



# **An Evaluation of the Impact of Learning Skill Services on Student Academic Success at Brock University**

Prepared by Learning Skills Services, 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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## Cite this publication in the following format:

Learning Skills Services, Brock University, in association with Higher Education Strategy Associates. (2011). *An Evaluation of the Impact of Learning Skill Services on Student Academic Success at Brock University*. Toronto: Higher Education Quality Council 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 was successful in their proposal to evaluate two services offered through the Student Development Centre's Learning Skills Services:

1. the Online Writing Skills Workshop (OWSW) (later known as Essay-Zone (EZ), an online writing course designed and operated by Learning Skills Services; and
2. the learning skills workshops and one-on-one/drop-in services offered by Learning Skills Services.

The evaluation of the Online Writing Skills Workshop was completed in fall 2010 with the assistance of Higher Education Strategy Associates (HESA), formerly Education Policy Institute (EPI) Canada. This report, published separately by the HEQCO, is based on the evaluation of other learning skills services, including workshops on critical thinking, math, science and essay-writing skills (see Appendix A), as well as the individualized assistance provided through the one-on-one/drop-in service. In evaluating these services, we have sought to answer two broad questions. First, are the services offered being delivered effectively and what improvements can be made? Second, what effect do the identified learning skills services have on academic outcomes? The responses to these questions will be presented in two parts: first, a formative evaluation of program delivery and second, a summative evaluation focusing on student outcomes.

The formative evaluation will examine the delivery and image of the learning skills services. Using student survey and focus group data, we will evaluate the perceived efficacy of the services among participants, participants' satisfaction with aspects of the services and the success of overall communication about the services, as well as recommending changes. The evaluation of communications will examine how students learn about services offered and why students decide not to enroll in the services.

The summative evaluation focuses primarily on the impact of the learning skills services provided. Two measures of academic success will be examined: academic performance (i.e., marks) and student retention. The administrative data concerning three cohorts of students will be used to determine whether participants in learning skills workshops and other learning skills services experience greater academic performance and higher levels of retention compared to other students. In addition, we will examine whether certain categories of services are more effective and whether frequency of service use affects outcomes. As the learning skills workshops and other services are very limited interventions requiring little time of students, strong results were not expected; however, even minor improvements would be impressive given the relatively small time investment required of students.

## Learning Skills at Brock University

Many students graduate from high school and enter postsecondary institutions with limited foundational skills in areas that are fundamental to success in their chosen field of university study. These include general skills such as time management, critical thinking and study skills, as well as other skills that are more specific to chosen programs of study, such as writing, science and mathematics. Learning Skills Services works with students and student peers to enhance general and specific learning skills through individual and proximal learning situations—learning situations where students can enhance their individual potential through student-peer and instructor-guided interaction.

Learning Skills Services provides supplementary, non-credit skills training – on both an individual and a group basis – using the following approaches:

- small-group interaction (one- to three-hour skills workshops which can be modified upon request to address specific course objectives)
- personalized instruction (drop-in help, scheduled consultations, tutor registry)
- use of electronic technology (the Online Writing Skills Workshop [OWSW] – later known as Essay-Zone, which was evaluated in a separate report.)

### Small Group Workshops

Learning skills workshops are interactive sessions that address particular concerns about a variety of general and academic topics. These workshops allow students to share experiences and to practise suggested learning skills and study strategies with guidance from peers and instructors. Students can choose from about 70 workshop topics (see Appendix A for titles and descriptions), many of which are provided at least once each semester. Many are scheduled several times throughout the academic year. In addition, all workshops can be requested by groups of students to be delivered at a time of their choosing, in order to meet students' scheduling needs. Workshops are delivered by professional Learning Skills Services staff or student peers and vary from one to three hours in length.

For the purpose of survey analysis, learning skills workshops have been grouped into seven general categories:

- the Online Writing Skills Workshop (later known as “Essay-Zone”)
- study skills workshops (time management, notetaking, critical thinking and reading)
- documentation workshops (avoiding plagiarism and APA, MLA, Chicago, CBE or ACS style)
- exam prep workshops (exam preparation, exam anxiety and last-minute exam prep)
- writing workshops (essay writing, persuasive writing, thesis statements, grammar and editing)
- science workshops (succeeding in the sciences, problem solving in chemistry and grammar for science students)
- math workshops (succeeding in mathematics, algebra basics and exponents and fractions).



A full list of learning skills workshops can be found in Appendix A.

## Personalized One-on-One Help

A variety of one-on-one skills development services are available to students. They include the following:

- Drop-in help: Students who would like help with writing and problem solving can visit the Learning Skills Services Drop-In at specific times scheduled throughout the week. Visits range from 10 minutes to 1 hour in length. Help is provided by professional Learning Skills Services staff and student peers. (The service was called “one-on-one sessions” in the 2009 survey and “drop-in sessions” in the 2010 survey.)
- Scheduled consultations: Students can schedule a consultation with professional Learning Skills staff for more in-depth help. Consultations are normally 1 hour in length and can consist of a single session or ongoing sessions.
- Tutor registry: This learning skills service connects students with student peers who have been referred by a professor.

