

## **An Evaluation of the Online Writing Skills: Workshop/Essay-Zone at Brock University**

Prepared by The Student Development Centre, Brock University,  
in association with Higher Education Strategy Associates  
for the Higher Education Quality Council of Ontario



An agency of the Government of Ontario

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## Introduction

In June 2008, the Higher Education Quality Council of Ontario (HEQCO) released a Request for Proposals (RFP-006) offering funding for Ontario universities and colleges to evaluate existing programs or services intended to promote access, retention and educational quality among postsecondary students. Brock University submitted a successful proposal to evaluate two services offered through its Learning Skills Services:

1. the Online Writing Skills Workshop (OWSW), an online writing course designed and owned by the Learning Skills Services  
and
2. the learning skills workshops offered by Learning Skills Services.

This report documents the evaluation of the Online Writing Skills Workshop (OWSW) (later rebranded as “Essay-Zone” and referred to here sometimes as “EZ”). This workshop was developed and is now offered to students by Brock University. Higher Education Strategy Associates (formerly known as the Educational Policy Institute Canada) was contracted to conduct the analysis in collaboration with senior staff in the Student Development Centre. The report examines student perceptions, satisfaction and students’ perceived utility of the OWSW/EZ, using data from two surveys of Brock University students, conducted in February 2009 and February 2010. In addition, the report evaluates OWSW/EZ participants’ acquisition of terminology and concepts common in academic writing by analyzing differences in performance between a test taken before use of the workshop (pretest) and a test taken after the workshop (posttest). Pretest-posttest result pairs are analyzed for OWSW/EZ participants from fall 2008, winter 2009, fall 2009 and winter 2010.

## Background on the Online Writing Skills Workshop/Essay-Zone

In 2008, the Learning Skills Services office at Brock University developed an interactive online writing skills workshop to increase access to learning skills support by providing an alternative to traditional face-to-face instruction. This workshop was developed by using Brock University’s existing learning skills writing workshops as a base and by incorporating feedback from a range of faculties across the university. The online workshop provides students with timely and easily accessible online instruction and enables students to develop and practise essay-writing skills through an interactive self-testing process involving subject-specific options, writing-style choices and constructive feedback. It covers specific areas (such as essay and paragraph patterning and effective writing strategies using sentence structure, word choice and grammar) and teaches these areas in a seven-step process: analyzing an assignment, narrowing a topic, collecting information, writing a thesis statement, creating an outline, writing a first draft and editing. The workshop has been available to students through a web-based platform for several years. In fall 2008, the workshop was delivered through WebCT Blackboard, and in 2009/10, it was offered through a combination of the Sakai-based Learning Management System and Learning Skills Services’ newly created external website, [academic-zone.com](http://academic-zone.com). The resource underwent a name change in 2009/10 and (as mentioned above) is now known as Essay-Zone.

Throughout the remainder of this report, the workshop will be referred to as the Online Writing Skills Workshop/Essay-Zone (OWSW/EZ) when both academic terms and their related surveys are being referred to. However, when the 2008/09 academic term and the 2009 survey are being discussed, the terms “Online Writing Skills Workshop” and “OWSW” will be used. When the 2009/10 academic term and the 2010 survey are under discussion, the terms “Essay-Zone” and “EZ” will be used.

Access to the resource is limited in that students are not permitted to participate unless the professor requests the workshop. Some professors—at their discretion—allocate a portion of the student’s mark to workshop participation, which is assessed by the posttest score. Participating students sign in to the workshop using the web-based program. After signing in, they complete a mandatory pretest to identify areas of weakness (students cannot access the workshop until completing the pretest). After completing the pretest, students work through the online writing workshop, and the path through the material is unique to each student. Some students use the pretest to guide their engagement with the material, others work through the material in a linear fashion and others choose a self-directed path. Exercises are also available throughout the online writing workshop. Unlike the pretest, these exercises are not tracked and are used to increase student engagement and to allow for self-assessment. Following one to three weeks of access to the workshop, students complete a posttest at a time requested by the professor. The posttest, however, is not mandatory. Access to the workshop is maintained after the posttest so that students can use the workshop as a resource throughout the academic year.

The pretest and posttest were developed to measure students’ increased understanding and awareness of the writing process by assessing their comprehension of OWSW/EZ content – including essay-writing terminology, grammar and documentation. However, writing skills cannot be assessed using either the pretest or the posttest, as neither requires the students to write an essay. The original 2008/09 pretest was much shorter than the 2008/09 posttest, since it was designed with the intent of creating an inviting preassessment. This pretest consisted of 10 multiple-choice questions, and the posttest consisted of 40 multiple-choice questions based on the workshop material. In 2009/10, the pretest was revised so that it now has 40 questions that address the same content as the posttest. This allows for a more direct comparison between pretest and posttest scores, thus creating a more effective measure of students’ increased acquisition of writing terminology and concepts.

Since 2008, a number of business, social science, applied health science and humanities courses from first year to the graduate level have introduced the workshop as a mandatory component. A total of 18 classes participated in the workshop during the 2008/09 academic term, and 36 classes participated in the 2009/10 academic term. All students were expected to go online and engage in the workshop outside class hours. Professors could verify which students participated in the workshop, and they had access to their students’ pretest and, where applicable, posttest scores. In most cases, students completed the pretest, the workshop content and the posttest at home. Professors who chose to include the posttest in the workshop scheduled their own posttest dates, but these dates occurred early in the course – before the due dates for written course assignments. The amount of time that students spent reviewing workshop content varied by student, ranging from 30 minutes to several hours, depending on

(1) the course and year, (2) the amount of the total grade allocated to the posttest result and (3) the student's perceived need.

## Project Methodology

### Student Surveys

Two surveys of undergraduate students were conducted. The first survey, which took place from February 23, 2009, to March 1, 2009, focused primarily on the OWSW and evaluated students' knowledge and perceptions of the OWSW. The second survey, which took place from February 12, 2010, to February 21, 2010, explored students' knowledge of, and perceptions regarding, all learning skills workshops, including what was by then known as Essay-Zone (EZ), and it investigated students' satisfaction with various aspects of the workshops (e.g., materials, instruction, scheduling, etc.). Since only a very small portion of the 2010 survey focused on EZ, most of the survey analysis portion of this report will be based on the data obtained from the 2009 survey. The 2009 and 2010 surveys are shown in Appendix A.

Both the 2009 and the 2010 surveys measured the perceived influence of the OWSW/EZ on respondents' skills development, and both surveys asked the same demographic questions. The survey analysis will examine the similarities and differences in respondents' answers to the demographic questions for the 2009 and 2010 surveys, as well as looking at students' perceptions of the utility of the OWSW/EZ and its impact on various academic skills.

As noted earlier, the workshop name changed between the 2009 and 2010 surveys. In the 2009 survey, the workshop was called the Online Writing Skills Workshop (OWSW). But in 2010, it was referred to as the online interactive essay workshop, Essay-Zone.

### *Sample*

#### **Survey 1**

The first survey was sent to a stratified random sample of 3,200 undergraduate students at Brock University. A random number count was used to select approximately 1,600 first-year students from a list of Brock undergraduates. An additional 1,600 students were selected from second, third and fourth year. Random number generation was used to select the students by year, and the number of students selected in each year was proportional to the relative enrolment figure of that year. Brock used StudentVoice, an online survey tool, to manage the survey.

This distribution was chosen because skills interventions are understood to be most effective when carried out early in students' academic careers and, as such, particular insight into the first-year undergraduate population was sought. Table 1 displays information regarding students who were contacted for the 2009 survey. Included in the fourth-year count in this table are any students who identified themselves as fifth-year or other.

**Table 1: Survey respondents by year of study (2009 survey)**

Year of Study	Number Contacted	Percentage of Total Contacted	Number of Respondents	Percentage of Total Respondents	Response Rate
First	1,659	52%	230	47%	14%
Second	755	24%	97	20%	13%
Third	482	15%	81	16%	17%
Fourth	304	10%	83	17%	27%
<b>All</b>	<b>3,200</b>	<b>100%*</b>	<b>491</b>	<b>100%</b>	<b>15%</b>

\*Due to rounding, the sum of the displayed values in the column does not equal 100%.

## Survey 2

Unlike the first survey, the second was sent out to all students at Brock. StudentVoice was again used to manage the survey. The survey was kept open for 10 days, and a total of 1,704 students responded. The demographics of this group of survey respondents will be explored in the subsequent sections. Table 2 shows the number of 2010 survey respondents by year of study.

**Table 2: Survey respondents by year of study (2010 survey)**

Year of Study	Number of Respondents
First	356
Second	352
Third	367
Fourth	307
Did not respond	322
<b>TOTAL</b>	<b>1,704</b>

## Pretest-Posttest Analysis

In order to measure the impact of the OWSW/EZ on students' acquisition of writing terminology and concepts, Brock University administered an online writing skills pretest prior to student

access to the OWSW/EZ module (Appendix B) and a posttest after participants had actually accessed the OWSW/EZ module (Appendix C). The pretest-posttest comparison allows for the assessment of a pedagogical intervention by detecting differences in learning outcomes at two points in time. This form of assessment is common in educational research because it is non-intrusive, and the analysis does not require sophisticated statistical procedures.

In order to effectively compare results of the pretest and posttest, certain factors needed to be controlled. In the absence of a control group, it was important for the pretest and posttest to be similar. The tests also needed to be similar in terms of both difficulty and length. Furthermore, the tests had to examine similar concepts with a similar balance of questions; for instance, if the pretest asked five questions about sentence structure, the posttest also had to ask five questions about sentence structure. Finally, it was important that a given student not be asked identical questions on each test. If identical questions were asked, improvements from the pretest to the posttest might more plausibly have been attributed to experience gained by having already seen the questions than to skills development due to the academic intervention.

Unfortunately, of the four pairs of pretests and posttests administered in the fall 2008, winter 2009, fall 2009 and winter 2010 terms, only the final two met all of the above conditions. The fall 2008 posttest was longer and seemingly more difficult than its corresponding pretest, containing 40 questions compared to 10, and no attempts were made to balance the types of questions asked on these two tests. (It should be noted that, in addition to its role in providing data for analyzing outcomes related to the OWSW/EZ, the 2008/2009 pretests served to identify areas of weakness for the OWSW/EZ users to focus on. The fall 2008 pretest was perhaps more useful in this role than it was as a tool for evaluating the OWSW.) While the issues of length, difficulty and balance were corrected in the winter 2009 tests, the pretest and posttest for this term contained some identical questions. Nevertheless, these questions were drawn from a larger pool of 59 questions, and they were randomized. In the fall 2009 and winter 2010 tests, all tests had 40 questions, were drawn randomly from a larger pool of questions and asked the same balance of questions, with no repeats for a given student between the pretest and the posttest.

The test data that was provided to the research team was organized by course or course section. For each course and course section, pretest and posttest scores were provided for the students registered in that course – along with a unique reference number corresponding to the student under consideration. For the fall 2008 OWSW, which was delivered on the WebCT network, the amount of time that the student had spent accessing the OWSW was also available. In subsequent terms, the workshop (now EZ) was delivered on the Sakai network (in combination with [academic-zone.com/Essay-Zone](http://academic-zone.com/Essay-Zone)), and the time spent accessing the EZ modules was not captured.

