There was only one participant indicating s/he did not speak English. Thus, no analyses were conducted for differences between First Language (English vs. Other) on the TOWES scores.

Aboriginal, Métis or Inuit

TOWES scores by Aboriginal, Métis or Inuit (All Participants) - Table 6.21.1 A

Aboriginal, Métis or Inuit	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Yes	54	237	243	239	244	215	222	255	264
No	168	236	249	242	255	215	226	252	264

(20 did not answer)

Average score gain by Aboriginal, Métis or Inuit (All Participants) - Table 6.21.2 A

Aboriginal, Métis or Inuit	N	Reading Text (RT)
Yes	54	5
No	168	13

(20 did not answer)

There was only one significant difference for TOWES gain scores by Aboriginal, Métis or Inuit, with non-Aboriginal, Métis or Inuit participants making better gains on Reading Text (13 points) compared to their Aboriginal, Métis or Inuit counterparts (5 points).

TOWES scores by Aboriginal, Métis or Inuit (Phase One participants) - Table 6.21 B

Aboriginal, Métis or Inuit	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Yes	14	223	229	227	229	201	208	241	249
No	108	222	234	226	239	202	213	238	251

TOWES scores by Aboriginal, Métis or Inuit (Phase Two participants) - Table 6.21 C

Aboriginal, Métis or Inuit	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Yes	40	241	248	244	250	220	227	260	269
No	60	262	274	270	285	238	251	278	288

(20 did not answer)

Aboriginal, Métis or Inuit or not was related to all TOWES scores- those who reported being Aboriginal, Métis or Inuit scored significantly lower than those who were not. However, there were no differences in any gains depending on being Aboriginal, Métis or Inuit.

Years of Formal Education Completed

TOWES scores by Years of Formal Education Completed (All participants) - Table 6.22 A

Years of Education	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
11 or fewer years	78	226	237	233	243	202	214	244	254
12-13 years	86	255	264	260	269	235	241	271	281
14 or more years	58	221	238	224	242	203	217	237	254

(20 did not answer)

Years of Formal Education was related to all TOWES scores. However, there were no significant differences in any gains depending on years of schooling. Interestingly, the middle educated group of participants (those with 12-13 years of education) scored the highest.

TOWES scores by Years of Formal Education Completed (Phase One participants) - Table 6.22 B

Years of Education	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
11 or fewer years	40	218	227	224	233	196	206	233	241
12-13 years	39	250	258	253	260	229	236	267	280
14 or more years	43	200	218	203	222	182	198	216	234

Years of Formal Education was related to all TOWES scores. However, there were no differences in any gains depending on years of schooling. Interestingly the middle educated group of participants (those with 12-13 years of education) scored the highest.

TOWES scores by Years of Formal Education Completed (Phase Two participants) - Table 6.22 C

Years of Education	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
11 or fewer years	38	236	247	242	253	209	223	256	266
12-13 years	47	260	268	266	276	239	246	275	282
14 or more years	15	281	294	285	299	262	273	296	310

(20 did not answer)

Years of Formal Education Completed was related to all TOWEs scores. However, there were no differences in any gains depending on years of schooling. Those with 11 or fewer years of education scored lower than those from the other two groups (who were not different from each other).

Highest Level of Schooling Completed

TOWES scores by Highest Level of Schooling Completed (All participants) - Table 6.23 A

Years of Education	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Less than High School	58	242	250	247	258	220	225	260	267
High School	93	234	244	242	251	213	223	248	258
CEGEP diploma or certificate	14	192	219	189	218	169	192	218	247
Non-university certificate or diploma from a school of nursing, technical institute or other such educational institution	19	256	266	260	270	229	243	279	284
Apprenticeship certificate	5	277	302	279	290	263	287	291	328
Trade or Vocational certificate	14	254	266	262	272	234	248	265	277
University degree	16	220	236	217	227	205	219	237	262

(22* did not answer)

*University transfer program category data is not included because there is only one case reported for that group.

Highest Level of Schooling Completed was related only to a few TOWES scores. Specifically, the CEGEP group scored lower than all other groups on Pre-Reading Text and Pre-Document Use scores.

