

# Testing ...



## TOWES

Part of the Learner Skill Attainment Initiative

**Final Report  
June 2008**

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## ACKNOWLEDGEMENTS

Everything went very, very smooth at our end. I believe the major thing with any type of testing is to ensure the test takers are relaxed and feel comfortable in their surroundings. We go the extra mile to make sure this happens.

*TOWES Test Administrator*

Field testing the Test of Workplace Essential Skills (TOWES) involved the participation of many individuals and organizations in a very short time period (January to March 2008). The College Sector Committee (CSC) wishes to thank everyone who supported this project.

First of all, the CSC extends its gratitude to Bow Valley College for its generous offer of free TOWES On-line tests for students to pilot. A special thank you goes to Alisa Foreman for guiding us through new assessment territory with efficiency, clarity and patience.

The CSC Executive is to be recognized for their support and direction throughout the project, by signing their colleges up for the field test, linking the project to Bow Valley College, reviewing survey processes and forms, and providing practical advice. We are especially grateful to Sandi Hennessey and Barb Glass for sharing their expertise and experience with TOWES. The Executive Director of CSC, Lynne Wallace, took a “hands-on” role in getting the project started. Thanks, Lynne!

We also want to acknowledge the managers, co-ordinators and test administrators of participating colleges. The project required the involvement of many players, especially at colleges where testing was carried out at different sites. Co-ordination at many levels was needed, from identifying students eligible to complete the test, to making sure all the test materials and booklets were returned to the CSC. This was challenging considering the project’s tight time frame. Participating colleges include:

- Cambrian
- Canadore
- Centennial
- Conestoga
- Durham
- Fanshawe
- Georgian
- Lambton
- Loyalist
- Sheridan

Our deepest appreciation goes to the students in the Academic and Career Entrance program, who, on top of writing a two-hour test, took the time to complete a lengthy questionnaire. Their comments provide important insight into their test taking experiences. Their feedback on the test itself will help determine the suitability of TOWES as a valid, reliable test of Essential Skills for students with college postsecondary and Apprenticeship goals.

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## **BACKGROUND**

The Learner Skill Attainment (LSA) Initiative, led by the CSC, was undertaken in early 2007 to develop a framework for measuring learner skill attainment in three key Essential Skills areas: Reading Text, Document Use and Numeracy. The initiative is a work-in-progress, but eventually the framework will enable Literacy and Basic Skills (LBS) and Academic Upgrading (AU) programs in Ontario to track learners' progress towards their goals on a consistent scale in meaningful increments that relate to those goals. Programs will be able to measure learner skill attainment more accurately, thus demonstrating program effectiveness and accountability.

The literacy field in Ontario has long supported the need for a more valid, reliable and manageable approach to assessment. The field wanted an assessment language and approach that would:

- describe learning outcomes in terms of what learners will be able to do or where learners will be able to go at the completion of their training
- describe gains in skills and knowledge in a meaningful way to key stakeholders such as Apprenticeship, Job Connect, Labour Adjustment Advisory and Ontario Works
- clearly link LBS/AU to other models in use
- enhance the role of LBS/AU as a key player in skills training in Ontario

## **Transition Paths**

The framework is organized by students' goal paths. To date, five "transition paths" have been identified:

1. Foundations for Independence
2. Employment
3. Secondary School Credit
4. College Postsecondary
5. Apprenticeship

Transition paths 4 and 5 relate specifically to colleges.

The framework is based on the IALS/ Essential Skills scales which are internationally recognized and therefore provide a common assessment language for all stakeholders within and beyond Ontario. The federal government has invested significant resources into the development of the nine Essential Skills, and several LBS agencies delivering workforce preparation have already made great strides integrating them into their programs.

## Assessment Instruments

The LSA Framework Development Team identified two valid, reliable tests based on the IALS/Essential Skills 500-point scale that had potential for assessing learners in all five transition paths. They are the Prose, Document and Quantitative Series (PDQ) and the Test of Workplace Essential Skills (TOWES). Projects involved in researching the paths requested funding to field-test one or both of the instruments. The CSC selected TOWES to field-test and received funding in late 2007.

There were many reasons for selecting TOWES. First of all, colleges are familiar with the test because they are distributors of TOWES provincially. The protocols for administering the test and maintaining test security are well established. TOWES is made in Canada and based on HRSDC's Essential Skills; it is occupationally focused and therefore compatible with the career, trade and employment goals of Academic and Career Entrance (ACE) students. TOWES is available in both official languages and in paper and on-line versions. Finally and perhaps most importantly, TOWES scores have been shown to predict performance both in workplace and academic settings.<sup>1</sup>

In January 2008 an e-memo was sent to all 24 colleges offering college Academic Upgrading programs an opportunity to participate in field testing TOWES. Initially, the CSC hoped to establish baseline Essential Skills scores for Academic and Career Entrance (ACE) students who were close to transitioning to a postsecondary or Apprenticeship program, i.e., had completed most of their required ACE courses. It was thought that the scores might serve as guidelines for the development of learning and assessment activities that support transition and indicate transition readiness.

## Change of Project Direction

Two factors significantly influenced the direction of the project. The first was an opportunity to expand the field test as a result of the generous offer from Bow Valley College to pilot free on-line TOWES tests. This meant that colleges who wished to offer ACE students the option of on-line testing would have to participate in the on-line TOWES training in late January or early February. The CSC gratefully accepted Bow Valley College's offer to pilot

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<sup>1</sup> Dr. Theresa Kline completed two reports for TOWES. One is a summary of 11 different studies carried out at Bow Valley College: [http://www.towes.com/pdfs/towes\\_bvc\\_testingsummary.pdf](http://www.towes.com/pdfs/towes_bvc_testingsummary.pdf).