In order to conduct the analysis, the data was aggregated from the various courses into four separate data sets: fall 2008, winter 2009, fall 2009 and winter 2010. Any data that lacked either a pretest or a posttest score was eliminated from the data sets, which may limit the analysis, as some instructors didn't require completion of the posttest. Any students who had more than one pretest or posttest score on record in a given term were also removed from the analysis in order to avoid concerns that these students may have taken the tests more than once. The data did

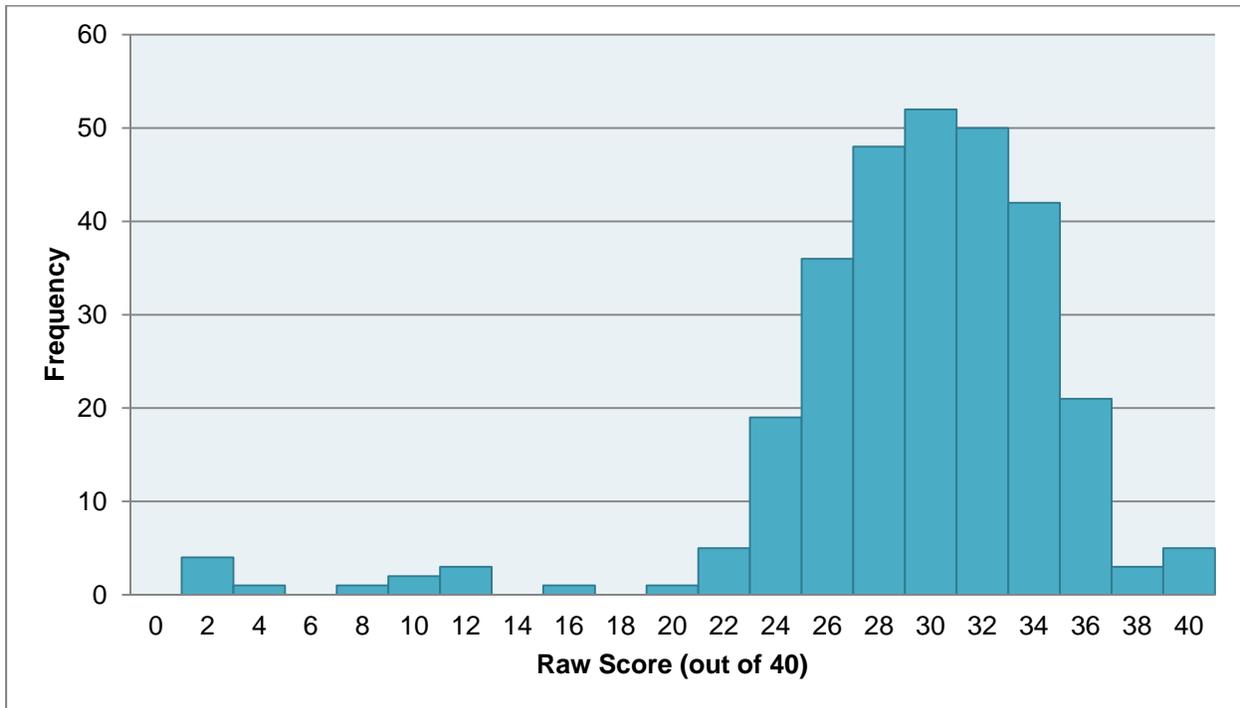
not show which scores corresponded to the first time the student had taken the test or whether they had then used the Online Writing Skills Workshop/Essay-Zone before retaking the pretest. Furthermore, all data that contained zero for either a pretest or a posttest score was disregarded. Upon close examination of the data, it was common to see zeros in cases where fall 2008 OWSW participants had spent almost no time on the modules (less than 30 seconds). These participants might have had a pretest score of 8 followed by a posttest score of zero. The zeros therefore most likely represent either missing data or cases where the student logged on to take the posttest but did not answer any questions.

In each term, paired-sample t-tests were used to test the statistical significance of differences in pretest and posttest scores. (These tests are commonly used to compare a set of observations about a group of individuals before and after a test condition has been applied.) Two tests were performed in each term: one on data that had been processed to remove outliers and one on the middle two quartiles of the data set. These two subsamples were considered in order to deal with anomalous values found in the data and are discussed in depth in the following subsection. For the fall 2008 data, the amount of time spent on the OWSW was also examined.

## Dealing with Extreme Values

Even after cleaning the data to remove missing values and scores of zero, there were a number of data points that appeared anomalous. For instance, in the fall 2009 data alone (see Figure 1), there were 12 test takers (out of a total of 294), who scored 15 points or less on the pretest (out of 40), and 4 of these individuals scored only 1 point on the pretest. However, these students performed a great deal better on the posttest. Each of the test takers who had received 1 point on the pretest received a score of 30 or higher on the posttest, and the average posttest score for all 12 of these individuals was 30.25. It therefore seems unlikely that the scores obtained on the pretest were accurate for these students; a more plausible explanation is that they either did not complete the pretest or that they simply did not make an effort to answer the questions properly. However, these extreme values have a highly disproportionate effect on the calculation of the grade change between tests; the erroneous inclusion of even a small number of extreme values on either the pretest or posttest would skew the results. It is therefore important to employ a criterion to discard seemingly erroneous extreme values from the analysis.

**Figure 1: Histogram of fall 2009 raw pretest scores**



Two approaches were used to deal with outliers. The first approach identified potential outliers based on the inter-quartile range (IQR) criterion.<sup>1</sup> Observations that were greater than the upper quartile of the test data by more than 1.5 times the IQR were flagged as potential outliers, as were observations that were less than the lower quartile of the data by more than 1.5 times the IQR. In the fall 2009 data, for example, this method identified precisely the 12 values discussed in the previous paragraph as potential outliers. The pretest and posttest scores for these individuals were then examined for anomalies (for instance, an extremely low pretest score followed by an extremely high posttest score or vice-versa), and anomalous points were excluded from the analysis. In the fall 2009 data, all 12 of the potential outliers did indeed appear to be anomalous, and these values were therefore excluded from the analysis. In the second approach, outliers were not specifically identified; instead, the middle two quartiles of the pretest data<sup>2</sup> were retained for analysis. This method was used because it was found that the outliers identified in the previous approach almost always corresponded to students who had extremely low pretest scores, followed by extremely high posttest scores. As

<sup>1</sup> The inter-quartile range is the difference between the upper quartile and lower quartile of the data ( $IQR = Q_3 - Q_1$ , where  $Q_3$  is the upper quartile and  $Q_1$  is the lower quartile). The IQR criterion flags values outside of the range  $[Q_1 - 1.5 \times IQR, Q_3 + 1.5 \times IQR]$  as potential outliers.

<sup>2</sup> All the data, including outliers identified in the first approach but excluding missing values or scores of zero, were examined, and the bottom quartile and top quartile were then excluded from further analysis.

such, pretest results that had the highest potential to increase on the posttest were being excluded as outliers, but results that had the highest potential to decrease (i.e., results near the maximum score possible on the pretest) were not being excluded. There was therefore a concern that the process of eliminating outliers might have led to an underestimation of the effect of the OWSW/EZ if any outliers were wrongly discarded. By examining only the middle two quartiles of the pretest results, all students being analyzed had an opportunity to improve on the posttest, as well as an opportunity to do worse. In essence, this approach estimated the effect on students who were similar to the median pretest taker, excluding those who performed either very well or very poorly.

Both approaches were used for each of the four semesters under consideration. In essence, data from the first approach allowed an estimation of the overall change between the pretest and the posttest, *assuming that the exclusion of the outliers was warranted*. The approach in which the middle two quartiles of pretest takers were analyzed provided an estimate of the change among students who were similar to the median student.

For more details on the precise values that were excluded as outliers in each test, as well as the cut-offs that determined the middle two quartiles of data, please refer to Appendix B.

## Survey Analysis

### Demographic Profile of Respondents

In both surveys, respondents were asked about the faculty in which their program of study resided (see Table 3). The faculty of study distribution between the 2009 and 2010 surveys was fairly consistent – with the exception of the faculty of applied health sciences, where there was the greatest change in percentage of respondents between 2009 and 2010 (see Table 3). In both surveys, the faculty of social science and the faculty of humanities combined accounted for approximately half of all students who completed the survey. The program of study results could not be compared to the administrative data because concurrent education students do not belong to a distinct faculty, as their program consists of both discipline-specific courses and education courses. In the survey, concurrent education students were therefore given the opportunity to identify their program as education.

**Table 3: Survey respondents by faculty of study**

In which faculty is your program of study?	2009	2010
Social science	27%	30%
Applied health sciences	21%	15%
Humanities	20%	20%
Business	15%	12%
Education	9%	11%
Math and science	7%	11%

Respondents' gender identification between the two surveys was not consistent. (See Table 4, which shows responses to the question "Are you: Male, Female, Other?" for the 2009 and 2010 surveys.) In the 2009 survey, two-thirds of respondents identified as female, but in the 2010 survey, the female-to-male ratio was 70:30. By comparison, the female-to-male ratios found in the administrative data for 2006-2008 were approximately 60:40. So the ratios of male and female survey respondents between the 2009 and 2010 surveys were inconsistent, as were the ratios between each of these surveys and the survey undertaken from the year 2006 to the year 2008.

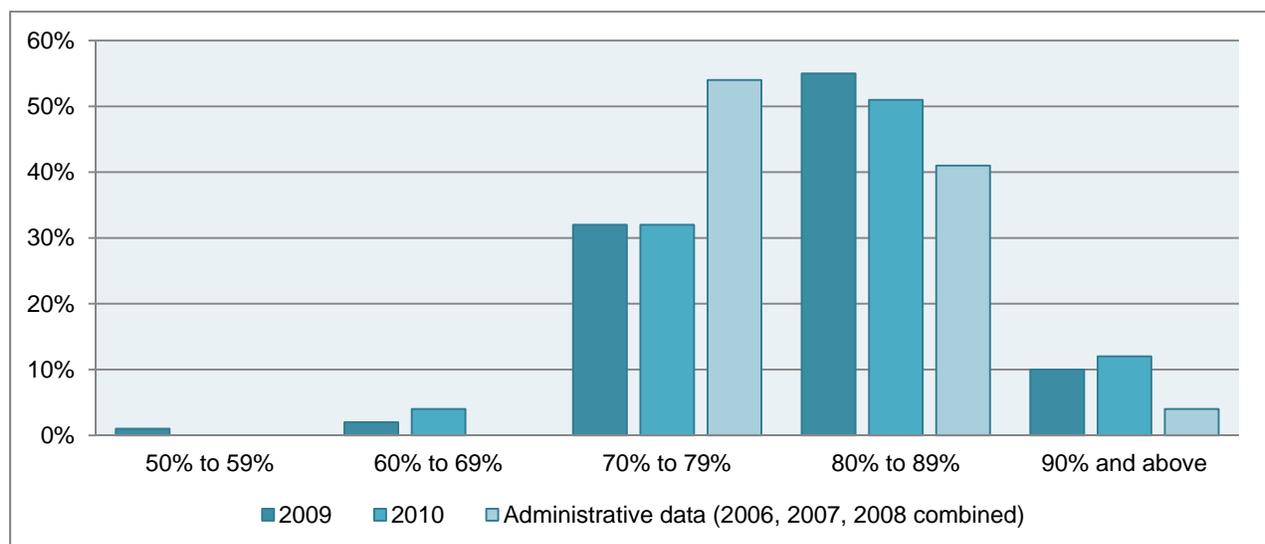
**Table 4: Survey respondents by gender**

Are you:	2009	2010
Male	35%	30%
Female	65%	70%

Respondents were asked to self-report both their high school marks and their current university marks. Students were given five ranges of marks, starting at 50 to 59 per cent and increasing in increments of 10 per cent. For final high school average, a majority of students in both surveys reported an average of between 80 and 89 per cent. One-third of respondents in both surveys reported a final high school average of 70 to 79 per cent, and one-tenth reported an average of 90 per cent or more. In the 2009 survey, only 3 per cent indicated an average below 70 per cent, and in 2010, that number was 4 per cent.

Figure 2 displays the distribution of respondents' reported final high school overall averages, along with high school averages of the combined 2006, 2007 and 2008 cohorts, taken from the administrative data.