TOWES scores by Highest Level of Schooling Completed (Phase One participants) - Table 6.23.1 B

Years of Education	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Less than High School	26	240	245	243	252	222	223	256	261
High School	48	214	225	221	230	194	206	228	239
CEGEP diploma or certificate	11	173	204	170	201	154	176	195	234
Non-university certificate or diploma from a school of nursing, technical institute or other such educational institution	17	252	262	256	265	224	238	277	283
Trade or Vocational certificate	5	235	254	244	263	221	241	240	258
University degree	12	204	221	203	216	187	201	221	246

(1* did not answer)

*University transfer program and Apprenticeship certificate categories data are not included because there is only one case reported for that group.

Average gain scores by Highest Level of Schooling Completed (Phase One participants) - Table 6.23.2 B

Years of Education	N	Combined Mean
Less than High School	26	5
High School	48	11
CEGEP diploma or certificate	11	31
Non-university certificate or diploma from a school of nursing, technical institute or other such educational institution	17	9
Trade or Vocational certificate	5	19
University degree	12	17

(1* did not answer)

*University transfer program and Apprenticeship certificate categories data are not included because there is only one case reported for that group.

Highest Level of Schooling Completed was only to some TOWES scores. Specifically, the CEGEP group scored lower than “Less than High School“ and “Non-University Certificate“ groups on Pre-Reading text, Pre-Document Use and Pre-Combined Mean scores. The CEGEP group scored lower than “Non-University Certificate” participants’ Pre-Numeracy and Post-Reading Text scores.

TOWES scores by Highest Level of Schooling Completed (Phase Two participants) - Table 6.23 C

Years of Education	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Less than High School	32	244	254	250	263	219	227	262	271
High School	45	256	264	264	274	233	242	270	278
CEGEP diploma or certificate	3	262	275	258	281	225	250	304	295
Non-university certificate or diploma from a school of nursing, technical institute or other such educational institution	2	287	300	292	310	274	290	295	299
Apprenticeship certificate	4	271	294	267	278	247	283	300	322
Trade or Vocational certificate	9	264	272	272	278	242	251	278	287
University degree	4	267	281	260	263	258	272	283	309

(21* did not answer)

*University transfer program category data is not included because there are no cases reported for that group.

Mother's Highest Level of Schooling Completed

TOWES scores by Mother's Highest Level of Schooling Completed (All participants) - Table 6.24 A

Years of Education	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Less than High School	78	216	228	219	234	193	200	237	249
High School	66	250	264	258	267	227	245	265	281
More than High School	76	247	255	251	261	229	237	261	267

(22 did not answer)

Mother's Highest Level of Schooling Completed was related to all TOWES scores. However, again, there were no differences in any gains depending on Mother's Highest Level of schooling Completed. Participants with mothers who had completed high school or beyond scored more highly than participants with mothers who did not complete high school.

TOWES scores by Mother's Highest Level of Schooling Completed (Phase One participants) - Table 6.24 B

Years of Education	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Less than High School	46	195	209	197	214	174	183	215	230
High School	38	239	252	245	253	217	233	256	270
More than High School	36	240	250	245	255	224	233	251	261

(2 did not answer)

Mother's highest Level of Education was related to all TOWES scores. However, again, there were no differences in any gains depending on Mother's Highest Level of schooling. Those with mothers who had completed high school or beyond scored more highly than those with mothers who did not complete high school.

TOWES scores by Mother's Highest Level of Schooling Completed (Phase Two participants) - Table 6.24 C

Years of Education	N	Combined Mean		Reading Text		Document Use		Numeracy	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Less than High School	32	246	255	250	264	221	225	268	277
High School	28	264	281	276	286	240	261	277	295
More than High School	40	253	260	256	266	233	241	270	272

(20 did not answer)

Mother's highest Level of Education was related to three TOWES scores: Pre-Reading Text, Post-Document Use and Post-Combined Mean. Those with mothers who had completed high school scored more highly than those with mothers who did not complete high school.

TOWES Scores by Project Partner

Each project partner facilitated the ESD curriculum to their participants in different ways and to a different number of participants. The following table demonstrates the combined mean and Essential Skills domain pre & post TOWES scores for all participants by project partner organization.