The other looked at what TOWES scores predicted at a number of employment and academic settings: <http://www.towes.com/pdfs/towesvalidationstudy.pdf>.

TOWES On-line with the clear understanding that where paper and on-line versions were both available to ACE students, it was the student who determined the selection.

The second factor was the response to the CSC's initial e-memo. Colleges were asked to indicate their interest in participating in the project by estimating the number of paper-based TOWES tests and/or on-line TOWES tests they thought they could administer. There was concern about how many students would qualify for the field test, since the timing did not coincide with ACE completion dates. Most ACE students make the transition to college postsecondary and Apprenticeship programs in September or early January. The field test was scheduled for February with a project wrap-up date of March 31<sup>st</sup>. This was a very tight time frame. As a result, the CSC expanded the eligibility criteria for student participation to:

- Students who had completed at least **50%** of the required ACE communications and mathematics courses for admission to postsecondary or Apprenticeship programming.
- Students who had completed ACE communications and mathematics courses and were **admitted** to postsecondary or Apprenticeship programming **after January 1, 2008**.

The addition of the on-line option changed the focus of the project. While there was still interest in examining students' scores, there was also interest in finding out about students' test taking experiences. The option of paper or on-line versions provided an opportunity to compare the performances of two groups of students based on test format selection.

## Participating Colleges

Four criteria were developed for selecting colleges to participate in the TOWES field test:

- regional representation
- colleges' capacity to test students who had completed approximately 50% of the ACE programming required for admission to postsecondary or Apprenticeship training
- the order in which the expressions of interest were received
- colleges' ability to administer TOWES On-line

Eleven colleges responded to the initial e-memo indicating they could test between 134 and 187 students. The CSC provided guidelines for administering the TOWES and the Test Evaluation Form along with instructions related to billing and student honoraria. See **Appendix A**.

Ultimately, ten colleges representing all four regions in Ontario took part in the project:

1. Cambrian
2. Canadore
3. Centennial
4. Conestoga
5. Durham
6. Fanshawe
7. Georgian
8. Lambton
9. Loyalist
10. Sheridan

In total, 95 students participated in the field test. This figure was considerably lower than anticipated, but not surprising due to the time constraints and complexity of the project. Only 2 of the 95 were postsecondary students. One explanation was provided, “I know we committed to 15 in total, but the postsecondary students were very hard to pin down to our test times. Those who could were ‘no shows’ at testing times.”

Another challenge surfaced in identifying eligible ACE students: It was difficult and time consuming to find students who were half way through both their ACE communications and math courses. In many cases students are at very different places in these courses according to their ability and interest in the subject. Depending on their goal, students are also able to select from four ACE math courses including Core Math, Business Math, Technology Math or Apprenticeship Math. Some courses may take longer than others. Again, identifying eligible students for testing would not have been an issue if it had been possible to assess them close to or at the point of their transition to postsecondary or Apprenticeship programming.

## FIELD TEST DESIGN

A questionnaire was developed to identify variables affecting students’ test performance. See **Appendix B**. Qualitative and quantitative information would be gathered. The evaluation form included questions related to test anxiety, the student’s physical state and the test environment. In addition, the form included questions about the administration of the test and about the test itself. Each ACE student tested would be required to complete a test evaluation form. Test administrators were asked to record the IRT scores as well as the Essential Skills levels. The levels are quite wide, encompassing several hundred points for Levels 1 and 5, and 50 points for Levels 2, 3 and 4. A person with a score of 226 has the same level score as a person scoring 274, although the person with the 226 score is performing considerably lower. One advantage of the scales for Learner Skill Attainment is that they can be broken down into finer categories for measuring smaller gains in learning.

An example of how levels can be broken down has been provided by Dr. Theresa Kline, who worked in an advisory capacity on the framework initiative.

<b>Essential Skill Level</b>	<b>Scale Score Band</b>	<b>Essential Skill Category</b>
1	0 - 190	Level 1-low
1	191 - 210	Level 1-medium
1	211 - 224	Level 1-high
2	225 - 240	Level 2-low
2	241 - 260	Level 2-medium
2	261 - 274	Level 2-high
3	275 - 290	Level 3-low
3	291 - 310	Level 3-medium
3	311 - 324	Level 3-high
4	325 - 340	Level 4-low
4	341 - 360	Level 4-medium
4	361 - 374	Level 4-high
5	375 - 390	Level 5-low
5	391 - 410	Level 5- medium
5	411 - 500	Level 5-high

Kline points out that the level divisions are based on the standard error of measurement of the literacy scales, and therefore rest on a sound (psychometric) basis.

We wanted to see what the pattern of TOWES scores looked like using these finer categories. We thought they might have potential for identifying students who were struggling academically. We know that TOWES is a good indicator of academic performance. Considering the constraints of the field test, we had a fairly homogeneous group of students, i.e., students who were half way or more through their communication or math courses with college postsecondary and Apprenticeship goals. For the purpose of the study, we chose a cutoff point at low Level 2 Essential Skills. This was somewhat arbitrary but based on research that indicates that moving from Level 2 to Level 3 Essential Skills represents a key transition for students.<sup>2</sup> Kirsch, Jungleblut, Jenkins, and Kolstad (1993) reported that adults with Essential Skills below Level 3 tended to be less

<sup>2</sup> Kirsch, I., Jungeblut, A., Jenkins, L., & Kolstad, A. (Eds.). (1993). *Adult literacy in America: A first look at the National Adult Literacy Survey*. Washington, DC: National Center for Education Statistics, U.S. Department of Education.