**Figure 2: Final high school average marks of survey respondents**

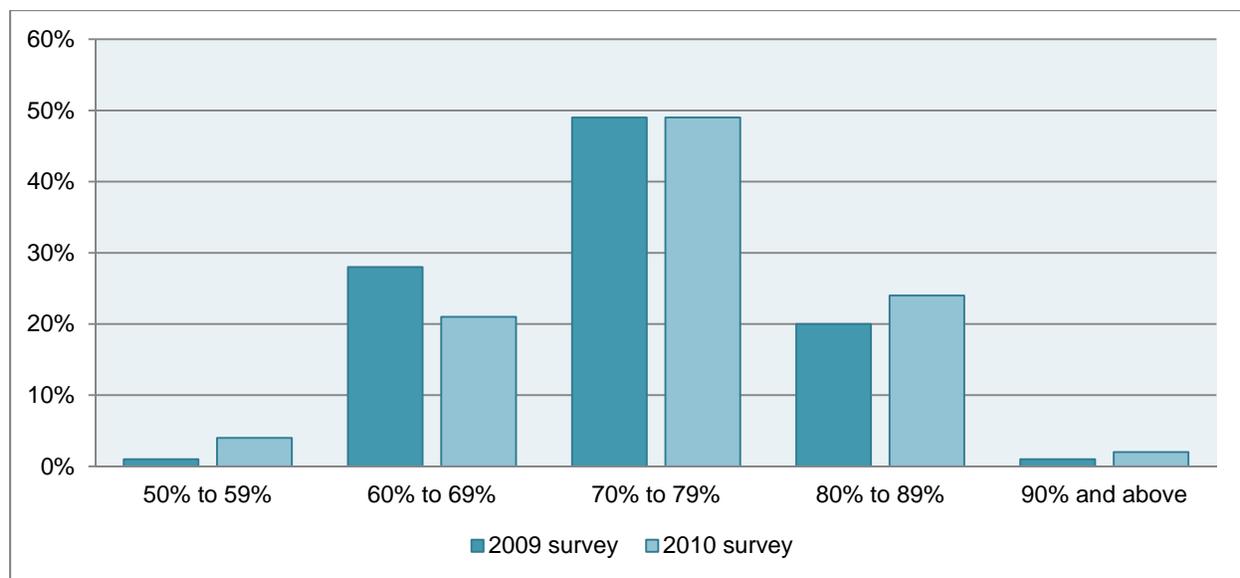


The reported current overall averages of undergraduate grades for both the 2009 and the 2010 surveys were generally lower than the reported high school averages of those same students. In both surveys, approximately one-half of respondents reported an average of 70 to 79 per cent. In the 2009 survey, 29 per cent reported an average below 60 to 69 per cent, and one-fifth reported an average of 80 to 89 per cent. In 2010, these numbers changed slightly: approximately one-quarter reported an average below 60 per cent, and one-quarter reported an average above 80 per cent.

Since there is an expected numerical decrease in marks for students entering university, differences between the reported high school average and reported university average are not surprising. It is also important to be aware that survey respondents might inflate self-reported marks. For instance, a student with a 77 or 78 per cent mark might round up to an 80 per cent.

Figure 3 shows the distribution of respondents' self-reported current grade average.

**Figure 3: Current overall undergraduate average marks of survey respondents**



## 2009 Survey Analysis

As noted in the methodology, a large component of the 2009 survey was focused on students' awareness of, impression of and experiences with the Online Writing Skills Workshop. (The name "Essay-Zone" was not yet in use during the period of this survey.) The 2010 survey, on the other hand, examined all the learning skills workshops, and only one specific subset of questions dealt with the workshop (known, by then, as Essay-Zone). Therefore, the majority of this section will focus on the results from the 2009 survey.

Respondents in first year reported a much higher rate of participation in the Online Writing Skills Workshop, at 26 per cent, than their second-, third-, and fourth-year counterparts, who reported rates of 15 per cent, 8 per cent and 6 per cent, respectively. (See Table 5, which displays responses to the question “Have you completed the Online Writing Skills Workshop?,” broken down by year of study.) While fifth year (15 per cent) and other (0 per cent) (not shown in Table 5) appear to be departures from the trend, the small number of respondents in the latter two categories means that these percentages are of very little analytical use. Overall, 18 per cent of respondents in all years of study indicated that they had completed the Online Writing Skills Workshop, while 82 per cent indicated that they had not.

**Table 5: Online Writing Skills Workshop participation by program year**

Year of Study	Percentage Answering “Yes” to “Have you completed the Online Writing Skills Workshop?”
First year	26%
Second year	15%
Third year	8%
Fourth year	6%
Fifth year	15%
<b>All</b>	<b>18%</b>

Participants and non-participants can also be compared based on the faculty in which their program of study resides. By faculty, respondents in business reported the highest rate of participation in the workshop. Applied health sciences and social science also reported high rates of participation, with approximately one-fifth of their respondents reporting involvement. Very few of the respondents in education and math and science reported completing the OWSW. Table 6 displays responses to the question “Have you completed the Online Writing Skills Workshop?,” broken down by faculty.

**Table 6: Online Writing Skills Workshop participation by faculty of study**

Faculty of Study	Percentage Answering “Yes” to “Have you completed the Online Writing Skills Workshop?”
Applied health sciences	22%
Business	29%
Education	9%
Humanities	13%
Math and science	3%
Social science	18%
<b>All</b>	<b>18%</b>

The distributions by year and faculty are important to keep in mind when discussing differences based on participation in the Online Writing Skills Workshop, as access to the workshop was limited to students in participating classes. More participants than non-participants were in first year, and the majority were also enrolled in applied health sciences or business. Some courses that had workshop access have made the workshop mandatory and the distribution of such courses by faculty and year may explain some or all of these trends. In investigating the reasons for these trends, it will be worthwhile to examine the courses in which the Online Writing Skills Workshop has been made mandatory, as well as looking at their distribution by program and year.

Respondents were asked to report their final high school average, and it was interesting to note that students who reported receiving 90% or above were less likely to choose to take the Online Writing Skills Workshop than those that reported final high school averages ranging from 60 to 89 per cent, possibly indicating a greater desire for online interactive instruction in students with lower marks in high school. (See Table 7.)

**Table 7: Frequency of OWSW participation by final high school average**

<b>What was your final high school overall average?</b>	<b>Percentage Answering “Yes” to “Have you completed the Online Writing Skills Workshop?” (2009)</b>
Less than 50%	0%
50% to 59%	0%
60% to 69%	1%
70% to 79%	40%
80% to 89%	56%
90% and above	2%
<b>TOTAL</b>	<b>100%*</b>

\*Due to rounding, the sum of the displayed values in the column does not equal 100%.

All respondents were asked about the sources from which they had received help with their writing skills. Respondents who indicated that they had not completed the Online Writing Skills Workshop were also asked from which sources they would like to receive help with their writing skills. For comparison purposes, the responses given by those who had not completed the workshop are described first in the section below. Respondents were able to select multiple responses.

Respondents who had not completed the Online Writing Skills Workshop most frequently reported teaching assistants; friends or peers; or parents, siblings or partners as sources of assistance with their writing skills (see Table 8). The prevalence of assistance from friends/peers and family members suggests that respondents are relying on a substantial amount of assistance from non-institutional sources. As to institutional assistance, the most frequently cited source was teaching assistants. In addition, approximately one-quarter of respondents who did not take the workshop indicated that they had not received help with their writing skills from others.

**Table 8: Sources of previous assistance with writing skills – Students not taking OWSW**

<b>From which of the following sources have you received help with your writing skills? (Check all that apply)</b>	<b>Percentage of Respondents</b>
Friend or peer	45%
Teaching assistant	43%
Parent, sibling or partner	39%
Course instructor	26%
Other	10%
Tutor	2%
I have not received help with my writing skills from others.	26%

Sixty-two per cent of respondents who had not completed the Online Writing Skills Workshop reported that they would like to receive help with their writing skills from a teaching assistant, and 52 per cent indicated that they would like to receive help from a course instructor (see Table 9). Thus, institutional sources were the most popular sources of desired help among respondents. Only 12 per cent indicated that they would not like to receive help with their writing skills from any source. This might suggest that most students actually would like assistance with their writing skills, though the results of this survey should not be generalized to the entire undergraduate population. As such, further examination of this point could be incorporated into a more randomized survey with more respondents at a later date.

**Table 9: Desired sources of assistance with writing skills – Students not taking OWSW**

<b>From which of the following sources would you like to receive help with your writing skills? (Check all that apply)</b>	<b>Percentage of Respondents</b>
Teaching assistant	62%
Course instructor	52%
Friend or peer	42%
Tutor	32%
Parent, sibling or partner	30%
Other	12%
I would not like to receive help with my writing skills from any source.	12%

Further observations are possible when the respondents' year of study is considered. The percentage of respondents who indicated that they would like to receive help from their course instructor was higher for third-year respondents, at 63 per cent, than for second-year respondents, at 52 per cent (see Table 10). Similarly, the percentage for second-year respondents was higher than that for first-year respondents, which was 43 per cent. This is perhaps to be expected, since as students progress through their studies, they are more

exposed to course instructors and smaller class sizes and thus become more comfortable approaching their professors. Furthermore, students become increasingly aware of discipline-specific expectations.

More first- and second-year respondents, at 63 per cent and 71 per cent, respectively, indicated that they would like help from their teaching assistants than did the third- and fourth-year respondents, where frequencies were just under 60 per cent. This could be reflective of the declining importance of teaching assistants as students move into upper-year courses.

Third-year respondents had a slightly higher rate of desiring help from family members than did second-year respondents. Both had a rate just under 40 per cent, while first-year students had a rate of only 30 per cent. It is possible that some students may feel more comfortable receiving help with their own skills development from individuals not affiliated with the university. Student desire for writing assistance from non-university affiliates may also be prompted by a reluctance to reveal skill deficits publicly, a problem overcome with the use of the OWSW, as the workshop is individualized and private.

Finally, only about one-tenth of first- and second-year respondents did not want to receive help with their writing skills, but the percentages increased slightly for third- and fourth-year respondents. This may suggest that upper-year students are more self-confident in their abilities as their university careers have progressed and feedback has been given.

**Table 10: Desired sources of assistance by year of study – Students not taking the OWSW**

Year of Study	From which of the following sources would you like to receive help with your writing skills? (Check all that apply)					
	Course Instructor	Teaching Assistant	Tutor	Friend or Peer	Parent, Sibling, or Partner	I would not like to receive help with my writing skills from any source.
First year	43%	63%	38%	46%	30%	10%
Second year	52%	71%	33%	38%	35%	8%
Third year	63%	58%	26%	44%	38%	14%
Fourth year	59%	57%	24%	35%	17%	19%
Fifth year	73%	64%	9%	36%	27%	9%
Other	50%	50%	50%	0%	0%	0%
<b>ALL</b>	<b>52%</b>	<b>63%</b>	<b>32%</b>	<b>42%</b>	<b>30%</b>	<b>12%</b>

Respondents who did not complete the Online Writing Skills Workshop were also asked about their level of interest in receiving help with their writing skills. While approximately 69 per cent indicated that they were either “Somewhat Interested” or “Very Interested,” there was an interesting difference on the basis of gender. Of respondents who did not complete the

workshop, 25 per cent of males indicated that they were not interested in receiving help with their writing skills, while only 13 per cent of females were not interested (see Table 11).

It should also be noted that only 17 per cent of respondents (male and female) indicated that they were not interested in receiving help with their writing skills, and 73 per cent of both males and females were either “Somewhat Interested” or “Very Interested.” This means that the majority of those surveyed are receptive to assistance with their writing skills.

**Table 11: Interest in receiving help with writing skills by gender – Students not taking the OWSW**

How interested would you be in receiving help with your writing skills?	Gender		
	Male	Female	Total
Don't know/Not sure	8%	11%	10%
Not interested	25%	13%	17%
Somewhat interested	49%	53%	52%
Very interested	19%	23%	21%
<b>TOTAL</b>	<b>100%*</b>	<b>100%</b>	<b>100%</b>

\*Due to rounding, the sum of the displayed values in the column does not equal 100%.

Respondents who had taken the Online Writing Skills Workshop were more likely to indicate that they had received help from one or more of the other sources mentioned in the survey than those who had not taken the workshop – with the exception of family sources. (See Table 12.) This suggests one of two possibilities. First, it is possible that respondents who took the Online Writing Skills Workshop pursued help from other sources as a result of some aspect of their participation in the workshop. Second, it is also possible that there is a degree of self-selection involved. While access to the workshop is limited to students who must take the workshop as part of a course requirement, the level of engagement with the workshop is student-controlled; it would be expected that people who choose to take the workshop seriously would generally be more interested in receiving assistance with their writing skills from other sources.