## Learning Skills Services Interactive Online Writing Skills Workshop, Essay-Zone

Essay-Zone (originally known as the Online Writing Skills Workshop) was developed and released at Brock in fall 2008. Students in participating Brock classes may use Essay-Zone to develop and practice essay-writing skills through an interactive self-testing process involving subject-specific options, writing style choices and constructive feedback. The workshop covers specific areas such as essay and paragraph patterning and effective writing strategies, using sentence structure, word choice and grammar. Several professors at Brock have made the workshop a requirement in their course curricula, with students working online outside of class hours. Students can work at a location of their choice, at their own pace and at a time that suits their schedule. For a full description and evaluation of the Online Writing Skills Workshop/Essay-Zone see “An Evaluation of the Online Writing Skills Workshop/Essay-Zone at Brock University,” a report published separately by the HEQCO in 2011.

## Data Sources and Methodology

The main research questions guiding this analysis are the following: Why do students use learning skills services and how do they find out about the services offered? What is the profile of students who use learning skills services? and In what way do learning skills services affect students’ overall academic performance?

These questions were investigated using a mixed-methods approach that combined quantitative and qualitative sources of data. Three types of data were used: survey data, focus groups and student administrative records. This section provides an overview of how these data sources were used to answer the research questions.

## Survey Data

Two student surveys were administered to gauge students' knowledge of, participation in and satisfaction with the learning skills services available at Brock. The first survey, which attempted to understand students' knowledge of, participation in and satisfaction with the Online Writing Skills Workshop, as well as their knowledge of other learning skills workshops and other services, was distributed online to a sample of first-, second-, third- and fourth-year students in late February 2009. The second survey, which focused on knowledge of, satisfaction with and efficacy of all available learning skills services, was distributed online to all students in late February 2010.

The survey data shed light on the formative aspects of the available learning skills services. In particular, the data provided insight into the perceived efficacy of the services, students' overall satisfaction with the services and students' opinions regarding how well information about the services was communicated.

The demographics of each survey can be found in the "Survey Data" section below, and the survey instruments for the 2009 and 2010 surveys can be found in Appendix B.

## Focus Groups

To help buttress the formative findings in the survey data, a series of focus groups were held in May 2010 with students who had used the learning skills services offered and students who had not used them. The focus groups shed light on students' perceptions of the skills needed to succeed at university, motivations for participation in the learning skills workshops, reasons for non-participation and, finally, how students heard about the learning skills workshops and other services.

The demographics of the four focus groups can be found in the "Focus Groups" section of the report below, and the focus group guides can be found in Appendix C.

## Administrative Data

The Brock University registrar provided the research team with anonymous student data for all first-year cohorts for the academic years 2006/07, 2007/08 and 2008/09. (Data for the 2009/10 cohort was not provided as final marks for 2009/10 first year students were not yet released at the time of the research.) The data included specific demographic data – such as age, gender and immigration status – for each student, as well as entry status (direct entry, transfer or mature), high school academic average, first-year academic average, second-year academic average and program. The registrar assigned each student a specific reference number to allow the research team to link data from Learning Skills Services without compromising the privacy or identities of the students.

In order to understand the impact of Learning Skills Services on a student's university experience, the research team examined which students made use of the drop-in sessions, workshops, academic consultations or private tutoring sessions. Learning Skills Services staff keeps records of the workshops and other services used by each student; this file records the

workshops attended and other services used along with the dates of delivery. In order to merge the registrar's data with this information, a staff member at Learning Skills Services gave the registrar a file with the student numbers for each student who used a learning skills service, and this file was returned with the corresponding reference number along with academic data for each specific student. The reference number, then, anonymized the students while pairing Learning Skills Services data with the Registrar's data.

The merged administrative data therefore constitute a powerful tool to analyze the effects on academic outcomes of using learning skills services. Two metrics of academic performance – student average grades and student retention rates – will be examined using this data. Five analyses will be carried out – namely,

- a comparison of academic averages gained by learning skills participants and those achieved by other students, as well as an examination of the year-by-year changes in grades in these groups;
- a regression analysis of the effects of first-year learning skills participation on the marks of first- and second-year students;
- an analysis of the effect of frequency of using learning skills services on first-year marks;
- an examination of the effects of the services offered by Learning Skills Services; and
- an analysis of the relationship between learning skills participation and student retention.

Details concerning the methods used to carry out each of these analyses are provided in the corresponding subsections of the Summative Analysis section of this report.

## Formative Analysis

The formative evaluation will examine aspects of the delivery of workshops and other learning skills services, the interactions between participants and programs, and the reasons why non-participants did not participate. To conduct the formative analysis, two student surveys were distributed to undergraduate students at Brock in 2009 and 2010. In addition to the surveys, a series of focus groups were conducted with learning skills participants and non-participants in the spring of 2010.

The formative analysis will evaluate the perceived efficacy and utility of the program, as well as examining participants' satisfaction with aspects of learning skills services delivery. Furthermore, this section will examine the extent to which the existence/availability of learning skills services was communicated to both participants and non-participants, and it will inspect the reasons behind students' decisions to use or not to use Learning Skills Services. Finally, the formative analysis will examine participants' and non-participants' self-assessment of personal skills and skills necessary for university success.