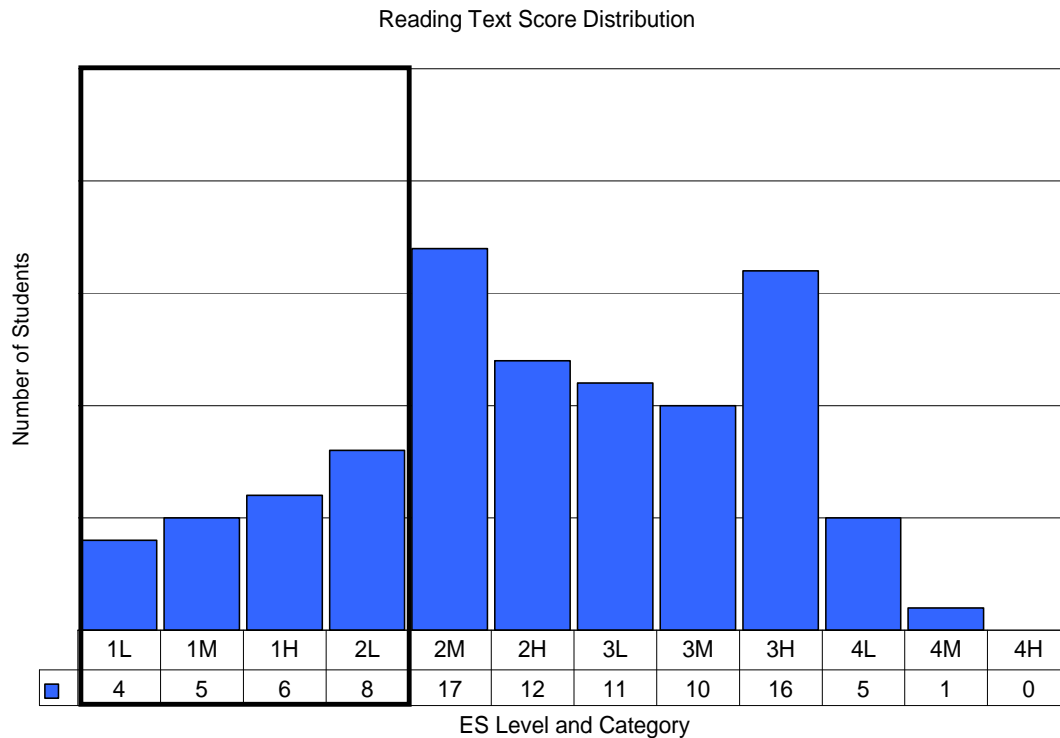


educated and participate less in their communities. We felt students above this cutoff point would have a better chance of success at their next steps. It was not known, of course, how much progress students were capable of making in the weeks or months remaining in their programs.

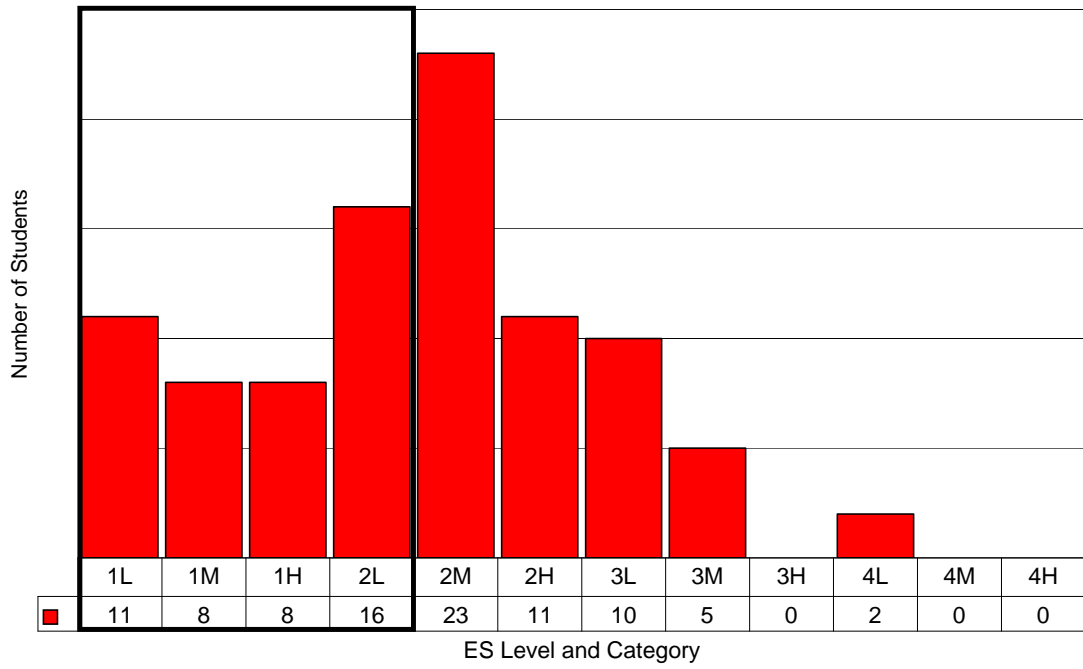
The test evaluation form did not attempt to collect demographic information on students since these data are routinely collected by Bow Valley College. Instead, the CSC contracted with Bow Valley College to analyze those results and present them in a companion report.