**Table 12: Sources of previous assistance by participation in the Online Writing Skills Workshop**

Have you completed the Online Writing Skills Workshop?	From which of the following sources have you received help with your writing skills? (Check all that apply)						
	Course Instructor	Teaching Assistant	Tutor	Friend or Peer	Parent, Sibling, or Partner	Other	I have not received help with my writing skills from others.
Yes	30%	55%	3%	49%	37%	22%	13%
No	26%	43%	2%	45%	39%	10%	26%
<b>ALL</b>	<b>26%</b>	<b>45%</b>	<b>3%</b>	<b>46%</b>	<b>39%</b>	<b>12%</b>	<b>24%</b>

Respondents were asked to rate their current writing skills using a five-point Likert Scale. The response distributions of those who had taken the Online Writing Skills Workshop and those who had not taken the OWSW were not substantially different from each other. However, respondents who had not taken the Online Writing Skills Workshop were much more likely to describe their skills as “Very Strong” than those who had taken the workshop (11 per cent vs. 3 per cent). (See Table 13.) This could be an indication that those who had taken the workshop had a clearer sense of what strong writing skills are and therefore assessed themselves by a higher standard. Since the survey did not inquire as to when or how long ago students had completed the Online Writing Skills Workshop, and since most of the respondents who had taken the workshop were in the first year of their programs, it is possible that respondents had not had much time to develop their skills since they had completed the workshop.

**Table 13: Self-assessment of writing skills by participation in the Online Writing Skills Workshop**

Have you completed the Online Writing Skills Workshop?	How would you rate your writing skills currently?					
	Very Weak	Somewhat Weak	Neither Weak nor Strong	Somewhat Strong	Very Strong	Total
Yes	5%	13%	31%	48%	3%	100%
No	3%	11%	34%	40%	11%	100%
<b>All</b>	<b>4%</b>	<b>11%</b>	<b>34%</b>	<b>41%</b>	<b>10%</b>	<b>100%</b>

Respondents who had completed the Online Writing Skills Workshop were also asked to rate their agreement or disagreement with five statements on a five-point Likert scale (see Table 14). Generally, respondents agreed most strongly that the Online Writing Skills Workshop helped them improve their writing skills, with 54 per cent indicating “Somewhat Agree” or “Strongly Agree.” Respondents were far less likely, however, to believe that the workshop was beneficial in other ways. Just 20 per cent agreed that the workshop had helped improve their grades (vs.

36 per cent in disagreement), only 23 per cent agreed that it had helped them with their reading skills (vs. 36 per cent in disagreement), and only 19 per cent had agreed that it had helped them with their exam writing skills (vs. 44 per cent in disagreement). Only 13 per cent of respondents who had taken the workshop indicated that it had helped them to develop their verbal communication skills, while 40 per cent answered either “Somewhat Disagree” or “Strongly Disagree.”

It is perhaps not surprising that a workshop designed to assist with writing skills would be seen by respondents as having helped them to improve their writing skills to a greater degree than it had helped them improve their other skills. The fact that students did not perceive improvement in their grades, however, may have been due to the quantity and timing of their essay assignments and exams.

**Table 14: Agreement or disagreement with statements for respondents who had completed the OWSW**

<b>Please rate your agreement or disagreement with the following statements: The Online Writing Skills Workshop . . .</b>	<b>Strongly Disagree</b>	<b>Somewhat Disagree</b>	<b>Neither Agree nor Disagree</b>	<b>Somewhat Agree</b>	<b>Strongly Agree</b>	<b>Total*</b>
helped to improve my writing skills.	3%	18%	24%	49%	5%	100%
helped me to improve my grades.	10%	26%	43%	18%	2%	100%
helped me improve my reading skills.	14%	22%	41%	21%	2%	100%
helped me with my exam writing skills.	14%	30%	36%	17%	2%	100%
helped me to develop my verbal communication skills.	17%	23%	46%	11%	2%	100%

\* Some percentages in the “Total” column may not add to 100 due to rounding.

## 2010 Survey Analysis

The 2010 survey examined learning skills workshop participants’ satisfaction with the workshops and the perceived impact of the workshops on various aspects of their learning skills. Since the survey examined all workshops, only a small set of questions examined the Online Writing Skills Workshop (by this time, known as Essay-Zone). Like the 2009 survey, a number of the questions about respondents’ perceptions of the utility of workshop were the same. In the 2010 survey, respondents were asked whether they had ever taken the Essay-Zone workshop. If students indicated that they had, they were asked a series of questions about their perceptions of the workshop’s usefulness in improving the following: written communication skills, oral communication skills, understanding of university expectations, exam writing skills, confidence, overall academic success and their connection with Brock University.

As in the 2009 survey, more than half of the respondents “Somewhat Agreed” or “Strongly Agreed” that EZ had improved their writing skills (see Table 15). Furthermore, more than half of the 2010 respondents also “Somewhat Agreed” or “Strongly Agreed” that the workshop had helped them understand what was expected of them at university and had helped improve their overall academic success, the latter of which was measured in grades. Unlike the case in the 2009 survey, 2010 respondents indicated greater agreement with the statements about improvements with regard to oral communication and exam writing. In 2010, 30 per cent of respondents “Somewhat Agreed” or “Strongly Agreed” that the workshops had improved their oral communication, and 41 per cent “Somewhat Agreed” or “Strongly Agreed” that the workshops had improved their exam writing skills. In 2009, however, only 13 per cent of respondents had “Strongly Agreed” or “Somewhat Agreed” that the workshops had improved their oral (verbal) communication, and only 19 per cent “Strongly Agreed” or “Somewhat Agreed” that the workshops had improved their exam writing skills (see Table 15).

**Table 15: 2010 Survey respondents’ perceptions of the utility of Essay-Zone**

Please indicate your level of agreement with the following: The Online Interactive Essay workshop, Essay-Zone, helped me to . . .							Total*
	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree	Don't Know	
improve my written communication.	6%	7%	27%	41%	18%	2%	100%
improve my oral communication.	10%	15%	37%	20%	10%	8%	100%
improve my understanding of what is expected of me at university.	3%	5%	25%	38%	26%	4%	100%
improve my exam writing skills.	5%	16%	34%	26%	15%	5%	100%
improve my connection with the Brock community.	18%	16%	22%	21%	15%	8%	100%
increase my confidence.	9%	14%	31%	25%	15%	6%	100%
increase my academic success.	5%	8%	31%	35%	20%	2%	100%

\* Some percentages in the “Total” column may not add to 100 due to rounding.

In the 2010 survey, respondents were asked to rate their satisfaction with three aspects of the workshops they had taken: overall quality, instruction and teaching materials. The majority of respondents indicated that they were “Somewhat Satisfied” or “Very Satisfied” with the workshop, as assessed by these three criteria (see Table 16). Approximately three-quarters of respondents were satisfied with the instruction and teaching materials of EZ, and almost four-fifths of respondents were satisfied with the overall quality of the workshops.

**Table 16: 2010 survey respondents’ satisfaction with Essay-Zone**

Please indicate your overall satisfaction with the following aspects of the online interactive essay workshop, Essay-Zone:	Dissatisfied	Somewhat Dissatisfied	Neither Satisfied nor Dissatisfied	Somewhat Satisfied	Very Satisfied	Not applicable	Total*
Overall quality	0%	5%	16%	50%	29%	1%	100%
Instruction	1%	3%	21%	43%	32%	1%	100%
Teaching materials	2%	4%	22%	38%	34%	1%	100%

\* Some percentages in the “Total” column may not add to 100 due to rounding.

## Pretest-Posttest Data Analysis

This section presents the quantitative analysis of the four pairs of pretests and posttests that were administered from fall 2008 to winter 2010. Each pretest-posttest pair is analyzed in turn, with a discussion of the overall results presented at the end of each section.

### Fall 2008 OWSW

The fall 2008 pretest contained 10 questions, whereas the fall 2008 posttest contained 40 questions. To facilitate comparisons between results on the pretest and the posttest, all scores are displayed as percentage points (e.g., 8 out of 10 for the fall 2008 pretest is 80 per cent, and 20 out of 40 on the posttest is 50 per cent).

Table 17 presents student results on the fall 2008 pretest and posttest for the two subsamples of students outlined in the methodology section (the approximately 1,600 first-year students and approximately 1,600 second-, third- and fourth-year students). Both samples yield similar results. In the sample excluding outliers, students received, on average, 65.6 per cent on the pretest and 62.2 per cent on the posttest. This difference of about -3.5 per cent is statistically significant; with 95 per cent confidence that the change in grades lies between -2.4 and -4.5 per

cent. Results for the middle 50 per cent of pretest takers are similar. Thus, if one were to assume that the grade changes between the two tests were caused entirely by the OWSW/EZ, one would conclude that use of the workshop actually decreased students' writing skills. However, this is an unwarranted assumption. As discussed in the methodology, the fall 2009 posttest differed substantially from the pretest and was, in particular, longer. The most plausible explanation for this result is therefore that the posttest was more difficult than the pretest. Furthermore, the time span between the pretest and posttest may have posed significant problems in analyzing student improvement. Absent a control group, analysis of the pretest and posttest results in the fall 2008 cohort does not provide useful insight into the effectiveness of the OWSW/EZ. Overall, this is a flawed design and has not been conducted in an effective manner. The tests should have been equal in length and difficulty.

**Table 17: Pretest and posttest grade difference for fall 2008 OWSW participants**

Test	Sample Excluding Outliers		Middle Pretest Quartiles	
	Grade (in %)	95% Confidence Interval	Grade (in %)	95% Confidence Interval
Pretest	65.6%	[64.6%, 66.7%]	66.3%	[65.7%, 66.8%]
Posttest	62.2%	[61.5%, 62.8%]	62.0%	[61.2%, 62.9%]
Difference in grades	-3.46%	[-2.40%, -4.52%]	-4.25%	[-5.26%, -3.24%]

Sample excluding outliers: N = 877, significance of difference:  $p < .001$ . Sample of middle two pretest score quartiles: N = 462, significance of difference:  $p < .001$ .

### *Time on the OWSW*

Included in the data set for the fall 2008 tests was the amount of time students spent on the OWSW modules. On average, test takers with valid scores on file spent approximately 80 minutes on the modules, and the standard deviation of time spent was roughly 50 minutes.<sup>3</sup> Table 18 summarizes the mean, median and standard deviation for time spent on the OWSW.

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<sup>3</sup> It should be noted that the time captured here is simply how long the participant had the module webpage open on their computer. There is no way of telling whether students were actually making use of the contents of the module during this time.

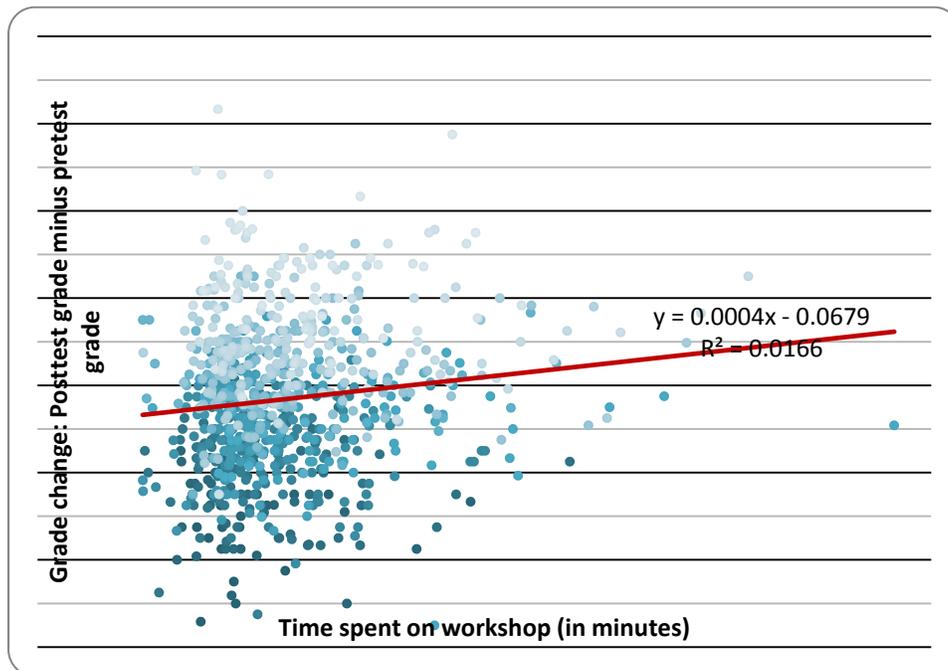
**Table 98: Summary statistics for time spent on the OWSW for the fall 2008 participants\***

Mean	80 min
Median	66 min
Standard Deviation	49 min

\*Data is for 889 students with nonzero pretest and posttest scores

It appears that time spent on the OWSW had very little impact on the difference between the pretest and posttest scores. Figure 4 plots the difference between the score (%) on the posttest and the score (%) on the pretest in relation to the time spent on the workshop. This figure shows that there was a slight upward trend in test score difference as students spent more time on the OWSW. However the fit of the data to the trend line is very poor ( $R^2 = 0.02$  when fitting a simple linear regression with time in minutes and a constant as the only explanatory variables). With no further controls available to fit a more useful model to the data, it can only be concluded that time spent on the workshop does not appear to be the single strongest factor in determining a change in test scores.