## Methodology

### *Student Surveys*

Two surveys of undergraduate students were conducted. The first survey, which took place from February 23, 2009, to March 1, 2009, evaluated students' knowledge and perceptions of the learning skills workshops and other services but focused primarily on the Online Writing Skills Workshop. The second survey, which took place from February 12, 2010, to February 21, 2010, explored students' knowledge of and perceptions regarding the learning skills workshops and other learning skills services, as well as investigating students' satisfaction with various aspects of the workshops and services (i.e., materials, instruction, scheduling, etc.). Furthermore, the survey measured the perceived influence of the workshops and other services on students' skills development and their sense of connection to the university. In order to permit comparison between the 2009 and 2010 surveys, both the student demographic section and the section assessing respondents' understanding and knowledge of the learning skills workshops and other services were the same in each survey, with the exception of one question. The survey instruments for both 2009 and 2010 can be found in Appendix B.

The wording of one question changed between surveys. In the 2009 survey, students were asked about their familiarity with and knowledge of the one-on-one tutoring sessions offered by Learning Skills Services. In 2010, that question was changed to a question about familiarity with "the Learning Skills Drop-In service in the Learning Commons." Although the service provided in each year was the same, the terminology was changed because the former term is not common vernacular for Brock University students. Students identify with the service through the Matheson Learning Commons, and changing the question to reflect the location impacted student responses.

## Sample

### **Survey 1 (2009)**

The e-mail invitation to participate was distributed to 3,200 undergraduate students at Brock University. A random number count was used to select approximately 1,600 first-year undergraduate students. 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 sample distribution was chosen because skills interventions are understood to be most effective 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. (The fourth-year count in this table includes all students who identified themselves as being fifth year or other.)

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

Year of Study	Students Contacted	Percentage of Students Contacted*	Number of Respondents	Percentage of Respondents	Response Rate by Year of Study
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>TOTAL</b>	<b>3,200</b>	<b>100%</b>	<b>491</b>	<b>100%</b>	<b>15%</b>

\* Percentages may not add up to 100% due to rounding.

### **Survey 2 (2010)**

Unlike the first survey, the second survey was sent out to all Brock students. As in the case of the first one, StudentVoice was used to manage this survey, which was kept open for 10 days. A total of 1,704 students responded. The demographics of this group will be explored in the subsequent sections. Table 2 displays numbers 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>

### **Grouping of the Workshops**

As noted in the introduction of this report, about 70 learning skills workshops are offered each year. In order for meaningful and expedient analysis to be conducted, the survey grouped the learning skills workshops into seven categories: study skills workshops, documentation workshops, exam prep workshops, writing workshops, science workshops, math workshops and Essay-Zone.

Respondents were asked whether they had ever taken a workshop in each of the categories, and they were allowed to select more than one category. For each category selected, respondents were then asked a series of questions about their satisfaction with aspects of the workshop(s) they took, the perceived utility of the workshop(s) and whether or not they were required to take the workshop(s) as part of a course at Brock University.

### ***Focus Groups***

Focus groups were held with students at Brock University in May 2010. These focus groups explored questions about student motivations for using Learning Skills Services. In particular, the following questions were addressed:

- Why did students participate in the learning skills workshops and drop-in sessions?
- How prepared were students for university?
- What are the necessary skills for success at university?
- Why did students decide not to use Learning Skills Services?
- How did students learn about the services?

### **Focus Group Demographics and Ethics Committee**

Brock University recruited students using the guidelines set out by the university's Research Ethics Board. In late April and early May, the staff of Learning Skills Services sent out an e-mail to all students who had taken a learning skills workshop or drop-in session, inviting them to participate in one of four, two-hour focus groups. The invitation included the time and date of each focus group and outlined the incentive for participation. Students who wished to participate in the focus groups were asked to contact Learning Skills Services to sign up for one of the four groups.

The recruitment of students for the focus groups was a difficult process. In the initial proposal to the Research Ethics Board, focus group participants were slated to receive a \$40.00 incentive to attend a two-hour focus group. The ethics committee deemed this value to be too high and instead proposed an incentive of \$20.00. The research team followed the ethics committee's recommendation, and participants were offered \$20.00 to attend a two-hour focus group. Initially, there were no difficulties convincing students to participate. The May 17, 2010, focus groups consisted of fewer than the recommended 12 participants but were well attended nonetheless. The groups were scheduled in the morning and afternoon in the Matheson Learning Commons in the university library. The first group, consisting of students who had taken a learning skills workshop or used the drop-in service, had a total of five participants; the second group, composed of students who had not used any learning skills services, had nine participating students.

The second set of focus groups was scheduled to take place on May 27, 2010. Recruitment for these groups was done at the same time as recruitment for the May 17 groups and continued until May 26. Recruiting students for these groups proved to be difficult. Initially, only three students agreed to participate on May 27. Due to the low numbers, the second set of focus groups was pushed back to June 11, 2010. Even so, participation in this second set was not as high as that for May 17: the first group consisted of four students who had taken a learning skills

workshop or used another learning skills service and the second group consisted of four students who had not taken any learning skills workshops or used any learning skills services. Table 3 provides demographic information about each focus group.