TOWES scores by Project Partner Organization (All participants)- Table 6.25 A

Partner Organization	N	Reading Text		Document Use		Numeracy		Combined Mean		Combined Mean Variance
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Northern Alberta Institute of Technology	11	232	239	224	225	267	265	241	243	+2
College of New Caledonia	8	231	245	220	206	253	247	234	233	-1
Douglas College	6	263	285	235	278	295	288	264	284	+20
New Brunswick Community College	9	280	268	231	253	270	283	260	268	+8
Academy Canada	17	265	286	242	248	270	290	259	275	+16
College of the North Atlantic	5	290	302	274	272	297	308	287	294	+7
Nova Scotia Community College	7	305	313	275	274	316	316	299	301	+2
Teetl'it Gwich'in Band Council	14	206	223	174	187	217	245	199	218	+19
Atikokan Adult Literacy Centre	24	259	266	229	240	274	272	254	260	+6
Fanshawe College	27	275	284	234	249	287	293	265	276	+11
Georgian College	11	238	238	219	220	243	240	233	233	0
La Cité Collégiale	43	169	187	148	161	182	207	166	185	+19
Niagara College	45	265	281	246	258	279	296	263	278	+15
TriArch Educational Services*	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Saskatchewan Indian Institute of Technology	14	259	257	239	242	275	278	258	259	+1

(n=241)

**Scores for TriArch Educational Services are not included in the analysis because there was only one case reported for that group.*

Project Partner was related to all TOWES scores but not to gains. Specifically, participants from La Cité Collégiale scored lower than those at the other project partners, except for Teetl'it Gwich'in. Participants from Teetl'it Gwich'in scored lower than those from about half of the other project partners.

TOWES scores by Project Partner (Phase One participants)- Table 6.25 B

Partner Organization	N	Reading Text		Document Use		Numeracy		Combined Mean		Combined Mean Variance
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Northern Alberta Institute of Technology	11	232	239	224	225	267	265	241	243	+2
Nova Scotia Community College	7	305	313	275	274	316	316	299	301	+2
Teetl'it Gwich'in Band Council	5	223	237	188	193	232	253	214	228	+14
Atikokan Adult Literacy Centre	9	273	276	235	245	273	259	260	260	0
Fanshawe College	13	253	258	223	238	276	284	251	260	+9
Georgian College	11	238	238	219	220	243	240	233	233	0
La Cité Collégiale	43	169	187	148	161	182	207	166	185	+19
Niagara College	23	267	283	239	257	267	291	258	277	+19

(n=122)

Project Partner was related to all TOWES scores but not to gains. Specifically, participants from La Cité Collégiale scored lower than those at the other project partners, except for Teetl'it Gwich'in.

TOWES scores by Project Partner (Phase Two participants)- Table 6.25.1 C

Partner Organization	N	Reading Text		Document Use		Numeracy		Combined Mean		Combined Mean Variance
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	
College of New Caledonia	8	231	245	220	206	253	247	234	233	-1
Douglas College	6	263	285	235	278	295	288	264	284	+20
New Brunswick Community College	9	280	268	231	253	270	283	260	268	+8
Academy Canada	17	265	287	242	248	270	290	259	275	+16
College of the North Atlantic	5	290	302	274	272	297	308	287	294	+7
Teetl'it Gwich'in Band Council	9	197	215	167	183	209	240	191	213	+22
Atikokan Adult Literacy Centre	15	250	260	225	237	274	280	250	259	+9
Fanshawe College	14	296	309	244	260	298	301	279	290	+11
Niagara College	22	263	278	253	260	291	302	269	280	+11
TriArch Educational Services*	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Saskatchewan Indian Institute of Technology	14	259	257	239	242	275	278	258	259	+1

(n=120)

**Scores for TriArch Educational Services are not included in the analysis because there was only one case reported for that group.*

Average gain scores by Project Partner (Phase Two participants) - Table 6.25.2 C

Partner Organization	N	Combined Mean	Reading Text	Document Use
College of New Caledonia	8	-2	14	-14
Douglas College	6	20	22	44
New Brunswick Community College	9	8	-12	22
Academy Canada	17	16	22	6
College of the North Atlantic	5	7	12	-2
Teetl'it Gwich'in Band Council	9	22	18	16
Atikokan Adult Literacy Centre	15	9	10	12
Fanshawe College	14	11	14	16
Niagara College	22	11	15	7
TriArch Educational Services*	1	N/A	N/A	N/A
Saskatchewan Indian Institute of Technology	14	1	-2	3

**Scores for TriArch Educational Services are not included in the analysis because there was only one case reported for that group.*

Project Partner was related to all TOWES scores and gains, except for Numeracy gains. Specifically, participants from Teetl'it Gwich'in scored lower than those at the other project partners, except for College of New Caledonia.