**Figure 4: Difference between pretest and posttest grades based on time spent on the OWSW**



**N = 889,  $R^2 = 0.015$ , slope = 0.045% / minute.**

## Winter 2009 OWSW

The pretest and posttest for the winter 2009 OWSW each contained 40 questions, which were randomly drawn from a pool of 59 questions. Each student's pretest contained the same proportion of questions in each concept area (e.g., sentence construction, spelling) as their posttest. However, there was significant repetition of questions from pretest to posttest; a minimum of 21 questions were identical on the pretest and posttest. Thus, while it is reasonable to expect that the pretests and posttests were, on average, of similar difficulty and subject matter in winter 2009, it is more difficult to conclude with certainty that improvements on the posttest were due to the OWSW itself, as recurrent exposure to the test questions may have improved posttest marks.

Unsurprisingly, the winter 2009 test takers scored slightly better on the posttest than on the pretest. In the sample excluding outliers, these participants had a mean score of approximately 71 per cent on the pretest and a mean score of about 74 per cent on the posttest (see Table 19). The mean difference is approximately 2.6 per cent and lies between 1.5 per cent and about 3.8 per cent, with 95 per cent confidence. These students therefore experienced a statistically significant improvement in grades ( $p < .001$ ) on the posttest. Results for the middle two quartiles of test takers were very similar.

**Table 19: Differences in pretest and posttest grades for winter 2009 OWSW participants**

Test	Sample Excluding Outliers		Middle Pretest Quartiles	
	Grade (in %)	95% Confidence Interval	Grade (in %)	95% Confidence Interval
Pretest	71.2%	[69.8%, 72.6%]	72.3%	[71.7%, 72.9%]
Posttest	73.9%	[72.4%, 75.3%]	74.6%	[73.2%, 76.1%]
Difference in grades	2.64%	[1.51%, 3.76%]	2.33%	[0.86%, 3.79%]

Sample excluding outliers:  $N = 216$ , significance of difference:  $p < 0.001$ . Middle two pretest quartiles:  $N = 120$ , significance of difference:  $p = 0.019$ .

These results are consistent with the hypothesis that the OWSW improved student understanding of the writing process, though the testing methodology made it difficult to conclude the precise level of improvement. A 2.6 per cent improvement on a 40-question test corresponds to students answering an average of approximately 1 more question correctly on the posttest than on the pretest. At least 21 questions were repeated from the pretest to the posttest, and this could have artificially inflated posttest results; however, though students showed improvement it cannot be assumed that the improvement was strictly due to question repetition.

## Fall 2009

The fall 2009 pretest and posttest were composed of 40 questions, each drawn randomly from a pool of 120 questions. The tests were balanced so that each student's pretest contained the same number of questions in each area as their corresponding posttest. Moreover, no student saw the same question on both the pretest and the posttest.

Students in both samples performed somewhat better on the posttest than they did on the pretest (see Table 20). The estimates were similar in the two samples: students performed about 5 per cent better on the posttest, and the difference was statistically significant ( $p < .001$ ).

**Table 20: Difference in pretest and posttest scores for fall 2009 EZ participants**

Test	Sample Excluding Outliers		Middle Pretest Quartiles	
	Grade (in %)	95% Confidence Interval	Grade (in %)	95% Confidence Interval
Pretest	74.0%	[72.9%, 75.2%]	73.4%	[72.7%, 74.1%]
Posttest	79.0%	[78.0%, 80.1%]	78.0%	[76.8%, 79.3%]
Difference	5.02%	[3.84%, 6.10%]	4.65%	[3.25%, 6.05%]

Sample excluding outliers:  $N = 282$ , significance of difference:  $p < 0.001$ . Middle two pretest quartiles:  $N = 150$ , significance of difference:  $p < 0.001$ .

On a 40-question test, a 5 per cent improvement corresponds to 2 additional questions answered correctly. It therefore does appear that student understanding of the writing process improved between the pretest and the posttest. Unfortunately, in the absence of a control group, it is difficult to conclude that this improvement was due to Essay-Zone; however, the results are certainly consistent with this possibility.

## Winter 2010

The winter 2010 pretest and posttest followed the same design as that of fall 2009, with 40 questions drawn from a pool of 120 questions, none of which was repeated from the pretest to the posttest. In addition, the balance of questions in each concept area was the same on both pretest and posttest.

Regardless of which sample is considered, students performed very similarly on the pretest and the posttest; the difference is about a fifth of a per cent. Unlike the pretest and posttests of winter 2009 and fall 2009, the analysis provides no evidence suggesting that the workshop improved student acquisition of writing terminology and concepts. Pretest and posttest scores for winter 2010 are provided in Table 21.

**Table 21: Difference in pretest and posttest scores of winter 2010 E-Z participants**

Test	Sample Excluding Outliers		Middle Pretest Quartiles	
	Grade (in %)	95% Confidence Interval	Grade (in %)	95% Confidence Interval
Pretest	78.1%	[76.9%, 79.4%]	77.5%	[76.8%, 78.2%]
Posttest	78.0%	[77.1%, 78.9%]	77.3%	[76.1%, 78.4%]
Difference	-0.14%	[-1.38%, 1.10%]	-0.22%	[-1.46%, 1.03%]

Sample excluding outliers: N = 250, significance of difference:  $p = 0.822$ . Middle two pretest quartiles: N = 150, significance of difference:  $p = 0.734$ .

## Discussion

Of the four terms of data that were analyzed, two involved experimental designs that made it difficult to draw conclusions about the effectiveness of the OWSW/EZ. The fall 2008 pretest and posttest design was fatally flawed, with the large differences between the pretest and the posttest making it imprudent to draw conclusions concerning the efficacy of the workshop in the absence of a control group. The design of the winter 2009 pretest and posttest was much improved over that of the pretest and posttest for fall 2008, and the 2.64 per cent improvement in scores between the pretest and the posttest is statistically significant. The improvement is modest, however, corresponding to, at most, an average of 1 additional question out of 40 answered correctly, and this may have been due to the short period of time between the pretest and the posttest and the fact that students were therefore not given enough time to fully engage in the workshop.

The fall 2009 and winter 2010 experimental assessment design was much more solid, but unfortunately, the results from these two experiments do not agree with each other. In fall 2009, EZ participants improved their test scores by 5 per cent from the pretest to the posttest, and this difference was statistically significant, at 95 per cent confidence. In winter 2010, the pretest and posttest scores of workshop participants were almost identical. The experimental evidence in favour of Essay-Zone having had a notable effect on students' understanding of the writing process is therefore mixed.

What might account for the differences between the fall 2009 and winter 2010 results? One hypothesis is that the time of year itself might matter. Since the vast majority of Brock students enter school in September, it is possible that a number of students are still developing an understanding of the academic writing process in the fall. These students might be more amenable to learning new concepts from the Online Writing Skills Workshop. By winter, virtually all students have completed, at minimum, a full semester of study. It is therefore possible that at this point, students have already worked toward improving their writing skills and developing an understanding of academic writing, and thus, at this stage, EZ might not provide much more help. Indeed, the average score on the winter 2010 pretest (78 per cent) was similar to the score on the fall 2009 posttest (79 per cent) (see Tables 18 and 19).

An alternate hypothesis is that the difference has something to do with the specific group of students surveyed. The fall 2009 data was drawn from students in a number of courses (courses in management, psychology, sociology, recreation and leisure studies and others). The winter 2010 data was drawn exclusively from management students in different sections of the same course. If there was something specific to the students in this course that made EZ less effective to them, this might explain the difference.

In all, the data does not provide strong evidence in favour of the OWSW/EZ's effect on students' acquisition of the terminology and concepts common in academic writing. The evidence across the four terms that were studied is mixed, with one pretest/posttest set flawed (fall 2008), two sets showing a statistically significant improvement (winter 2009 and fall 2010) and one set showing a slight decline (winter 2010).

It should be emphasized that the results in this section are sensitive to the identification of anomalous data points as outliers. Almost every student who was excluded for having an anomalously low score on the pretest data did a great deal better on the posttest. The exclusion of these observations from the analysis therefore led to a lower calculated mean improvement in grades than would have been found if all the observations had been included. In the winter 2010 tests, for instance, a 5.8 per cent improvement would have been found between the pretest and the posttest if all outliers had been included in the analysis. If the pretest scores of these students were an accurate measurement of their understanding of writing concepts at the time, there would have been evidence to suggest that the OWSW/EZ is most useful to students who have a poor understanding of the terminology and concepts common in academic writing. The question, then, is whether the exclusion of these data points is legitimate.

It is possible that some of these students actually did score very poorly on the pretest due to a lack of understanding, and then made use of the OWSW/EZ, improved their understanding and performed strongly on the posttest. Indeed, in the fall 2008 data, which captured the amount of time spent on the OWSW, some students who received zeroes on the pretest did spend a significant amount of time accessing the workshop and recorded substantially higher scores afterwards. However, most students who received zeroes on the fall 2008 pretest spent a very low amount of time (usually a few minutes or less) on the workshop. The difficulty is that there is no way to distinguish between students who truly tried to answer the pretest correctly, performed very poorly and then learned from the OWSW and students who simply did not attempt to complete the pretest but made a proper attempt on the posttest.

However, it is extremely unlikely that a student who has made an attempt to answer a 40-question multiple choice test would receive scores as low as those that some takers of the 2009 and 2010 pretests obtained, many of which were well below what would be expected from guessing randomly. It seems most likely that these students simply did not make a true attempt on the pretest, whether for technical or other reasons. As such, it is plausible that the outliers do, for the most part, represent measurement error in one form or another, in the sense that the true knowledge of some of the participants was not measured by the pretest. Nevertheless, readers are cautioned against interpreting the results of this study as providing strong evidence against any effectiveness of the OWSW/EZ, since such a conclusion would hinge on the identification of outliers, which is an imprecise science at best.

The results for the middle two quartiles of pretest –takers (which are in every analysis similar to those of the sample without outliers) do suggest that the instances where students performed poorly after using the OWSW/EZ cannot be completely attributed to the improper exclusion of outliers. When students who performed very well on the pretest are excluded, along with students who performed very poorly (the latter category containing the majority of the outliers), the results are similar to when only outliers are excluded. Thus, the results are not simply an effect of having excluded the worst-performing students (who have the most to gain in terms of test marks on a retest) while including the best-performing students (who have the most to lose). Instead, when excluding both of these groups and focusing on students who are similar to the median pretest taker, test-score improvements still range from none in winter 2010 to about 5 per cent in fall 2009. It is therefore difficult to conclude that the OWSW/EZ has a consistent, strong effect on the median student. At best, an effect corresponding to a 5 per cent increase in grades might be associated with the fall implementation of the OWSW/EZ.

Of course, as the posttest is administered early in the term and the OWSW/EZ is a resource that students may continue to access throughout the year, it is still possible that the workshop helps students improve their understanding of the academic writing process sometime after the posttest is administered. It is also possible that students are encountering the OWSW/EZ at a time in the term when academic writing needs are not immediate and that students are turning to the resource later in the term as they start working on assignments. However, the evidence does not point to the OWSW/EZ as having had a consistently strong effect on students' understanding in the weeks between the pretest and posttest.