**Table 3 - Demographics of the focus groups**

Focus Group No.	Group Type	Date	No. of Male Students	No. of Female Students
1	Learning skills participants	May 17, 2010	0	5
2	Non-participants	May 17, 2010	1	8
3	Learning skills participants	June 11, 2010	0	4
4	Non-participants	June 11, 2010	1	3

## Survey Data

### *Demographic Information Regarding Respondents*

In both surveys, respondents were asked about the faculty in which their program of study resided. The faculty of study distribution between the two surveys was fairly consistent – with the exception of the faculty of applied health sciences, which saw the greatest change in distribution. 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. In the survey, concurrent education students were required to identify a single program of study even though the administrative data shows concurrent education students as enrolled in both education and a specialization; as a result, the distribution of students by program of study may conflict slightly with administrative data (see Table 4).

**Table 4 - 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 similar but not consistent. In the 2009 survey, two-thirds of respondents identified as female, while only one-third identified as male. In the 2010 survey, the female-to-male ratio was 70:30. The ratio of male and female



survey respondents for both surveys is also inconsistent with the female-to-male ratios found in the administrative data for 2006-2009, which was approximately 60:40.

The information on which the above description of the 2009 and 2010 surveys is based is found in Appendix D (Table 24), which shows responses to the 2009 and 2010 survey question “Are you: Male, Female, Other?”

Respondents were asked to self-report both their high school grades and their current university grades. Students were given five ranges of grades, starting at 50 to 59 per cent and increasing in increments of 10 per cent. Regarding final high school average, the majority of students in both surveys reported averages between 80 and 89 per cent. One-third of respondents in both surveys reported final high school averages of 70 to 79 per cent, and one-tenth reported averages of 90 per cent and above. In the 2009 and 2010 surveys, only 3 and 4 per cent of students, respectively, indicated averages below 70 per cent.

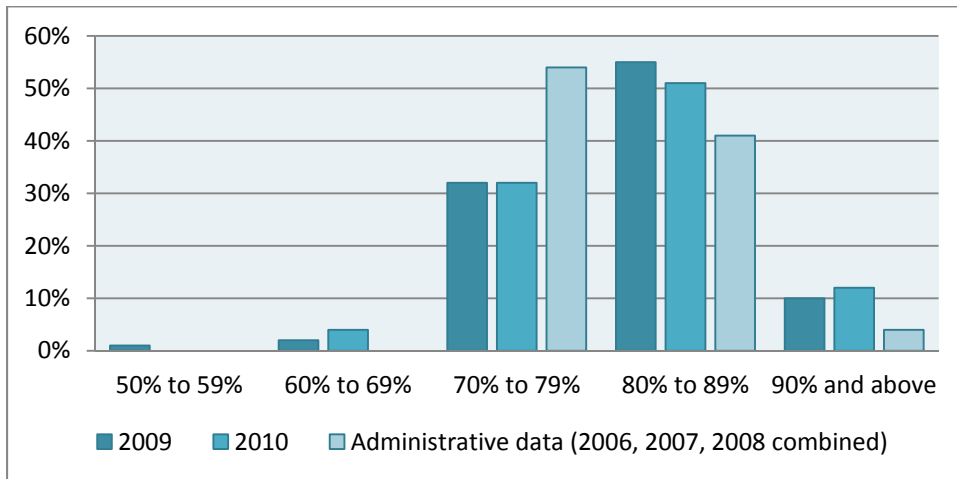
Reported current overall averages for both the 2009 and the 2010 surveys were generally lower than reported high school averages. In both surveys, approximately one-half of respondents reported averages of 70 to 79 per cent. In the 2009 survey, 29 per cent reported averages below 60 to 69 per cent, and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

Since there is an expected numerical decrease in grades 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 grades. For instance, a student with a 77 per cent or 78 per cent grade might round up to 80 per cent. Figure 1 displays the distribution of respondents’ reported final high school overall averages, along with high school averages from the administrative data for the combined 2006, 2007, and 2008 cohorts.