ⓘ *See **Appendix E** for the ESD Partner Summaries for a description of the individual pilot sites and the participants involved*

TOWES Scores by Phase

Each project partner participated in one, or in some cases, both phases of the ESD field test. Phase One and Phase Two participation was related to TOWES scores. There were no significant differences in any TOWES scores gains depending on phase participation.

TOWES Scores by sector specific curriculum (All participants)- Table 6.26

Sector specific curriculum	N	Reading Text		Document Use		Numeracy		Combined Mean		Combined Mean Variance
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Phase One	122	226	238	202	212	238	251	222	234	+12
Phase Two	120	261	272	235	245	274	284	257	267	+10

Phase One vs. Phase Two was related to all TOWES scores. However, there were no differences in any gains depending on Phase. Participants in Phase 2 scored more highly that than those in Phase 1.

TOWES Scores by Sector

Each project partner facilitated the ESD curriculum to their participants based on the choice of one sector specific curriculum chosen individually by each project participant. The following table demonstrates the combined mean and Essential Skills domain pre & post TOWES scores for all participants by Sector (sector specific curriculum).

TOWES Scores by Sector (All participants)- Table 6.27 A

Sector specific curriculum	N	Reading Text		Document Use		Numeracy		Combined Mean		Combined Mean Variance
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Health	50	237	250	220	224	253	256	237	243	+6
Trades/ Entrance into Apprenticeship	113	228	240	203	213	242	257	224	236	+12
Automotive	79	269	279	239	254	278	290	262	274	+12

Sector was related to all TOWES scores. However, there were no differences in any gains depending on sector. Those in the Automotive sector scored more highly than those in the Health or Trades sectors (except Pre document Use where Health and Automotive sectors scored higher than Trades, but were not different from each other).

TOWES Scores by Sector (Phase One participants)- Table 6.27 B

Sector specific curriculum	N	Reading Text		Document Use		Numeracy		Combined Mean		Combined Mean Variance
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Health	29	228	235	210	213	239	244	226	231	+5
Trades/ Entrance into Apprenticeship	56	204	217	179	190	218	234	201	214	+13
Automotive	37	258	271	229	246	266	284	251	267	+16

Sector was related to all TOWES scores. However, there were no differences in any gains depending on sector. Those in the Automotive sector scored more highly than those in the Trades sector. They also scored higher than those in the Health sector on Post-Reading Text, Post-Numeracy, and Post-Combined Mean scores.

TOWES Scores by Sector (Phase Two participants)- Table 6.27 C

Sector specific curriculum	N	Reading Text		Document Use		Numeracy		Combined Mean		Combined Mean Variance
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Health	21	250	271	234	240	271	273	252	261	+9
Trades/ Entrance into Apprenticeship	57	251	262	226	235	266	279	248	259	+11
Automotive	42	278	286	247	260	288	297	271	281	+10

Sector was related to six of the TOWES scores: Pre-Reading Text, Pre-Numeracy, Pre-Combined Mean Post-Reading Text, Post-Document Use and Post-Combined Mean. However, there were no differences in any gains depending on sector. Those in the Automotive sector scored more highly than those in the Trades sector. They also scored higher than those in the Health sector on Pre-Reading Text.

TOWES Scores by Estimated Time Spent on ESD Curriculum

An estimated measure of participant time spent on the ESD curriculum was captured using the participant evaluation form. The following table demonstrates the combined mean and Essential Skills domain pre & post TOWES scores for all participants by estimated time spent on ESD curriculum.

TOWES Scores by Estimated Time Spent on ESD Curriculum (All participants)- Table 6.28 A

Estimated time spent on ESD curriculum	N	Reading Text		Document Use		Numeracy		Combined Mean		Combined Mean Variance
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	
1-5 hours	35	196	215	173	185	203	216	191	205	+14
6-10 hours	43	246	256	219	232	261	270	242	253	+11
11-15 hours	46	257	264	238	247	278	292	258	268	+10
16-20 hours	73	255	267	225	235	264	276	248	259	+11
More than 20 hours	33	245	259	220	229	254	271	240	253	+13

(12 did not answer)

Estimated Time Spent on ESD Curriculum was related to all TOWES scores. However, there were no differences in any gains depending on Estimated Time spent on ESD Curriculum. Those who spent more than 5 hours scored more highly that those who spent 5 hours or less on the ESD curriculum.