## FINDINGS

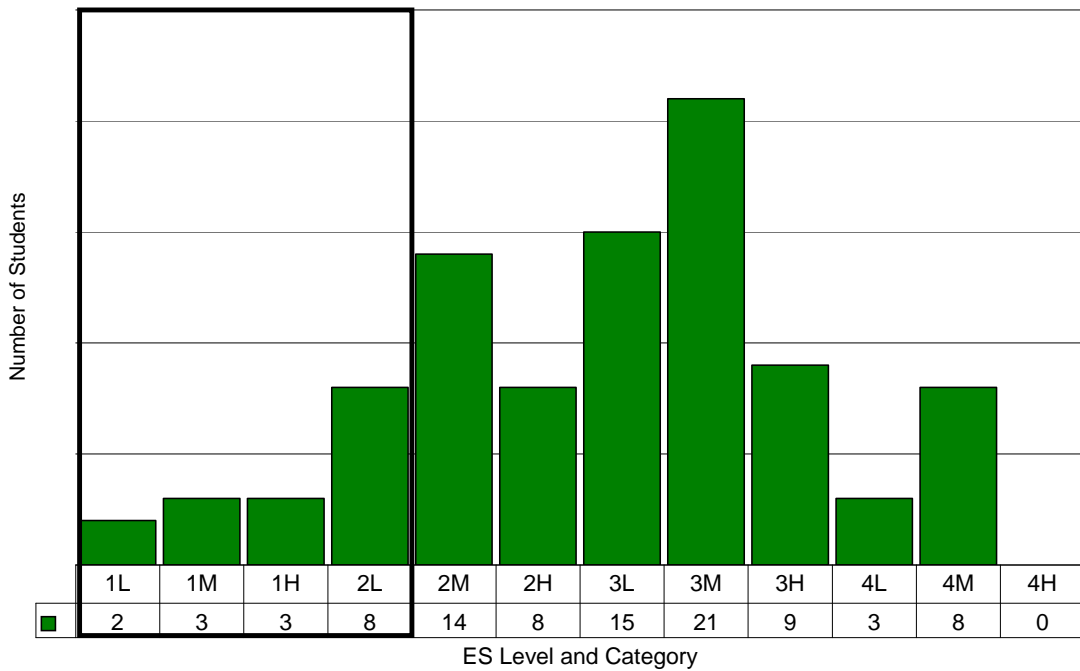
### Score Patterns



Document Use Score Distribution



Number Use Score Distribution



The range of scores for RT, DU and NU was very wide, from Essential Skills low Level 1 to medium Level 4, and the scores for Numeracy were surprisingly high. Students' RT scores were generally higher than their DU scores which is consistent with other studies of academic upgrading students, Kline (2007) and Hall (2008)<sup>3</sup>. The medium Level 2 category was the largest for RT and DU. We anticipated that students' scores would cluster there. The medium Level 3 category was largest for NU. A full 21 students performed at this level, with another 20 performing at even higher levels.

The scores below the cutoff point indicate students who may be in trouble academically. The percentages are recorded in the chart below:

<b>Essential Skills Domain</b>	<b>Percentage of students who may be at risk</b>
Reading Text (RT)	24%
Document Use (DU)	45%
Numeracy (NU)	17%

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3

Kline, T. (2007). *Bow Valley College Studies on the Psychometric Evaluation of the TOWES: Summary Report*. Calgary. Bow Valley College.

Hall, D. (2008). *Making the Connection: Report on LBS Students' Workplace Essential Skills*. Seneca Toronto. Seneca College.

## Questionnaire Results *Section I*

The next 3 sections provide a detailed break down of data and students' responses and test scores. It follows the sequence of questions on the test evaluation form. Section I provides information on students' goals and employment background.

### 1. If you are attending Academic Upgrading, indicate your educational goal:

Educational Goal	
Postsecondary (College program)	72
Apprenticeship	11
Other* <ul style="list-style-type: none"> <li>• equivalency (2)</li> <li>• GED (2)</li> <li>• Pathways (4)</li> <li>• Other pathways</li> <li>• Post-graduate college</li> <li>• University</li> </ul>	10

### 2. If you are attending Academic Upgrading, state your specific postsecondary or Apprenticeship occupational goal:

Student Goals
<ul style="list-style-type: none"> <li>• administration human resources</li> <li>• apprentice (2) to obtain an apprenticeship at Toyota</li> <li>• architecture</li> <li>• automotive service technician (2)</li> <li>• automotives, women's</li> <li>• automotives or graphic design</li> <li>• becoming a firefighter</li> <li>• biology technician</li> <li>• business (4) human resources, office administration, marketing, legal office</li> <li>• carpenter</li> <li>• civil engineering</li> <li>• computer program</li> <li>• construction architecture technology culinary school</li> <li>• dental hygiene (2)</li> <li>• early childhood education</li> <li>• education (2)</li> <li>• electrical engineering (2)</li> <li>• electronics engineer (2) electronics engineering and telecommunications</li> <li>• environmental law</li> </ul>

### Student Goals, cont'd

- gas tech
- general contracting
- massage therapist
- mechanic (3) marine, airplane
- mechanical engineering technology (2)
- mental health and addictions worker
- mining engineer
- molecular biology
- motorcycle technician
- nutritionist
- paramedic (2)
- paramedic or dental hygiene
- plumbing
- practical nursing (17)
- public relations specialist
- radio broadcasting
- Red Seal Chef
- robotics and automation
- small business management
- social service worker (2)
- veterinary assistant
- water resource engineering
- welding engineer technician

Other responses:

- I would like to attend college in September 2008
- Unsure
- Do not have a goal (2)

Seventeen of the 95 students tested indicated Practical Nursing as their postsecondary program goal. We know that graduates of the Practical Nursing program require Essential Skills Level 3 Reading Text, Level 3 Document Use and Level 2 Numeracy to function safely and productively in their occupation. The average IRT scores for the 17 students were:

- Reading Text: 267 (Level 2 - high)
- Document Use: 240 (Level 2 - medium)
- Numeracy: 277 (Level 3 - low)

These overall scores are encouraging, considering that the 17 students are halfway or more through their academic upgrading program and may still make learning gains.