## Conclusions

This section will highlight the main conclusions and recommendations that can be drawn from the survey and the two administered cycles of pretest and posttest data. Methodological lessons learned from the research will also be emphasized.

### Sources of Information

Analysis of the data from the 2009 and 2010 student surveys administered to Brock University undergraduate students helps to understand more about the writing needs of students who did not take the OWSW/EZ. Below are some of the key findings from the survey.

1. The OWSW/EZ is offered to students on a class-by-class basis only. As a result, a large portion of survey respondents would have had neither knowledge of, nor access to, the OWSW/EZ.
2. The students who did not take the OWSW/EZ reported having received help with writing from friends or peers, as well as from parents, siblings or partners. This same group also stated that they would like to receive help with writing from teaching assistants and course instructors.

3. Finally, approximately 15 to 20 per cent of third- and fourth-year survey respondents, respectively, stated that they would not like to receive help with writing. This rate was 5 to 10 per cent lower than the corresponding rate for first- and second-year students.

The data from the students who did not take the OWSW/EZ indicate that there is a desire to obtain help with writing. However, more students are more willing to receive help early in their educational careers. Therefore, first- and second-year students should be the target demographic when promoting the OWSW/EZ.

Currently, this group is receiving help from non-institutional sources, but there is a desire to get help from institutional sources. When encouraging professors to utilize the OWSW/EZ, the message needs to acknowledge that students are currently turning to peers and parents for support, rather than to institutional sources. Communication with professors also needs to indicate that the OWSW/EZ may serve as a useful tool for first- and second-year students to transition from familiar sources of support to institutional sources of support. Since there is a desire on the part of students to receive writing help from institutional sources, the OWSW/EZ should be an important piece of Brock University's learning skills portfolio.

### The OWSW/EZ and Writing Skills

The survey data also provides a few observations about the participants who actually took the OWSW/EZ.

1. Students who took the OWSW/EZ did not rate their writing skills quite as highly as students who did not take the OWSW/EZ, even after the workshop.
2. The majority of students who took the OWSW/EZ agreed that the workshop improved their writing skills, but the proportion who thought that it had an effect on grades was substantially lower than the percentage who thought the workshop improved their writing skills.
3. Students were generally satisfied with the instruction, course materials and overall quality of the workshop.

Students who took the OWSW/EZ did not rate their writing skills quite as high as students who did not take the OWSW/EZ. Only 3 per cent of OWSW/EZ participants stated that their writing skills were "Very Strong," whereas 11 per cent of OWSW/EZ non-participants rated their writing skills as "Very Strong." While this observation might indicate that students who took the workshop are not confident in their writing skills, there is another and more probable explanation for this result. This difference could be an indication that those who have taken the workshop have a clearer sense of what strong writing skills are and therefore assess themselves by a higher standard. This is most likely the case, given that half the OWSW/EZ respondents stated that their writing skills were "Somewhat Strong."

More than half the students who took the OWSW/EZ agreed that the workshop helped improve their writing skills. According to students, the OWSW/EZ had an impact on their writing skills and performance. This finding is noteworthy because the students are not actually writing

essays in the OWSW/EZ but rather practicing elements of the writing process, and in a relatively short period of time, they appear to have transferred these new skills to their own course assignments. Furthermore, of this sample, students who completed the entire workshop had a higher mean response to the question than students who did not complete the entire OWSW/EZ. This suggests that the respondents who completed more of the workshop perceived more benefit – or that those who did not feel that the workshop was helpful to them simply stopped before they had finished it. It is also important to note that while a plurality of students indicated that the workshop had improved their writing skills, a plurality also said that they felt the course had no effect on the grades they had received – though this may be attributed to a course load in which essay writing is not a significant portion of the grade. What is more, many students completing the workshop were in their first year at university, a time in which a decrease in grades from high school is quite common. In the 2010 survey, a majority of respondents indicated that Essay-Zone improved their written communication, knowledge of what is expected of them at university and overall academic success.

Finally, the data from the 2010 survey indicate that respondents were generally satisfied with the workshop instruction, teaching materials and overall quality of Essay-Zone. In each category, more than 75 per cent of respondents said that they were satisfied or somewhat satisfied with each aspect of the workshop.

### *OWSW/EZ Pretest and Posttest Data Analysis*

The analysis of the pretest and posttest data did not provide conclusive evidence in support of the OWSW/EZ having had an important impact on students' understanding of workshop content. This was due in part to issues with the experimental design and in part to inconsistent results for OWSW/EZ participants.

The fall 2008 pretest and posttest design was critically flawed. Dissimilarities between the pretest and the posttest, coupled with the absence of a control group, led to the results being of little use in judging the effectiveness of the OWSW/EZ. While many of the issues with the fall 2008 tests were corrected for the winter 2009 tests, the weak improvement in scores between the winter pretest and posttest (approximately 1 question in 40) makes it difficult to conclude that an improvement in understanding occurred as a result of the OWSW/EZ.

The experimental design of the fall 2009 and winter 2010 posttests and pretests corrected the design problems of the previous test sets. However, the results from these two terms were different. There was no difference in scores between the winter 2010 pretest and posttest and therefore no evidence for the OWSW/EZ having had a positive effect on students' understanding of workshop content.

The fall 2009 pretest and posttest, on the other hand, did indeed provide evidence of the OWSW/EZ improving student awareness of workshop content. Students experienced a 5 per cent grade improvement from the pretest to the posttest, and this difference was statistically significant. A possible explanation for the difference between the fall 2009 and winter 2010 results is that placing the academic intervention earlier in the year, when more students are still coming to grips with improving their writing, might make the intervention more effective. If this is

the case, there is some evidence that the OWSW/EZ might lead to an improvement in students' understanding of the writing process when administered early in the academic year, quantifiable as a 5 per cent increase in posttest scores.

However, even the improved experimental design of the fall 2009 tests makes it difficult to conclude that the improvements between the pretest and the posttest are due to the OWSW/EZ, as opposed to other factors that might have influenced performance on the second test or might have led to an improvement in understanding between tests. In the absence of a control group, the fall 2009 results do not provide strong evidence that the OWSW/EZ provides a significant improvement in students' understanding, particularly when considering the counterexample of the winter 2010 experiment.

To some extent, the results of the OWSW/EZ hinge on the elimination of some anomalous data points as outliers. A small number of test takers showed extremely low pretest scores followed by rather high posttest scores. While there is good reason to believe that the majority of these scores do not actually reflect the pre-OWSW/EZ understanding of the participants, if these scores are actually a correct assessment of students' understanding, there would be evidence suggesting that the OWSW/EZ provides a great deal of help specifically to students with the absolute lowest levels of understanding. The difficulty in accurately distinguishing which of these potential outliers represent truly erroneous measurements means that readers are cautioned against drawing strong conclusions about the effectiveness of the OWSW/EZ in all cases. Moreover, as the OWSW/EZ is a resource that students may use throughout the academic year, it is, of course, always possible that students see an improvement in understanding sometime after the posttest is administered (and this obviously would not be measurable by the pretest-posttest design).

It does, however, seem to be safe to conclude that the evidence does not suggest that the OWSW/EZ has a positive impact on students' post-test scores in most cases. When analyzing the middle two quartiles of pretest takers, the results were very similar to the analysis of the overall data excluding anomalous outliers. As such, it seems that if the OWSW/EZ does have a strong effect on posttest scores, this effect would be limited to the students who did anomalously poorly on the pretest, as the evidence is mixed that the middle 50 per cent of pretest takers experience improved grades.

The pretest and posttest design was used as a measure to assess the increased understanding of OWSW/EZ content, such as essay-writing terminology, grammar and documentation. This focus on comprehension cannot accurately measure student writing skill, but, instead, can indicate student acquisition of the terminology and concepts common in academic writing. The workshop itself is a resource to be used throughout the academic year and accessed as needed, thereby fostering self-directed learning.

## Recommendations

Although the results of the survey and data analysis are mixed, the OWSW/EZ does show promise. Reasons for creating the resource still hold true: the workshop addresses instructors' and students' interest in institutional writing support resources, and its delivery meets the scheduling needs and self-directed learning style of the adult postsecondary learner – enabling students to develop and practise essay-writing skills through an interactive self-testing process involving writing style choices and constructive feedback. Furthermore, instructors continue to request OWSW/EZ access for their classes. In 2010/11, 24 classes in various faculties at various levels have incorporated the OWSW/EZ into their curriculum. In addition, students in non-participating classes have been requesting access to the resource. To move forward, we intend to focus on three main areas: access/delivery, content development and assessment.

### *OWSW/EZ Access/Delivery*

Currently, access to the resource is limited to students on a class-by-class basis. Based on the survey analysis, the majority of students are interested in receiving writing support from institutional sources. As such, the OWSW/EZ will be offered to all Brock students. Participation will be tracked by way of online registration. Pre- and posttesting, however, will be limited to class use of the resource, as this allows instructors to encourage and reward workshop completion.

In addition, first- and second-year courses will be targeted for OWSW/EZ promotion and delivery, as the survey data indicate that the need for writing support is greater early in students' careers than later.

### *OWSW/EZ Content Development*

The OWSW/EZ provides a general seven-step overview of the academic writing process. In response to instructor and student requests, four new OWSW/EZs are being developed and will be available for instructors and students. Each of the four workshops will address discipline-specific writing assignments in one of the following four disciplines: business, humanities (history, English, and philosophy), general science (social sciences and applied health sciences) and science. A numeracy OWSW/EZ is also being developed.

In addition, a recently updated website platform allows students to choose more than one online workshop. In other words, a student will be able to access the OWSW/EZ humanities version and pre- and posttesting for a humanities class, as well as being able to access the OWSW/EZ business version and pre- and posttesting for a business class. Question pools for each OWSW/EZ will be co-created with professors so that questions can highlight OWSW/EZ sections and concepts that align with specific course assignments.

### *OWSW/EZ Assessment*

The current assessment model, which is composed of survey analysis and pre- and posttest analysis, is problematic. Students without posttest scores were excluded, as the absence of a posttest score removed a necessary comparison point, and many instructors did not require students to complete the posttest. Furthermore, the pre- and posttests draw from the entire contents of the OWSW/EZ, but completion of all OWSW/EZ components is optional and varies according to student discipline and assignment. Lastly, the test does not assess students' writing skills, as students are not asked to write. Rather, it assesses students' understanding of terminology and the academic writing process. Moreover, development plans involving increased question pools and co-creation with professors will render use of pre- and posttesting impractical as an assessment of the OWSW/EZ.

In 2011/12, the OWSW/EZ will be assessed using the same process employed to assess learning skills workshops in the 2010 report *An Evaluation of the Impact of Learning Skills Services on Student Academic Success at Brock University*. Workshop evaluation will be based on focus groups, surveys and measures of academic performance (i.e., marks).

## Appendix A – 2009 and 2010 Survey Instruments

### 2009 Survey Instrument

Thank you for participating in this short questionnaire.