TOWES Scores by Estimated Time Spent on ESD Curriculum (Phase One participants)- Table 6.28 B

Estimated time spent on ESD curriculum	N	Reading Text		Document Use		Numeracy		Combined Mean		Combined Mean Variance
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	
1-5 hours	25	170	191	145	160	176	195	164	182	+18
6-10 hours	27	231	240	201	214	245	256	226	237	+11
11-15 hours	22	246	252	227	238	260	277	245	256	+11
16-20 hours	35	251	264	226	235	266	273	248	257	+9
More than 20 hours	7	211	231	195	198	230	262	212	231	+19

(6 did not answer)

Estimated Time Spent on ESD Curriculum was related to all TOWES scores. However, there were no differences in any gains depending on Estimated Time spent on ESD Curriculum. Those who spent more than 5 hours scored more highly that those who spent 5 hours or less on the ESD curriculum.

TOWES Scores by Estimated Time Spent on ESD Curriculum (Phase Two participants)- Table 6.28 C

Estimated time spent on ESD curriculum	N	Reading Text		Document Use		Numeracy		Combined Mean		Combined Mean Variance
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	
1-5 hours	10	260	275	242	245	271	266	258	262	+4
6-10 hours	16	271	284	249	261	289	293	270	279	+9
11-15 hours	24	268	275	248	256	294	305	270	279	+9
16-20 hours	38	258	270	224	235	262	280	248	261	+13
More than 20 hours	26	254	266	226	238	261	274	247	259	+12

(6 did not answer)

TOWES Scores and Labour Market Outcomes

Increase in Earning Potential

The Literacy, Numeracy and Labour Market Outcomes in Canada written by David A. Green and W. Craig Riddell (Statistics Canada, 2001), found that "…an increase of 10 points on the literacy scale raises earnings about 3.1%..."[15] Based on this finding, an analysis of point-based increases was completed for the participants of this project. The following results were observed:

- ✓ 21% of ESD participants improved their earning potential by 3%
- ✓ 31% of ESD participants improved their earning potential by 6%
- ✓ 52% of ESD participants improved their earning potential by 3% or more

Improvements in Labour Productivity

Previous research conducted by Statistics Canada found that "a rise of one percent in literacy scores relative the international average is associated with an eventual 2.5% relative rise in labour productivity and a 1.5% rise in GDP per person." [16]

The following results were observed:

- ✓ 7% of ESD participants increased their labour productivity by 2.5%
- ✓ 9% of ESD participants increased their labour productivity by 5%
- ✓ 12% of ESD participants increased their labour productivity by 7.5%
- ✓ 31% of ESD participants increased their labour productivity by 10%
- ✓ 59% of ESD participants increased their labour productivity by 2.5% or more

[15] Page 20. Literacy, Numeracy and Labour Market Outcomes in Canada. David A. Green and W. Craig Riddell. Statistics Canada, 2001.

[16] Literacy Scores, Human Capital and Growth Across 14 OECD Countries. Serge Coulombe, Jean-François Tremblay and Sylvie Marchand. Statistics Canada. 2004.

Feedback Evaluation Survey Highlights

Facilitator Evaluations Highlights

A total of 25 facilitator feedback evaluation surveys were completed over the course of the project. Facilitator feedback was gathered via a paper-based evaluation form in Phase One and an online survey collector in Phase Two.

The results from this feedback were analyzed by an external reviewer and highlights of the findings are summarized below:

- ✓ Overall facilitators in both phases were satisfied to some extent. Globally, every evaluation question has more *Satisfied* responses than *Not Satisfied* responses
- ✓ Five responses in Phase One suggested facilitators were not confident in ESD or that the program needed to fix technical issues for them to be confident in it. The lack of confidence that is expressed by Phase One facilitators seemed to drop away in Phase Two
- ✓ Facilitators reported that their learner groups were typically enrolled in Academic Upgrading programs in Phase One and a combination of Academic Upgrading and Workplace Training programs in Phase Two
- ✓ In Phase One nearly half of the learners accessed ESD at home while just over on third accessed it at a college. In Phase Two, approximately one third of learners accessed ESD either at home, at a training centre or at a college
- ✓ Overall, a combination of independent and facilitated learning styles was used to deliver the ESD curriculum
- ✓ Approximately two thirds of facilitators reported that their learners used a combination of online and offline mediums for accessing the ESD content modules. Similarly, approximately two thirds of facilitators reported that their learners used a combination of online and offline mediums for completing their ESD modules
- ✓ Limited computer skills were the main barrier experienced by their learners. Being out of school for several years was identified as the second most common barrier experienced by learners
- ✓ Improvements on post-TOWES tests were noticed
- ✓ Compared to Phase One, facilitators in Phase Two were more satisfied with the responses they received towards technical issues identified and functionality challenges experienced while using the ESD system (e.g.: login issues, document manipulation, content navigation)
- ✓ In nearly all cases, Phase Two facilitators were more satisfied with the overall elements of the project than Phase One facilitators. Notably, Phase Two facilitators were most satisfied with the facilitator training received, access to the ESD system, technical support received and learner account management. Facilitator satisfaction with the utility of ESD learning materials was generally higher in Phase Two compared to Phase One
- ✓ Interestingly, there was very little difference in the facilitators' rating of the learner's experience between both phases. However, in Phase Two facilitator satisfaction increased for the following topics: using new skills in the area of Document Use, improving existing work-related skills, learning new work-related skills and increasing skills in the area of Numeracy

- ✓ When examining open-ended comments, there seemed to be some animosity/resistance to online learning. Some of the comments included:

> "Keen to avoid similar experiences "
> "We would be more cautious about joining in the future"

On the other hand, other facilitators were impressed with the essential Skills being taught. Comments included:

> "[Gained] more knowledge of essential skill learning and its relation to the workplace"
> "[There is a] need for a tool like this in the workplace"

Participant Evaluations Highlights

A total of 134 participant evaluation forms were collected. Participant feedback was gathered via a paper-based evaluation form in Phase One and an online survey collector in Phase Two. Due to a number of factors specific to each partner organization, not all participants completed the feedback evaluation survey.

Overall the response to ESD from the participants was positive. Below is a brief summary of some of the results:

- ✓ Participants in both phases had limited experience in online learning
- ✓ The largest group of participants worked independently with the help of an instructor (facilitator)
- ✓ In Phase One and Phase Two, participants predominantly used online mediums for completing the ESD content, although increasingly in combination with offline mediums in Phase Two. In both phases, less than 20 percent of participants worked solely offline on paper
- ✓ While just under half of Phase One participants reported that they completed all of the ESD modules, nearly 80 percent of Phase Two participants reported completing the whole program, approximately a one-third increase
- ✓ There was a decreased among the number of participants in Phase Two who reported that their computer was not able to handle the ESD system
- ✓ Generally speaking, it appeared that the more time the learners spent on the program, the more satisfied they were with it
- ✓ Participant satisfaction was higher in Phase Two following changes made to the LMS. The most noticeable improvements were related to: logging in, using the navigation menu, maximizing the curriculum on screen, using the PDF documents and using forms
- ✓ Phase Two participants were much more satisfied with the support they received from their instructor or facilitator

- ✓ On all counts, Phase Two participants perceived that the materials were useful, particularly regarding the following: TOWES pre-and post-tests, Theme-based units and module assessments
- ✓ More Phase Two participants were satisfied with their overall project experience than were participants in Phase One
- ✓ Most participants reported that their self-confidence as independent learners increased, particularly in Phase Two where over three-quarters of participants reported increased confidence
- ✓ Participants in both phases reported some increase in their computer-based learning, their understanding of both occupational opportunities and other learning opportunities
- ✓ Below are a few comments from the Participant Evaluations:

> "This is a good way to learn about possible occupations from the testing. I have never done any online testing. It was a great experience. The modules covered a lot of information"
>
> "Thank you for the opportunity to evaluate my skills and upgrade them. I feel more confident in myself going into college"
>
> "[I liked that] It is based on the occupation I will get into. It is very technical and useful"
>
> "Learning new information, regarding forms. I am interested in health care, found very interesting"
>
> "Pretest helped with my self-confidence in my abilities. Having access to the [in]formation all the time to practice during free time to improve our skills and not forget [the material]"
>
> "I really enjoyed this testing in really made me open my eyes to learning new skills"
>
> "It was helpful and now I can use my new skills learnt in everyday activities"
>
> "Upgraded skills I have and gave me an opportunity to see things that I may need to know that I don't know now"
>
> "I was able to work at home at my own pace. You can work on specific skills that need to be brought up to a higher level"
>
> "I enjoyed taking the TOWES test and improving my skills"

Conclusions and Recommendations

The *Essential Skills Online: A Consortium Approach* research and development project or, the *Essential Skills Direct (ESD) project,* successfully completed all project deliverables.