**3. Indicate your total number of years of employment (full or part-time):**

Years of employment	No. of students
0 to 3	19 (21%)
4 to 6	28 (31%)
7 to 9	13 (14%)
10 or more	31 (34%)



The RT and DU scores follow a similar trend based on the number of years of employment. Correlations were established between scores and number of years worked for both RT (.203) and DU (.205). A weaker correlation was found for NU (.132).

## Questionnaire Results *Section II*

In this section, the responses to several questions are fairly consistent. Where there is less consistency, average IRT scores are provided. A T-test<sup>4</sup> of the difference was run for each question in this section. No significant difference in performance was found except where noted. Students' individual comments are also recorded.

### **A. When I write tests I usually feel relaxed.**

(strongly agree) 5

(agree) 51

(disagree) 34

(strongly disagree) 4

<b>Agree overall:</b>		<b>Disagree overall:</b>
<b>60%</b>		<b>40%</b>
<b>RT</b>	<b>270</b>	<b>266</b>
<b>DU</b>	<b>241</b>	<b>235</b>
<b>NU</b>	<b>275</b>	<b>278</b>

#### Comments:

- I was confused at first, caught on quickly
- depends on the test (agree)
- depends on the type of test (agree)
- depends on the nature of the test (agree)
- depends on the test – some are more stressful than others (agree)
- depends on what subject mostly (disagree)
- depending on the day (disagree)
- depending, if I'm fully prepared (disagree)
- I always feel somewhat anxious when I do tests. I find that when I go into a test feeling relaxed I do poorly, probably because I am over confident.
- I am thinking
- I get extremely stressed and anxious
- I get very nervous; I think too deep into things
- I have test anxiety – never liked writing them
- I put myself in a relaxed state by knowing the material

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<sup>4</sup> A statistical test that allows one to claim that there is a difference between the groups

- I study review material seeking help, asking questions if needed. I face tests with a positive learning attitude.
- I tend to get nervous
- I usually feel time conscious
- I usually rush, thinking there's not enough time
- I work well in high pressure situations
- I work well with music but can't listen to it while reading a test
- if I feel that I'm confident and I know the material that will be on the test, and knowing I studied, I feel relaxed – I feel nervous and stressed when a test is timed.
- if I have studied and am confident, I'm at ease
- if the tests are boring, I have to use extra effort to concentrate
- not always of course, but most times
- not really relaxed because I want to do well, but you never know what the outcome is
- sometimes
- sometimes I'm scared out of my mind
- tests tend to stress me

Summary: No significant difference in performance on RT, DU or NU was found, so although a large proportion of students reported some degree of nervousness about writing tests, this did not appear to impact on their scores.

**B. Overall, I felt well rested and had a good breakfast/lunch before I wrote the test.**

(strongly agree) 10  
 (agree) 57  
 (disagree) 20  
 (strongly disagree) 8

	<b>Agree overall: 71%</b>	<b>Disagree overall: 29%</b>
<b>RT</b>	<b>268</b>	<b>267</b>
<b>DU</b>	<b>242</b>	<b>229</b>
<b>NU</b>	<b>276</b>	<b>278</b>

Comments:

- forgot breakfast, woke up late, not enough sleep
- good night's sleep, missed breakfast



- had plenty of sleep, felt awake
- I was well rested, but had a small breakfast
- I could have used more sleep, but overall I felt rested and did have a good lunch
- I feel well rested but I don't usually eat breakfast
- I've been awake longer and not as tired
- I started an intense diet this morning but overall feel fine
- I slept poorly before the test, approximately 3 hours sleep
- most of the time I don't have time to eat breakfast
- never ate breakfast
- no breakfast and had to wake up at 4:00 am to get to the test location
- not with four young children
- right after lunch
- slept late, haven't eaten yet
- still very early

Summary: It was encouraging to learn that many students do pay attention to rest and nutrition. No significant difference on performance was discovered; although many students might have been hungry or tired, this did not appear to influence their scores.

**C. The test environment (test center or classroom) was quiet and free from distractions.**

(strongly agree) 44

(agree) 39

(disagree) 10

(strongly disagree) 1

Agree overall	Disagree overall
88%	12%

Comments:

- very nice
- very quiet
- a little too quiet
- classroom next door was too distracting
- distractions in the hallways
- except for my velcro and his tissue
- guy beside me kept making the desk shake a lot
- I cannot concentrate with others talking and with other distractions around me
- I can't work with little noises in the class

- it doesn't matter where I'm at, I'm easily distracted
- people kept walking in
- people were loud in the hall
- quiet, a little crowded
- room was quiet with occasional noise from the hallway outside
- there were a couple of times someone left and came back – I'm easily distracted

**D. I understood the purpose of the TOWES test.**

(strongly agree) 44

(agree) 49

(disagree) 2

(strongly disagree) 0

Agree overall	Disagree overall
98%	2%

Comments:

- I feel that this test can benefit anyone. I recommend that others participate.
- the two ladies were very informative in initial conversation, setting up of test and after the test was completed
- yes, it was all explained
- I'm still lost on what this test might accomplish
- sometimes it needs time to understand and sometimes it is easy
- somewhat hard to follow going back and forth

**E. I found the test instructions clear.**

(strongly agree) 43

(agree) 45

(disagree) 4

(strongly disagree) 0

Agree overall	Disagree overall
96%	4%

Comments:

- the instructions were very clear and straight forward, the questions were also clear
- instructions were well explained

- no complaints
- talked about it step-by-step
- questions in the book not really clear – administrator's words are clear
- some instructions for questions were unclear, but good for the most part
- although inferring the answer was sometimes difficult
- although sometimes I found it hard to follow, mostly at the beginning
- I have never written a test like this
- some questions were not specific enough to give a clear answer to
- some were very vague and need clarification "horse and cart" – was it in Canada or US?