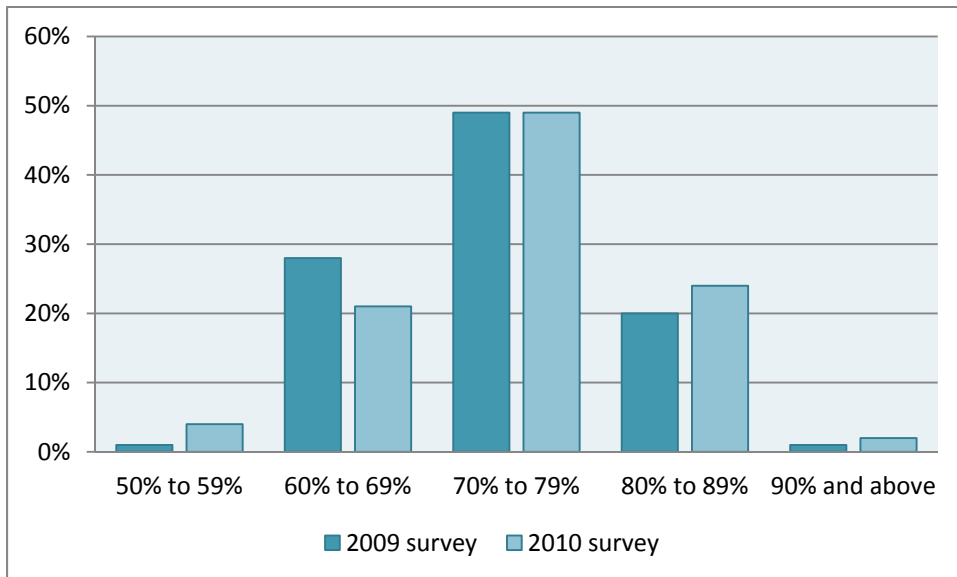
Figure 2 shows the distribution of respondents’ self-reported current overall averages.



**Figure 1 - Survey respondents by final high school overall average**



**Figure 2 - Survey respondents by current overall average**



When compared with the grade distribution in the overall administrative data for Brock University undergraduate students, the average results were higher – that is, students generally reported higher grades than were found in past administrative data. This could be the result of students self-reporting higher grades or it could mean that the sample is not representative. It is difficult to assess the extent to which the sample is representative because there are very few demographic questions from the survey that can be compared to the administrative data.

The combined administrative data from the 2006, 2007, and 2008 cohorts tell us that 54 per cent of students entering Brock University had an entrance average between 70 and 79 per cent; 41 per cent had an average between 80 and 89 per cent; and 4 per cent had an entrance average above 90 per cent. By comparison, a lower percentage of survey respondents reported averages in the 70 to 79 per cent range, while a greater percentage reported averages of 80 per cent or greater. The high school grades from the administrative data were combined because there was very little variation between the 2006, 2007, and 2008 high school entrance average distribution.

### *Learning Skills Program Awareness*

In both surveys, respondents were asked about their awareness of the learning skills workshops, one-on-one sessions (2009) and drop-in services (2010). In 2009, two-thirds of respondents indicated that they were aware of the workshops; in 2010, this number increased, with 79 per cent of respondents indicating awareness of the workshops and other services. In 2010, Brock University went through a complete website redesign. During this exercise, Learning Skills Services launched an online self-registration system for the workshops. Furthermore, the redesign of the website included a more navigable web link for Learning Skills Services and a direct link from the university main page. In addition to the digital changes, more signage about the workshops and other services was placed in visible, high-traffic areas such as the Matheson Learning Commons in the university library. Table 25 (in Appendix D) shows respondents' awareness of the learning skills workshops and other services.

In 2009, approximately one-quarter of the respondents were aware of the "one-on-one tutoring session." In 2010, 63 per cent of survey respondents were aware of the drop-in service in the Matheson Learning Commons in the university library. Again, this increase could be due to changed question phrasing (see "methodology" section under Formative Analysis). Table 25 (in Appendix D) displays the percentage of students who were aware of the one-on-one tutoring sessions (2009) and the drop-in service (2010) in the Matheson Learning Commons.

Respondents who indicated that they were aware of the learning skills workshops, one-on-one sessions or drop-in sessions were asked how they had learned about them, and they were provided with a substantial list of possible sources of information, of which they could select multiple responses. The responses to the question were consistent between the two surveys, with one notable exception: SmartStart, a one-day, summer academic orientation program offered by Brock to all incoming students, during which students are given information about the various services and facilities at the university.

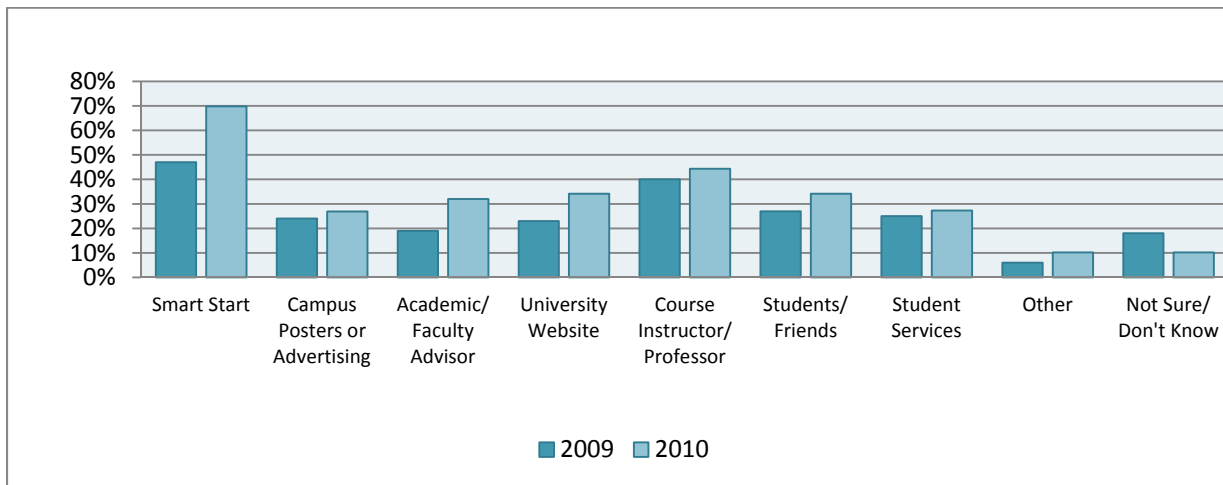
Approximately 50 per cent of the respondents to the 2009 survey who identified as first-year students indicated that they had heard about the learning skills workshops and one-on-one/drop-in sessions from the SmartStart program; in 2010, 70 per cent of respondents in first year reported that they had heard about the learning skills workshops and other services at SmartStart. In the summer before the 2009/10 academic year, staff at Learning Skills Services identified a need to increase awareness about the learning skills workshops and other services at SmartStart. It could be concluded that the increased presence and prominence of information