Project Deliverables

Deliverables achieved:

- Producing a *Needs Assessment and Literature Review Report* by conducting needs analysis consultations with sector groups, industry and key project stakeholders ; a literature review of existing Essential Skills research; and connecting industry specific occupational information to the research findings and the development of sector-specific learning materials
- Creating learning materials for 4 industry-specific sector groups (Automotive, Entrance into Apprenticeship/Trades, Health and Petroleum (Oil & Gas))
- Developing a series of Essential Skills Tools and Resources (training materials, instructional guides, workbooks)
- Creating an interactive, web-based Learning Management System to host online and hardcopy versions of the learning materials
- Conducting a field-test with 247 learners from 16 nationally based pilot partner organizations
- Collecting, analyzing and reporting on field-test data
- Conducting an external review of the project and producing an *External Evaluation Report*
- Producing a *Final Pilot Project Report*

Project Outcomes

The *ESD project* was successful in achieving the objective of improving Essential Skills (Reading Text, Document Use and Numeracy) by improving Essentials Skills levels with 69% of participating learners. ESD increased Combined Mean Essential Skill scores by an average of 11 points, with 31% of participating learners improving their Combined Mean Essentials Skills scores by 20 or more points.

Based on the responses collected from the feedback evaluation surveys, 56% of learners in Phase One and 63% of learners in Phase Two reported improved knowledge of and confidence in computer-base learning. However, it should be noted that 82% of learners in Phase One and 86% of learners in Phase Two indicated that they were comfortable working in an online learning environment despite the fact that only 31% of learners in Phase One and 24% of learners in Phase Two reported having previous online learning experience.

Based on the responses collected from the feedback evaluation surveys, 67% of learners in Phase One and 77% of learners in Phase Two reported improved self-confidence as independent learners. The blended delivery approach used with a majority of learners made learner self-confidence in independent learning difficult to measure. However, the 10% increase reported in Phase Two likely demonstrates that the improvements made to the ESD system positively impacted learner's self-confidence as independent learners. Additionally, the open-ended responses reported in the feedback evaluation surveys were highly positive. These responses indicated the effectiveness of the *ESD project* for increasing the level of personal self-confidence learners perceived towards their own skills and abilities. Although not specifically related to independent learning, the responses demonstrate an increase in learner self-confidence as a result of project participation.

Based on the responses collected from the feedback evaluation surveys, 60% of learners in Phase One and 66% of learners in Phase Two reported gaining an understanding about other learning opportunities. Project facilitators reported a large number of learners were enrolled in academic upgrading or existing training programs while participating in the project. This may have influenced learner willingness to engage in additional training at the time of the survey.

Project Recommendations

It is recommended that where possible, Essential Skills training be presented in sector specific contexts to achieve the largest amount of learner buy-in towards both the learning materials and the learning process. Based on feedback from participants and facilitators, positive Essential Skills training outcomes are best achieved when training is presented in a sector-based context. By presenting realistic workplace tasks in the context of sector specific scenarios, learners felt that the material they were using was relevant to their existing career goals or for any technical training they were currently receiving. Overall, learners felt that improving Essential Skills was engaging and enjoyable when completed in a sector specific training context.

ESD incorporated the use of a "strategies model" throughout the learning materials to teach learners how to use various strategies and techniques for applying Essential Skills. This model should continue to be expanded and enhanced in future work. Both learners and facilitators reported that the strategies model was beneficial for improving Essential Skills levels.

It is recommended a facilitated learning environment is adopted as the primary content delivery approach. Participating learners agreed that this approach was successful because it provided the necessary opportunities for instructional support, feedback and clarification while piloting the ESD curriculum. When factoring in the technological aspects for accessing the tool, for some learners the piloting of new learning materials became an experience ripe with uncertainty. The facilitator (and access to them) became an invaluable support component for the learner, capable of resolving most challenges or providing the necessary clarification to build confidence in the learner's own abilities.