1. In which academic year did you first enrol at Brock?
  - a. Prior to 2004-2005
  - b. 2004-2005
  - c. 2005-2006
  - d. 2006-2007
  - e. 2007-2008
  - f. 2008-2009
  
2. What is your program of study?
  - a. Applied Health Sciences
  - b. Business
  - c. Education
  - d. Humanities
  - e. Math and Science
  - f. Social Sciences
  
3. What is your student status?
  - a. Full time
  - b. Part time
  
4. What year of your program do you consider yourself to be in?
  - a. First Year
  - b. Second Year
  - c. Third Year
  - d. Fourth Year
  - e. Fifth Year
  - f. Other
  
5. What is your gender?
  - a. Male
  - b. Female

6. What is your age?
- Younger than 18
  - 18
  - 19
  - 20
  - 21
  - 22
  - 23
  - Older than 23
7. Do you consider yourself to be Native or Aboriginal (i.e. First Nation, Inuit or Métis)?
- Yes
  - No
8. Do you consider yourself to be a visible minority?
- Yes
  - No
9. What level(s) of schooling has your mother or female guardian completed? (Circle all that apply.)
- Less than high school
  - High school
  - College
  - University
  - Graduate/Professional
  - Don't know
  - Not Applicable
10. What level(s) of schooling has your father or male guardian completed? (Circle all that apply.)
- Less than high school
  - High school
  - College
  - University
  - Graduate/Professional
  - Don't know
  - Not Applicable
11. What was your final high school overall average?
- Less than 50%
  - 50% to 59%
  - 60% to 69%
  - 70% to 79%
  - 80% to 89%
  - 90% and Above

12. What is your current overall average at Brock?
- Less than 50%
  - 50% to 59%
  - 60% to 69%
  - 70% to 79%
  - 80% to 89%
  - 90% and Above
13. How would you rate your writing skills before you began studying at Brock University?
- Very Weak
  - Somewhat Weak
  - Neither Weak Nor Strong
  - Somewhat Strong
  - Very Strong
14. How would you rate your writing skills currently?
- Very Weak
  - Somewhat Weak
  - Neither Weak Nor Strong
  - Somewhat Strong
  - Very Strong
15. From which of the following sources have you received help with your writing skills?  
(Check all that apply.)
- Course instructor
  - Teaching assistant
  - Tutor
  - Friend or peer
  - Parent, sibling, or partner
  - Other
  - I have not received help with my writing skills from others.
16. Have you completed the Online Writing Skills Workshop?
- Yes
  - No

If "Yes" to Question 16:

17. Which of the following best describes your participation in the Online Writing Skills Workshop?
- I completed a portion of the Online Writing Skills Workshop.
  - I completed all of the Online Writing Skills Workshop.

Please rate your agreement or disagreement with the following statements.

18. The Online Writing Skills Workshop helped improve my writing skills.
- Strongly disagree
  - Somewhat disagree
  - Neither agree nor disagree
  - Somewhat agree
  - Strongly agree
19. The Online Writing Skills Workshop helped me improve my grades.
- Strongly disagree
  - Somewhat disagree
  - Neither agree nor disagree
  - Somewhat agree
  - Strongly agree
20. The Online Writing Skills Workshop helped me improve my reading skills.
- Strongly disagree
  - Somewhat disagree
  - Neither agree nor disagree
  - Somewhat agree
  - Strongly agree
21. The Online Writing Skills Workshop helped me with my exam writing skills.
- Strongly disagree
  - Somewhat disagree
  - Neither agree nor disagree
  - Somewhat agree
  - Strongly agree
22. The Online Writing Skills Workshop helped me to develop my verbal communication skills.
- Strongly disagree
  - Somewhat disagree
  - Neither agree nor disagree
  - Somewhat agree
  - Strongly agree

If "No" for Question 16:

23. Before you were asked to complete this survey, had you heard about the Online Writing Skills Workshop?
- Yes
  - No

24. How interested would you be in participating in an online workshop designed to help Brock students develop their writing skills?
- Very Interested
  - Somewhat Interested
  - Not Interested
  - Don't Know/Not Sure
25. How much time would you be willing to spend completing an online writing skills workshop?
- Less than 10 minutes per week
  - More than 10 minutes and less than 30 minutes per week
  - More than 30 minutes and less than 1 hour per week
  - More than 1 hour and less than 3 hours per week
  - More than 3 hours per week
  - I would not be willing to spend any time completing an online writing skills workshop.
26. How interested would you be in receiving help with your writing skills?
- Very Interested
  - Somewhat Interested
  - Not Interested
  - Don't Know/Not Sure
27. From which of the following sources would you like to receive help with your writing skills? (Check all that apply.)
- Course instructor
  - Teaching assistant
  - Tutor
  - Friend or peer
  - Parent, sibling, or partner
  - Other
  - I would not like to receive help with my writing skills from any source.

For everyone:

Brock University offers a series of Learning Skills workshops and one-on-one tutoring sessions for students who would like to supplement the skills required for success in their courses.

28. Have you previously heard about the Learning Skills workshops?
- Yes
  - No
29. Have you previously heard about the Learning Skills one-on-one tutoring sessions?
- Yes
  - No

30. If you have heard about the Learning Skills workshops or one-on-one sessions, how did you hear about them?
- Smart Start
  - Campus Posters or Advertising
  - Academic/Faculty Advisor
  - University Website
  - Course Instructor/Professor
  - Students/Friends
  - Student Services
  - Other
  - Not sure/Don't know
31. Have you completed any of the Learning Skills workshops?
- Yes
  - No
32. Have you completed any of the Learning Skills one-on-one sessions?
- Yes
  - No
33. Why have you so far chosen not to participate in a Learning Skills Workshop or one-on-one session? (Choose the most accurate response.)
- I did not hear about the workshops or sessions.
  - I heard about the workshops or sessions, but I didn't know enough about them.
  - I didn't think that the workshops or sessions would be useful to me.
  - I am too busy to participate in the workshops or sessions.
  - I heard bad things about the workshops or sessions from students who had taken them.
  - Other.
  - I don't know.
34. Have you heard of any other skills development opportunities at Brock University?
- Yes
  - No
35. If yes, what were they?
- Volunteers Plus
  - International Plus
  - Info Skills
  - Med Plus
  - Experience Works
  - Leadership Development
  - Other

36. Have you used any other skills development opportunities at Brock University?

- a. Yes
- b. No

37. If yes, which ones?

- a. Volunteers Plus
- b. International Plus
- c. Info Skills
- d. Med Plus
- e. Experience Works
- f. Leadership Development
- g. Other

Thank you for your participation in this survey.

## 2010 Survey Instrument

### **Q1 INVITATION**

You are invited to participate in a study that involves research. The purpose of this study is to assess various programs designed to promote student skill development at Brock University. This study is being conducted by Brock University with the assistance of EPI Canada, and is funded by the Higher Education Quality Council of Ontario, an independent agency funded by the Government of Ontario through the Ministry of Training, Colleges, and Universities.

### **WHAT'S INVOLVED**

As a participant, you will be asked to complete a short online questionnaire. Participation will take approximately 15 minutes of your time.

### **POTENTIAL BENEFITS AND RISKS**

Possible benefits of participation include the chance to help us better understand how Brock University's programs are serving students. There are no known or anticipated risks associated with participation in this study.

### **CONFIDENTIALITY**

All information you provide is confidential; your name will not be included or, in any other way, associated with the data collected in the study. Furthermore, because our interest is in the average responses of the entire group of participants, you will not be identified individually in any way in written reports of this research. Data collected during this study will be stored at Brock University and the Educational Policy Institute. All data provided to the Educational Policy Institute from this questionnaire will not contain any personal identifiers. Data will be kept for the entirety of the project after which time individual surveys will be destroyed but the database will remain at Brock University. Data provided to the Educational Policy Institute will be destroyed at the conclusion of the project. Access to this data will be restricted to Jill Brindle, Ryan Dunn (Privacy Office and Research Associate, EPI), and Alex Usher (Vice-President, Director of EPI Canada).

### **VOLUNTARY PARTICIPATION**

Participation in this study is voluntary. If you wish, you may decline to answer any questions or participate in any component of the study. Further, you may decide to withdraw from this study at any time. To withdraw, simply stop completing the survey and do not press the "submit" button at the end.

### **PUBLICATION OF RESULTS**

Results of this study may be published in professional journals and presented at conferences. Feedback about this study will be available from Jill Brindle via phone (905-688-5550 x3240) or e-mail ([jbrindle@brocku.ca](mailto:jbrindle@brocku.ca)). The final report of this research will be available from the Skills Development Office at Brock University and on the website of the Higher Education Quality Council of Ontario after it completion in July 2010.

### **THANK YOU**

If you choose to complete the entire survey and press the "submit" button at the end, you will be invited to submit your e-mail address to be entered into a draw. You will have a chance to win one of the following prizes: one Apple 8GB iPod Touch, one Apple 8GB iPod Nano, one insulated Brock coffee mug, or one of two \$10 Brock Bookstore gift certificates. Please note that your e-mail address will not be linked to your survey response, and your answers will remain anonymous.

### **CONTACT INFORMATION AND ETHICS CLEARANCE**

If you have any questions about this study or require further information, please contact the Principal Investigator using the contact information provided above. This study has been reviewed and received ethics clearance through the Research Ethics Board at Brock University (08-199). If you have any comments or concerns about your rights as a research participant, please contact the Research Ethics Office at (905) 688-5550 Ext. 3035, [reb@brocku.ca](mailto:reb@brocku.ca).

### **CONSENT**

By submitting this questionnaire, you indicate that you agree to participate in this study described above, and that you have made this decision based on the information you have read in this Information-Consent Letter. You indicate that you have had the opportunity to receive any additional details you wanted about the study and understand that you may ask questions in the future. You understand that you may withdraw this consent at any time.

Thank you for your assistance with this project.

Yes, I agree to participate in this study.[Code = 1] (Go To Page 2)

No, I do not agree to participate in this study.[Code = 2] (Go To End)

Required answers: 1      Allowed answers: 1

Page - 2

**Thank you for participating in this short questionnaire.**

Required answers: 0      Allowed answers: 0

**Q2 In which academic year did you first enrol at Brock?**

Prior to 2004 - 2005[Code = 1]

2004 - 2005[Code = 2]

2005 - 2006[Code = 3]

2006 - 2007[Code = 4]

2007 - 2008[Code = 5]

2008 - 2009[Code = 6]

2009 - 2010[Code = 7]

Required answers: 0      Allowed answers: 1

**Q3 What is your program of study?**

Applied Health Sciences[Code = 1]

Business[Code = 2]

Education[Code = 3]

Humanities[Code = 4]

Math and Science[Code = 5]

Social Sciences[Code = 6]

Required answers: 0      Allowed answers: 1

Q4 What is your student status?

Full time[Code = 1]

Part time[Code = 2]

Required answers: 0 Allowed answers: 1

Q5 What year of your program do you consider yourself to be in?

First year[Code = 1]

Second year[Code = 2]

Third year[Code = 3]

Fourth year[Code = 4]

Fifth year[Code = 5]

Other[Code = 6]

Required answers: 0 Allowed answers: 1

Q6 What is your gender?

Male[Code = 1]

Female[Code = 2]

Required answers: 0 Allowed answers: 1

Q7 What is your age?

Younger than 18[Code = 1]

18[Code = 2]

19[Code = 3]

20[Code = 4]

21[Code = 5]

22[Code = 6]

23[Code = 7]

Older than 23[Code = 8]

Required answers: 0 Allowed answers: 1

Q8 Do you consider yourself to be Native or Aboriginal (i.e., First Nation, Inuit, or Métis)?

Yes[Code = 1]

No[Code = 2]

Required answers: 0 Allowed answers: 1

Q9 Do you consider yourself to be a visible minority?

Yes[Code = 1]

No[Code = 2]

Required answers: 0 Allowed answers: 1

Q10 What level(s) of schooling has your mother or female guardian completed? (Check all that apply)

Less than high school[Code = 1]

High school[Code = 2]

College[Code = 3]

University[Code = 4]

Graduate/professional[Code = 5]

Don't know[Code = 6]

Not applicable[Code = 7]

Required answers: 0 Allowed answers: 7

Q11 What level(s) of schooling has your father or male guardian completed? (Check all that apply)

Less than high school[Code = 1]

High school[Code = 2]

College[Code = 3]

University[Code = 4]

Graduate/professional[Code = 5]

Don't know[Code = 6]

Not applicable[Code = 7]

Required answers: 0 Allowed answers: 7

Q12 What was your final high school overall average?

Less than 50%[Code = 1]

50% to 59%[Code = 2]

60% to 69%[Code = 3]

70% to 79%[Code = 4]

80% to 89%[Code = 5]

90% and above[Code = 6]

Required answers: 0 Allowed answers: 1

Q13 What is your current overall average at Brock?