about the workshops and other services at the SmartStart program played a role in the increase in students who were aware of the workshops and other services.

To that end, more students in 2010 indicated that they were aware of the services offered by Learning Skills Services. In 2010, 32 per cent of respondents were made aware of these services through an academic or faculty advisor; in 2009, only 19 per cent of first-year respondents were made aware of these services through this group. Furthermore, in 2010, 34 per cent of first-year respondents were aware of the workshops and other services – compared to 23 per cent in 2009.

Error! Reference source not found. displays how first-year respondents in 2009 and 2010 learned of the learning skills workshops and one-on-one/drop-in sessions.

**Figure 3 - How first-year survey respondents heard of the learning skills workshops, one-on-one/drop-in sessions**



### *Participation in Learning Skills Workshops and Other Learning Skills Services*

While it is important to understand whether students were aware of the learning skills workshops and other services, it is equally important to know whether they were participating in the workshops and one-on-one/drop-in sessions. In both surveys, respondents were asked whether they had ever participated in a learning skills workshop, a one-on-one session (2009) or a drop-in service (2010). In 2009, approximately one-quarter of respondents indicated that they had participated in a learning skills workshop and less than 1 per cent of respondents indicated that they had participated in a one-on-one session. In 2010, 28 per cent of respondents indicated that they had completed a learning skills workshop, and 15 per cent said they had attended a drop-in session. The low reported participation in the one-on-one sessions in 2009 may be a result of the terminology change between the 2009 and 2010 surveys. Table 25 (in Appendix D) displays responses to the question “Have you completed any of the learning skills workshops?”

In the 2010 survey, all respondents were asked to indicate whether they had ever (during their full tenure at Brock) taken a workshop in one of the following categories: writing, study skills, exam prep, Essay-Zone, documentation, science or math. Respondents were allowed to select more than one workshop category. Of the students who indicated that they had completed a workshop in the 2010 survey, 58 per cent had taken one, 26 per cent had taken two, 12 per cent had taken three and 4 per cent had taken more than four categories of workshops.<sup>1</sup> These numbers are fairly consistent with the administrative data. Table 26 (in Appendix D) displays the level of diversity of survey respondents' participation in workshops.

The study skills and writing workshops were the most popular, as they were taken by 37 per cent and 39 per cent of the respondents, respectively. Approximately one-quarter of survey respondents took an exam prep workshop, participated in Essay-Zone or took a documentation workshop. Both the math and the science workshops had lower attendance, with 10 per cent and 4 per cent of respondents, respectively, using these services. These results are quite consistent with the administrative data, which indicates that the majority of students who took workshops participated in the writing, study skills or exam prep options. Furthermore, as indicated in the administrative data, 15 per cent of workshop participants took a science or math workshop. It is important to note that the groupings of workshops in the administrative data are slightly different from the groupings in the survey data. Table 27 (in Appendix D) displays the percentage of survey respondents who took learning skills workshops by workshop category.

During the past few years, some Brock University professors have been using the learning skills workshops as a required component of their course curricula. In order to account for this, the survey asked respondents who took a learning skills workshop whether their participation was required or voluntary. On the whole, the majority of students voluntarily participated in the learning skills workshops, with the exception of Essay-Zone, which was only available upon instructor request. Approximately three-fifths of respondents who took Essay-Zone were required to do so, as many professors in the faculties of business and social science have integrated Essay-Zone into their course curricula. The exam preparation workshops had one of the highest voluntary uptakes from respondents. This is important to note because it indicates that while students identify a need to develop exam skills, professors opt for students to develop other skills. Table 27 (in Appendix D) displays the percentage of workshop respondents required to take a learning skills workshop by category.

### *Satisfaction with Workshops and Other Learning Skills Services*

The majority of the questions contained within the 2010 survey attempted to measure respondents' satisfaction with various aspects of the learning skills workshops and other learning skills services, as well as the perceived impact of the workshops on respondents' skills development and connection with the university. Students were asked to rate their level of satisfaction with the overall quality of the workshop, the instruction provided in the workshop, the teaching materials used, the level of integration with the instructor and the scheduling of the

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<sup>1</sup> The survey did not allow us to discover whether a respondent took multiple workshops in the same category.

workshop. Questions were asked on a five-point Likert scale, with 5 being “Very Satisfied” and 1 being “Very Dissatisfied.”