**F. TOWES is similar to other tests I've written.**

(strongly agree) 6

(agree) 34

(disagree) 46

(strongly disagree) 6

	<b>Agree overall: 43%</b>	<b>Disagree overall: 57%</b>
<b>RT</b>	<b>266</b>	<b>272</b>
<b>DU</b>	<b>241</b>	<b>237</b>
<b>NU</b>	<b>272</b>	<b>283</b>

Comments:

- first time
- first time with work like this
- I have not written a test like TOWES before
- I haven't written many tests other than my academic upgrading tests and the TOWES test was quite different
- I like multiple choice/pointed questions the best
- in employment training readiness
- I've never written a test like this
- never had a test completely based on workplace knowledge
- never wrote a test like this before
- reading comprehension tests were similar
- thinking test, common sense
- test took a lot of willpower to get through – sample sheets used to answer the questions were hard to focus on due to the lack of interest.

- this was a first experience for myself – I have never completed an online test
- very different from other tests

Summary: No significant difference in performance was discovered. Although a large proportion of students indicated that TOWES was different from other tests they had written, this did not appear to affect their scores.

**G. Overall, I felt that I had adequate background to write the TOWES test.**

(strongly agree) 17  
 (agree) 65  
 (disagree) 10  
 (strongly disagree) 1

Agree overall	Disagree overall
88%	12%

Comments:

- automotive background helped
- common sense, reading, understanding what I'm being asked to do
- I have taken tests that are online to determine strengths and interests, but this test was more in depth
- some questions were more difficult
- worked for about 8 years

**H. I did my best to answer all the questions on the test.**

(strongly agree) 43  
 (agree) 46  
 (disagree) 3  
 (strongly disagree) 0

Agree overall	Disagree overall
97%	3%

Comments:

- absolutely, it's the only way we all benefit from this

- answered every question
- except the one about the Zenith Carburetor
- I did get stuck on some math problems but overall I felt I did my best – I might have had to reread a few parts
- I tried
- I worked diligently and am confident of my answers
- there were a couple where I felt the information was not clear

### **I. Overall, I found the test easy.**

(strongly agree) 4

(agree) 66

(disagree) 21

(strongly disagree) 2

	<b>Agree overall: 75%</b>	<b>Disagree overall: 25%</b>
<b>RT</b>	<b>273</b>	<b>252</b>
<b>DU</b>	<b>244</b>	<b>220</b>
<b>NU</b>	<b>279</b>	<b>270</b>

#### Comments:

- although some of the questions were a little tricky
- as far as tests go, information at hand, questions asked were very clear but some were more difficult
- I have no work experience, but I found the questions easy if I read them carefully
- it was so-so, some of the questions were easy
- one or two questions were a little tricky
- some of it, not all
- some questions could have been explained better, i.e., the catalogue samples
- some sections were more difficult to decipher
- the test was manageable
- there are some sections that personally I didn't understand

Summary: A significant difference in performance was found for RT and DU at the 5% level. Students who found the test more difficult had significantly lower scores in RT and DU – more than 20 points on average.

**J. Overall, I found the test relevant to my career/employment goals.**

(strongly agree) 8  
(agree) 51  
(disagree) 25  
(strongly disagree) 3

<b>Agree overall: 68%</b>		<b>Disagree overall: 32%</b>
<b>RT</b>	<b>260</b>	<b>283</b>
<b>DU</b>	<b>232</b>	<b>249</b>
<b>NU</b>	<b>270</b>	<b>291</b>

Comments:

- (goal is to be a) brick and stone mason
- depending, what I decide to do
- I can see how document use is relevant to my career, but I didn't think the test was that relevant
- I do not see myself in any automotive, assembly plants, or as a fireman in my future
- more health/medical scenarios would be good – less car parts (more related to mechanical technician)
- not sure how relevant the test is to my goals
- nursing charts, observation, understanding, etc.
- problem solving
- unknown, changing careers
- used to be a parts deliverer
- when I do receive the results, it will be very interesting to see how they relate to my career and employment goal

Summary: As in the previous question, a significant difference in performance was found in two Essential Skills. In this case they were RT and NU. It is interesting that the 32% of students, who did not find the test relevant, scored higher in all three skills areas. We are not able to explain this although we examined a number of variables.

**K. The length of the test seemed reasonable.**

(strongly agree) 18

(agree) 66

(disagree) 6

(strongly disagree) 1

Agree overall	Disagree overall
92%	8%

Comments:

- I finished just under the allotted time and didn't feel rushed
- it was too long
- started half hour late – had to leave, did not complete the test
- still didn't finish it though
- the test took me longer than I first anticipated – didn't begin to get bored until the last couple of questions
- too long
- too long to sit