Less than 50%[Code = 1]

50% to 59%[Code = 2]

60% to 69%[Code = 3]

70% to 79%[Code = 4]

80% to 89%[Code = 5]

90% and above[Code = 6]

Required answers: 0

Allowed answers: 1

Next Page: Sequential

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**Brock University offers a series of Learning Skills workshops and a Drop-In service in the Learning Commons for students who would like to supplement the skills required for success in their courses.**

Required answers: 0

Allowed answers: 0

Q14 Have you previously heard about Learning Skills workshops?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Q15 Have you previously heard about the Learning Skills Drop-In service in the Learning Commons?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Q16 If you have heard about Learning Skills workshops or one-on-one sessions, how did you hear about them? (Check all that apply)

Smart Start[Code = 1]

Campus posters or advertising[Code = 2]

Academic/faculty advisor[Code = 3]

University website[Code = 4]

Course instructor/professor[Code = 5]

Students/friends[Code = 6]

Student Services[Code = 7]

Other[Code = 8]

Not sure/Don't know[Code = 9]

Required answers: 0

Allowed answers: 9

Q17 Have you completed any of the Learning Skills workshops?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Q18 Have you attended the Learning Skills Drop-In service?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Next Page: Sequential

Page - 5

Q19 Why have you so far chosen not to participate in a Learning Skills workshop or Drop-In service? (Choose the most accurate response)

I didn't hear about the workshops or Drop-In.[Code = 1]

I heard about the workshops or Drop-In, but I didn't know enough about them.[Code = 2]

I didn't think that the workshops or Drop-In would be useful to me.[Code = 3]

I'm too busy to participate in the workshops or Drop-In.[Code = 4]

I heard bad things about the workshops or Drop-In from students who had taken them.[Code = 5]

Other[Code = 6]

I don't know.[Code = 7]

Required answers: 0

Allowed answers: 1

Display if Q17='No' OR Q18='No'

Q20 Have you **heard of** any other skills development opportunities at Brock University?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Q21 If yes, what were they? (Check all that apply)

Volunteers Plus[Code = 1]

International Plus[Code = 2]

Info Skills[Code = 3]

Med Plus[Code = 4]

Experience Works[Code = 5]

Leadership Development[Code = 6]

Other[Code = 7]

Required answers: 0

Allowed answers: 7

Q22 Have you **used** any other skills development opportunities at Brock University?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Q23 If yes, which ones? (Check all that apply)

Volunteers Plus[Code = 1]

International Plus[Code = 2]

Info Skills[Code = 3]

Med Plus[Code = 4]

Experience Works[Code = 5]

Leadership Development[Code = 6]

Other[Code = 7]

Required answers: 0

Allowed answers: 7

Q24 Which of the following Learning Skills workshops have you attended? (Check all that apply)

Online Interactive Essay workshop, *Essay-Zone*[Code = 1]

Study Skills workshop(s) (e.g., time management, note-taking, seminar prep)[Code = 2]

Documentation workshop(s) (e.g., APA, MLA)[Code = 3]

Exam Preparation workshop(s)[Code = 4]

Writing workshop(s)[Code = 5]

Science workshop(s)[Code = 6]

Math workshop(s)[Code = 7]

I haven't attended a Learning Skills workshop.[Code = 8] (Go To End)

Required answers: 0

Allowed answers: 8

Next Page: Conditional

Page - Online Interactive Essay Workshop, *Essay-Zone*

Display if Q24='Online Interactive Essay workshop, *Essay-Zone*'

Q25 Were you **required** to sign-up/take the Online Interactive Essay workshop, *Essay-Zone*, for a credit course at Brock?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Please indicate your level of satisfaction with the following aspects of the Online Interactive Essay workshop, *Essay-Zone*:

Q26 Overall quality

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q27 Instruction

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q28 Teaching materials

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Please indicate your level of agreement with the following:

**The Online Interactive Essay workshop, Essay-Zone, helped me to . . .**

Q29 Improve my **written** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q30 Improve my **oral** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q31 Improve my understanding of what is expected of me at university

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q32 Improve my exam writing skills

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q33 Improve my connection with the Brock community

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q34 Increase my confidence

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q35 Increase my academic success

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Next Page: Sequential

Page - Study Skills Workshop

Display if Q24='Study Skills workshop(s) (e.g., time management, note-taking, seminar prep)'

Q36 Were you **required** to sign-up/take the Learning Skills Study Skills workshop(s) (e.g., time management, note-taking, seminar prep) for a credit course at Brock?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Please indicate your level of satisfaction with the following aspects of the Learning Skills Study Skills workshop(s) (e.g., time management, note-taking, seminar prep):

Q37 Overall quality

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q38 Instruction

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q39 Teaching materials

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q40 Level of interaction with the instructor

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q41 Scheduling

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Please indicate your level of agreement with the following:

**The Learning Skills Study Skills workshop(s) helped me to . . .**

Q42 Improve my **written** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q43 Improve my **oral** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q44 Improve my understanding of what is expected of me at university

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q45 Improve my exam writing skills

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q46 Improve my connection with the Brock community

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q47 Increase my confidence

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q48 Increase my academic success

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Next Page: Sequential

Page - Documentation Workshop

Display if Q24='Documentation workshop(s) (e.g., APA, MLA)'

Q49 Were you **required** to sign-up/take the Learning Skills Documentation workshop(s) (e.g., APA, MPA) for a credit course at Brock?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Please indicate your level of satisfaction with the following aspects of the Learning Skills Documentation workshop(s):

Q50 Overall quality

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

#### Q51 Instruction

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

#### Q52 Teaching materials

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

#### Q53 Level of interaction with the instructor

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

#### Q54 Scheduling

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

Please indicate your level of agreement with the following:

**The Learning Skills Documentation workshop(s) helped me to . . .**

Q55 Improve my **written** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

Q56 Improve my **oral** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

Q57 Improve my understanding of what is expected of me at university

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

Q58 Improve my exam writing skills

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

Q59 Improve my connection with the Brock community

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q60 Increase my confidence

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q61 Increase my academic success

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Next Page: Sequential

Page - Exam Preparation Workshop

Display if Q24='Exam Preparation workshop(s)'

Q62 Were you **required** to sign-up/take the Learning Skills Exam Preparation workshop(s) for a credit course at Brock?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Please indicate your level of satisfaction with the following aspects of the Learning Skills Exam Preparation workshop(s):

Q63 Overall quality

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q64 Instruction

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q65 Teaching materials

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q66 Level of interaction with the instructor

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q67 Scheduling

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Please indicate your level of agreement with the following:

**The Learning Skills Exam Preparation workshop(s) helped me to . . .**

Q68 Improve my **written** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q69 Improve my **oral** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q70 Improve my understanding of what is expected of me at university

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q71 Improve my exam writing skills

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q72 Improve my connection with the Brock community

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q73 Increase my confidence

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q74 Increase my academic success

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Next Page: Sequential

Display if Q24='Writing workshop(s)'

Q75 Were you **required** to sign-up/take the Learning Skills Writing workshop(s) for a credit course at Brock?

Yes[Code = 1]

No[Code = 2]

Required answers: 0 Allowed answers: 1

Please indicate your level of satisfaction with the following aspects of the Learning Skills Writing workshop(s):

Q76 Overall quality

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0 Allowed answers: 1

Q77 Instruction

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0 Allowed answers: 1

Q78 Teaching materials

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0 Allowed answers: 1

Q79 Level of interaction with the instructor

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q80 Scheduling

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Please indicate your level of agreement with the following:

**The Learning Skills Writing workshop(s) helped me to . . .**

Q81 Improve my **written** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q82 Improve my **oral** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q83 Improve my understanding of what is expected of me at university

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q84 Improve my exam writing skills

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q85 Improve my connection with the Brock community

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q86 Increase my confidence

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q87 Increase my academic success

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Next Page: Sequential

Page - Science Workshop

Display if Q24='Science workshop(s)'

Q88 Were you **required** to sign-up/take the Learning Skills Science workshop(s) for a credit course at Brock?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Please indicate your level of satisfaction with the following aspects of the Learning Skills Science workshop(s):

Q89 Overall quality

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q90 Instruction

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q91 Teaching materials

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q92 Level of interaction with the instructor

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q93 Scheduling

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Please indicate your level of agreement with the following:

**The Learning Skills Science workshop(s) helped me to . . .**

Q94 Improve my **written** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q95 Improve my **oral** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q96 Improve my understanding of what is expected of me at university

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q97 Improve my exam writing skills

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q98 Improve my connection with the Brock community

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0      Allowed answers: 1*

Q99 Increase my confidence

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q100 Increase my academic success

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

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Page - Math Workshop

Q101 Were you **required** to sign-up/take the Learning Skills Math workshop(s) for a credit course at Brock?

Yes[Code = 1]

No[Code = 2]

Required answers: 0

Allowed answers: 1

Please indicate your level of satisfaction with the following aspects of the Learning Skills Math workshop(s):

Q102 Overall quality

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q103 Instruction

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q104 Teaching materials

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q105 Level of interaction with the instructor

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Q106 Scheduling

Very satisfied[Code = 5]

Somewhat satisfied[Code = 4]

Neither satisfied nor dissatisfied[Code = 3]

Somewhat dissatisfied[Code = 2]

Very dissatisfied[Code = 1]

Not applicable[Code = 99]

Required answers: 0

Allowed answers: 1

Please indicate your level of agreement with the following:

**The Learning Skills Math workshop(s) helped me to . . .**

Q107 Improve my **written** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

Q108 Improve my **oral** communication

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

Q109 Improve my understanding of what is expected of me at university

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

Q110 Improve my exam writing skills

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

*Required answers: 0*

*Allowed answers: 1*

Q111 Improve my connection with the Brock community

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q112 Increase my confidence

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

Q113 Increase my academic success

Strongly agree[Code = 5]

Somewhat agree[Code = 4]

Neither agree nor disagree[Code = 3]

Somewhat disagree[Code = 2]

Strongly disagree[Code = 1]

Don't know/Does not apply[Code = 99]

Required answers: 0

Allowed answers: 1

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## Appendix B – Identification of Outliers

This appendix provides details on outliers in each of the four terms that were analyzed, as well as the cutoff points for the lower and upper quartiles of test scores.

### Fall 2008

**Table 2210: Identification of Outliers - Fall 2008 Data**

	Pretest raw score	Posttest raw score
Lower quartile cut-off	5.83	22
Upper quartile cut-off	7.92	28
Potential outliers lie outside of:	[2.7, 11.1]	[13,37]

There were 14 potential outliers identified in the fall 2008 pretest data, out of 889 observations. Upon closer examination of the grade changes between the pretest and posttest, nine of these values were discarded as likely outliers, while the other five were retained for further analysis. Six potential outliers were found in the posttest data, three of which corresponded to improbably large drops in grades between the two tests and were therefore discarded. In all, 874 observations were retained for analysis.

### Winter 2009

**Table 23: Identification of Outliers - Winter 2009 Data**

	Pretest raw score	Posttest raw score
Lower quartile cut-off	26.25	27.33
Upper quartile cut-off	31.00	32.00
Potential outliers lie outside of:	[19.12, 38.12]	[20.32, 39.00]

There were 13 potential outliers identified in the winter 2009 pretest data, out of 222 observations. Of these, four displayed very large disparities between pretest and posttest scores (on the order of approximately 40%), and were excluded as outliers. There were 12 potential outliers identified in the winter 2009 posttest data, only two of which were deemed to show an anomalous variation between pretest and posttest, and were therefore discarded. In all, six values were discarded, with 216 retained for analysis.

## Fall 2009

**Table 24: Identification of Outliers - Fall 2009 Data**

	Pretest raw score	Posttest raw score
Lower quartile cut-off	26.25	29.00
Upper quartile cut-off	32.00	34.00
Potential outliers lie outside of:	[17.62, 40.63]	[21.50, 41.50]

As discussed in the main text, there were 12 values flagged as potential outliers in the pretest data. All 12 of these individuals performed anomalously better on the posttest (scoring an average of 30.25), and were excluded from the analysis as outliers. One value on the posttest was flagged as an outlier, but this value was consistent with the student's results from the pretest, and so was not excluded.

## Winter 2010

**Table 25: Identification of Outliers - Winter 2010 Data**

	Pretest	Posttest
Lower quartile cut-off	27.66	29.00
Upper quartile cut-off	34.00	34.00
Potential outliers lie outside of:	[18.16, 43.50]	[21.5, 41.5]