Furthermore, respondents were asked a series of questions aimed at assessing the impact of the workshop on learning skills, including written communication skills, oral communication skills, understanding of university expectations, exam writing skills, confidence, overall academic success and connection to the Brock community. The survey asked students to rate their agreement or disagreement with seven statements on a five-point Likert scale. Some of the skills assessment statements were not directly related to the specific workshop (e.g., math workshops and improved written communication).

On the whole, respondents who took the workshops were satisfied with all aspects. In particular, respondents who used the documentation, exam prep and online Essay-Zone workshops had a mean response on the overall quality scale above 4.0. Furthermore, instruction and level of interaction with the instructor were rated quite high. Students who took the science and math workshops were satisfied with aspects of the workshops; however, their satisfaction scores were not as high as those of students who took the other workshops. Table 28 (in Appendix D) displays the mean scores of respondents’ satisfaction and perceived utility of the learning skills workshops.

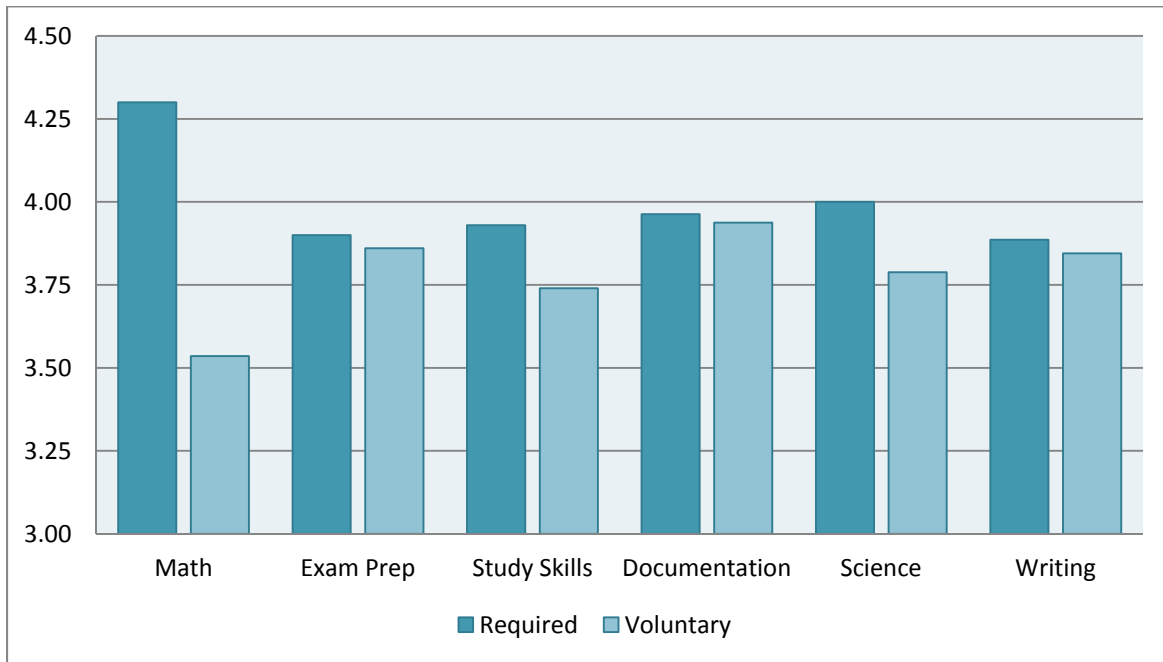
Generally speaking, respondents agreed that the workshops improved their learning skills. Each skills assessment statement for each workshop had a mean response above 3.0 and below 4.0. While these means are not as high as the satisfaction scores, students still felt that the workshops improved their learning skills, and this is a positive indication. In particular, respondents reported greater improvements in written communication, overall academic success and understanding what is expected of them at university. In each of these categories, the total workshop mean was 3.6 or higher.

Since we know which students were required to take the learning skills workshops, we can measure the differences in satisfaction and skills assessment between students whose participation was voluntary and those whose participation was mandatory. On the whole, students who were required to participate in the workshops were more satisfied than students for whom participation was not required. In particular, students who were required to participate were more satisfied with the scheduling of workshops. This is understandable, given that students required to participate might have completed them in class and therefore were not inconvenienced by making room in their schedules to attend. Moreover, if students participated in the workshops in class, participation then became part of the curriculum and was not a voluntary forfeit of free time.