## Questionnaire Results *Section III*

### Rate your overall experience taking the TOWES test:

(very positive) 21  
(positive) 56  
(somewhat positive) 11  
(not positive) 3

Agree overall	Disagree overall
85%	15%

### Please provide suggestions for improving any aspect of your test taking experience:

- this experience was perfect – no changes should be made
- I don't have any. Keep up the good work. Benefits all.
- I didn't feel frustrated or overly anxious. The online testing was a better way for me. I hope I did well and can't wait to see my results.
- I found it very helpful
- I felt the questions were reasonable and the time frame to write was reasonable
- the test is great, but needs more time
- more time
- maybe a little more clarity on the part about the 86 Ford seals
- allow for cigarette breaks
- better calculators (small buttons)
- I found it all relevant to the workplace
- I found the test to be a bit challenging. Next time I hope we have something we can study from
- I make less money an hour at work
- I was bored
- I would have enjoyed more samples geared towards electronics engineering, but I understand that TOWES is more of a general test
- test should be more personalized according to the educational goals of the person taking it
- it fried my brain
- quieter environment, awareness for how long it was
- shorter time
- the deletion of a couple of answers online was painful
- at the conclusion, I requested a customized summary and was unable to be provided with one – due to a computer error
- to concentrate and zone out my distractions



## On-line Results

In total, 20 out of 95 students or 21% completed the on-line version of TOWES. This figure does not accurately represent how many students might have chosen the on-line option, however. Not all participating colleges were able to offer the on-line option to students, and in some cases where the on-line was available, test-administrators may have been reluctant to offer it.

Students who selected the on-line option encountered a number of challenges including:

- difficulty creating customized reports
- having to redo sections of the test
- providing answers that “wouldn’t hold”
- being held to a time restriction, even though delays were caused by technology “glitches”
- coping with missing information from the screen
- getting “booted off”
- experiencing eye fatigue from scrolling up and down the screen

Although the technology appeared to cause frustration for students, in one case good computer skills were cited as helping a student “whip right through the test and score well”.

No significant differences in performance were found for students who selected the on-line test compared to the paper version.

Several test administrators who encountered problems with the technology commented that Bow Valley College was very quick and efficient in responding to problems. Others felt that they should have been alerted about potential glitches. At least one test administrator reported that she did not have the experience to troubleshoot the problems.

Other comments centred on the additional work involved in administering TOWES On-line. Source Document Booklets had to be provided to students completing an on-line test. The booklet is a collection of the authentic workplace documents found on-line. Also, paper and pencil back ups were required in case the Internet connection went down. It was further pointed out that “double consent” was needed for doing the on-line version.

Test administrators noted one external factor that may have influenced students’ performance on the test. It was a very busy time of year for some of the students who were trying to finish up their courses. Participating in the field test placed additional pressure on them.

## SUMMARY

Students who participated in field testing TOWES described their test taking experiences as positive (85%) although many were not relaxed when they wrote the test (40%), were hungry and tired (29%), found the test difficult (25%), found TOWES different from other tests they had written (57%), and did not find the test relevant (32%). The way students were prepared for the test and the way the tests were administered may have accounted for students' positive test taking experiences. For example, 88% of students found the testing environment quiet and free from distractions, 98% understood the purpose of the test, 96% found the test instructions clear. Students gave the test their best shot. Nearly all (97%) reported doing their best to answer all the questions. This was very encouraging considering that some students were piloting TOWES On-line and experienced some frustration with technology. Although TOWES generally takes about two hours or more to complete, 92% agreed that the length was reasonable. Students (88%) felt that they had an adequate background to write the test.

Students' performances on the test were also examined. It should be noted that that at present Essential Skills are not extensively addressed or consistently integrated into ACE programming.

Essentials Skills have been shown to be a good predictor of academic performance. Students who are moving from Level 2 to Level 3 should have the Essential Skills to be successful in their postsecondary or Apprenticeship programs. A cutoff point was used to identify the number of students who might be at risk in the program. Nearly one quarter of the students tested were below the cutoff point in Reading Text. In Document Use that number was nearly double. Forty-three students or 45 % of the total were shown to have difficulty navigating documents. Surely this shows the need for a much greater instructional focus on Reading Text and Document Use in Academic Upgrading.

Numeracy was an entirely different matter. Only 17% of the students were below the cut-off point and therefore potentially at risk. Although their Numeracy scores were wide ranging, 56 students (59% of the total) scored at Essential Skills Level 3 or higher. These are quite remarkable results.

Some correlation was found between Reading Text and Document Use scores and the number of years the students were employed. Collectively this group of students had an impressive employment record. Thirty-one students (34%) reported 10 or more years in the workforce. The next largest group was 28 students (31%) who had between 4 and 6 years of employment. The number of years of employment might serve as another predictor for academic performance although further studies would need to be conducted. Colleges, in fact, may already be collecting this information at student intake.

While we can't comment on the suitability of TOWES for pre- and post-testing to measure gains in learning, TOWES has many attractive features. It is valid and reliable and can capture small increments of learning. At higher levels, students do not make large gains in Essential Skills because they "top out". Colleges are familiar with TOWES and there are administration and test security protocols in place. TOWES is a Canadian test that is occupationally focused and compatible with the career, trade and employment goals of Academic and Career Entrance students. TOWES is available in both official languages and in paper and on-line versions. Finally and perhaps most importantly, TOWES scores have been shown to predict performance both in workplace and academic settings.

Finally, we can say with confidence that students found the test taking experience to be a positive one overall. More can be done to reduce test anxiety and counsel students on the importance of proper rest and nutrition. Much of the feedback centred on the TOWES test itself. Students found it less relevant and different from other tests. Greater exposure to Essential Skills and authentic tasks should resolve these issues. The logical next step is to integrate Essential Skills in programming and use TOWES for large-scale pre- and post-testing.

## APPENDIX A

### ***INSTRUCTIONS for the LBS/AU Program Manager***

#### **Please note the following:**

Except in the case where Test Administrators can only administer the paper version of TOWES, students have the option of **self-selecting** the version (online or paper) of the test they wish to write. Students must be comfortable making this choice.