It is recommended that future projects include the ability to develop Essentials Skills instructional capacity with facilitators. The demand for instructional support by participating learners remained throughout the project even though ESD was designed primarily for use as an independent learning resource. While a majority of project facilitators were instructor within college programs, several were not, and relied extensively on the support components created for the ESD tool to guide their instructional support. This recommendation will ensure that project facilitators, regardless of their background or experience, are adequately prepared to respond to learner requests for instructional support when completing the Essential Skills learning materials.

It is recommended that for future projects, facilitator recruitment is targeted towards instructors with existing sector-based knowledge to facilitate the use of sector-based materials. Increased facilitator capacity for utilizing sector-based materials would benefit learners. Facilitators with existing sector-based knowledge are likely able to answer more technically focused questions and may be better prepared to include Essentials Skills training components into existing technical programming.

It is recommended that for future projects, sector-based learning materials are created for additional sectors of industry. Throughout the pilot partner recruitment process the project team fielded numerous inquiries about learning materials being created for additional sectors of industry. Sectors of interest included: Mining, Manufacturing, Warehousing and Logistics, Food Handling or Food Processing and more specific Red Seal occupations outside of the building trades area. The “on the job” methodology used to teach Essential Skills in ESD allow learners to acquire literacy skills while becoming familiar with the types of documents and language they would encounter at work, specifically within the occupations of a particular sector of industry. Early and more frequent exposure to the sector-based and occupationally specific applications of Essentials Skills would only stand to better support learners toward this end.

It is recommended that for future projects, frequent communication with project partners is continued and feedback opportunities are provided at several pre-determined stages during the pilot. This ensures that end users are able to communicate in real-time the utility of any newly created learning resource. The re-development of the ESD learning management system in Phase Two of the project had a profoundly positive impact on both learner and facilitator perception of the ESD learning materials and the tool itself. The re-development opportunity however, could not have been achieved if constant communication and feedback was not established with project partners from the outset of the project. The feedback received was ongoing and although largely positive, it was at times very constructive in nature. The ability for project partners to openly express their concerns with the tool, specifically for crucial functional elements, allowed the project team to carefully consider the re-development of the tool and implement the necessary changes in Phase Two of the project.

It is recommended that in future projects, the use of honoraria as a pilot recruitment and completion incentive is continued. Eligibility for receiving the honoraria funds should always hinge on the completion of specific components of the field test activities such as pre- and post-testing, completion of curriculum and completion of evaluation surveys. ESD project partners were eligible to receive honoraria for their recruitment of pilot participants who were able to complete all components of the pilot field-test and did not receive honoraria for any pilot participants who were non-completers.

It is recommended that in future projects, the body of research is expanded to include private sector businesses as pilot partners to examine the effectiveness of online Essentials Skills instructional resources for improving the Essential Skills of an existing workforce. Since IALS, a macro –level objective of the federal government has been to increase the productivity of its national workforce by improving the literacy levels of its working age adult population. It believed that a more productive workforce would increase its competiveness relative to other nations, allowing the Canadian economic machine to compete in the global marketplace with a human resource advantage. As such, evaluating the effectiveness of an online Essentials Skills instructional resource for improving the Essential Skills of an industry's existing workforce would be valuable. By including private sector partnerships within project activities we can begin to determine the suitability of online Essentials Skills instructional resources for presenting meaningful sector-based training within the sectors themselves. This inclusion will also provide first-hand insight into the benefits online Essentials Skills instructional resources may achieve for workers currently working in industry who are receiving industry-specific training.

Project Conclusions

Overall, *Essential Skills Direct* was effective at increasing the literacy proficiencies of Reading Text, Document Use and Numeracy. By presenting Essential Skills training in a sector-based context, participating learners were able to learn new strategies and techniques for solving problems or for completing workplace tasks that were relevant to them as workers or potential workers in the Canadian workplace. By completing the ESD sector-based learning materials participating learners improved their Essential Skills levels relative to the demands of several sector-specific occupations, ultimately removing barriers to employment for many individuals. Participating learners who improved their Essential Skills have increased their capacity to learn new skills (both in training and on the job), are likely safer and more productive workers, will demonstrate better labour market outcomes and have increased their earning potential. Participating learners are now better prepared to enter industry and are more likely to find higher levels of success as workers.

Appendices