Students who are eligible to write the test are limited to:

- Students who have completed at least **50%** of the required ACE communications and mathematics courses for admission to postsecondary or Apprenticeship programming.
- Students who have completed ACE communications and mathematics courses and were **admitted** to postsecondary or Apprenticeship programming **after January 1, 2008**.

All testing must be completed by **February 29, 2008**.

Please check the **capacity for online testing** (e.g., availability of computers) with the Test Administrator in advance.

- o Photocopy a copy of the Instructions for the Test Administrator
- o Photocopy sufficient copies of the TOWES PILOT Test Evaluation Form for the number of students your college has identified for testing
- o Each student will receive a \$15.00 honorarium immediately upon completion of the Test Evaluation Form. You will need to calculate the total amount of honoraria in advance and place the correct amount (in \$5.00 and \$10.00 bills) in an envelope clearly marked, Honoraria for Academic Upgrading Students. Please note that you will be reimbursed for this amount once the testing has been completed and documentation and invoice are submitted to CSC.
- o Provide the Test Administrator with the following:
  - 1) A copy of Instructions for the Test Administrator
  - 2) A list of students to be tested
  - 3) Copies of Test Evaluation Form
  - 4) The envelope with honoraria for students
- o Test results should be returned to the Test Administrator within a week to ten days. Collect **completed** Test Evaluation Forms from the Test Administrator. Check to ensure that the number of Test Evaluation Forms matches the number of students tested.
- o Submit an invoice to the College Sector Committee by **March 5, 2008** for:
  - the full amount of the honoraria, specifying the number of students tested
  - \$200.00 to cover photocopy and courier costs
- o Courier all Test Evaluation Forms, and if applicable, any remaining EBooklet Numbers, Validation Codes, Source Document Booklets, GEN2IIL(Red Booklets) to the CSC by **March 12, 2008** to:

Lynne Wallace, Executive Director  
College Sector Committee,  
Exhibition Centre, 967 Falconbridge Rd.  
Sudbury, Ontario  
P3A 5K8

# APPENDIX B

## TOWES PILOT

### Test Evaluation Form

**Student Instructions:**

Read each statement below carefully. Circle one response for each statement. Use the space indicated to provide comments.

*For office use only*

Test Booklet Number: \_\_\_\_\_

G2 Test version:  paper  online

TOWES IRT Scores:

RT \_\_\_\_\_ DU \_\_\_\_\_ NU \_\_\_\_\_

**SECTION I****1. Circle whether you are currently attending:**

Postsecondary Programming

Academic Upgrading

**2. If you are attending Academic Upgrading, circle your educational goal:**

Postsecondary (College program)

Apprenticeship

Other (Please specify) \_\_\_\_\_

**3. If you are attending Academic Upgrading, state your specific postsecondary or Apprenticeship occupational goal:**

\_\_\_\_\_

**4. Circle your total number of years of employment (full or part-time):**

0 to 3

4 to 6

7 to 9

10 or more

**SECTION II****A.** When I write tests I usually feel relaxed.1 (strongly agree)

2 (agree)

3 (disagree)

4 (strongly disagree)Comments: \_\_\_\_\_  
\_\_\_\_\_**B:** Overall, I felt well rested and had a good breakfast/lunch before I wrote the test.1 (strongly agree)

2 (agree)

3 (disagree)

4 (strongly disagree)Comments: \_\_\_\_\_  
\_\_\_\_\_**C.** The test environment (test center or classroom) was quiet and free from distractions.1 (strongly agree)

2 (agree)

3 (disagree)

4 (strongly disagree)Comments: \_\_\_\_\_  
\_\_\_\_\_**D.** I understood the purpose of the TOWES test.1 (strongly agree)

2 (agree)

3 (disagree)

4 (strongly disagree)Comments: \_\_\_\_\_  
\_\_\_\_\_

**E:** I found the test instructions clear.

1 (strongly agree)      2 (agree)      3 (disagree)      4 (strongly disagree)

Comments: \_\_\_\_\_  
\_\_\_\_\_

**F.** TOWES is similar to other tests I've written.

1 (strongly agree)      2 (agree)      3 (disagree)      4 (strongly disagree)

Comments: \_\_\_\_\_  
\_\_\_\_\_

**G.** Overall, I felt that I had adequate background to write the TOWES test.

1 (strongly agree)      2 (agree)      3 (disagree)      4 (strongly disagree)

Comments: \_\_\_\_\_  
\_\_\_\_\_

**H:** I did my best to answer all the questions on the test.

1 (strongly agree)      2 (agree)      3 (disagree)      4 (strongly disagree)

Comments: \_\_\_\_\_  
\_\_\_\_\_

**I.** Overall, I found the test easy.

1 (strongly agree)      2 (agree)      3 (disagree)      4 (strongly disagree)

Comments: \_\_\_\_\_  
\_\_\_\_\_

**J.** Overall, I found the test relevant to my career/employment goals.

1 (strongly agree)      2 (agree)      3 (disagree)      4 (strongly disagree)

Comments: \_\_\_\_\_  
\_\_\_\_\_

**K.** The length of the test seemed reasonable.

1 (strongly agree)      2 (agree)      3 (disagree)      4 (strongly disagree)

Comments: \_\_\_\_\_  
\_\_\_\_\_

### **SECTION III**

**Rate your overall experience taking the TOWES test:**

1 (very positive)      2 (positive)      3 (somewhat positive)      4 (not positive)

**Please provide suggestions for improving any aspect of your test taking experience:**

\_\_\_\_\_  
\_\_\_\_\_