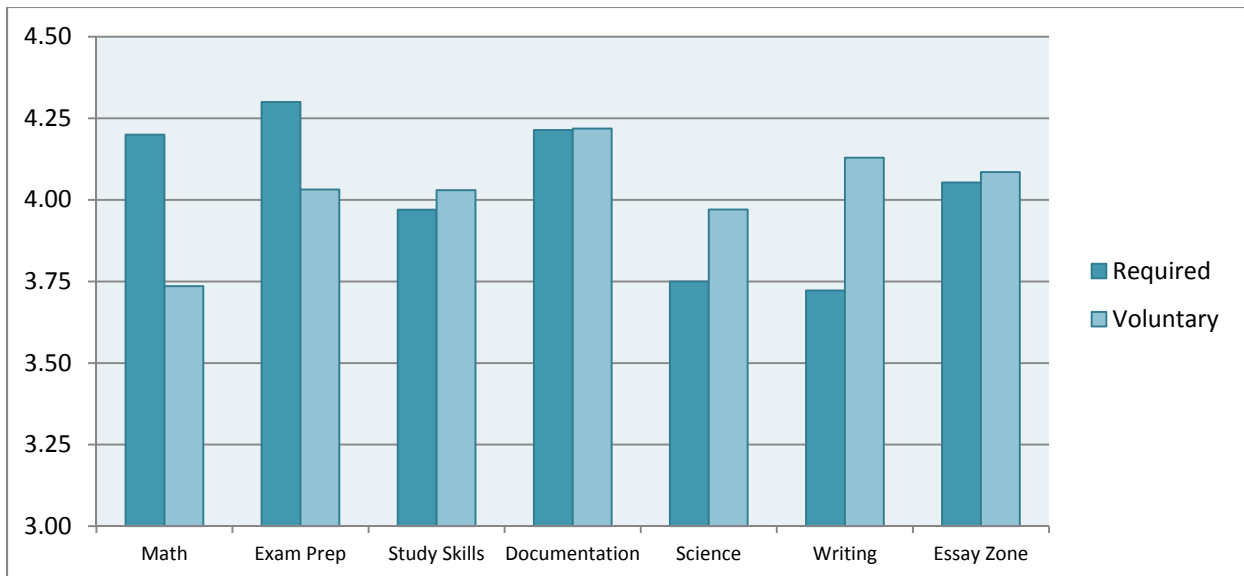
Figure 4 displays the mean scores for satisfaction with scheduling for both voluntary and required student participation in each of the six categories of learning skills workshops.

Figure 4 displays the mean scores for overall satisfaction with workshops for both voluntary and required participation.

**Figure 4 - Mean satisfaction with scheduling for voluntary and required participation**



**Figure 5 - Mean overall satisfaction with workshops for voluntary and required participation**



## *Non-Participants in Workshops and Other Learning Skills Services*

The survey asked the 72 per cent of workshop non-participants the following question: “Why have you so far chosen not to participate in a learning skills workshop or drop-in service?” Table 29 (in Appendix D) displays the results.

Approximately one-third of respondents indicated that they were too busy to participate in the workshops or drop-in sessions, and roughly 20 per cent had heard about the workshops or the drop-in services but did not think they would be useful. In both instances, students were aware of the workshops and drop-in services but personal scheduling and perceived lack of utility were cited as reasons for not participating.

While some respondents identified scheduling as a reason for not participating, students who participated in the workshops and drop-in sessions were fairly satisfied with scheduling. In the future, it might be beneficial to communicate the timing and flexibility of scheduling participation, as this could help increase participation among students who are “too busy.” Furthermore, students might benefit from communications from Learning Skills Services that clearly articulate the potential benefits of the learning skills workshops and drop-in services.

## **Focus Groups**

### *University Preparation*

Both the learning skills participants (participants) and learning skills non-participants (non-participants) were asked how prepared they were for university. This question was asked to assess whether there were any differences in the skill sets of the two student groups before they entered university.

Overall, participants stated that they were not prepared for university. In both groups, students stated that the workload at university was greater than in high school, and university professors expected more work be completed in a shorter period of time. Some students stated that their writing and study skills were not sufficiently developed for the rigours of university. One student noted that the atmosphere of university was different from high school; the size of the institution was intimidating when writing exams.

Non-participants stated that they were prepared for some aspects of university but unprepared for others. Students cited having little preparation for the large amount of essay writing required in university and the referencing of university papers. Further, one student commented that the connection between professors and students is different in university; in high school she knew her teachers personally, whereas in university she did not have the same rapport.

The major difference between participants and non-participants was that the former tended to be unprepared for university life in general (academics, living on your own, paying bills, personal responsibility, etc.), whereas the latter were not prepared for specific aspects of the academic rigour of university (essays, studying, writing, etc.).

## *Skills Assessments*

All focus groups were asked to (1) list the skills necessary for university success, (2) rank those skills according to importance, and (3) rank the skills according to personal strengths. The skills listed by both groups were very similar, with the majority of both groups ranking the following skills as most important: time management, perseverance and writing skills. However, one notable difference did emerge; learning skills participants were more likely to identify perseverance and “the ability to ask for help” as necessary skills for university success. Both groups were asked how their skills had developed over time at university. Participants noted that they had actively worked to improve their skills while at university. One student noted that “[her] essay writing . . . [had] improved since [she had] used the skills workshop.” When prompted about the strategies used to improve learning skills, most identified the workshops as the main source of improvement. Some students noted that introspection and retrospection helped them improve their skills, with one student saying, “I needed to learn from my mistakes and improve.” Identified personal strengths included perseverance and self-awareness. Non-participants cited adaptability and practice as the qualities that made them better students. One student noted that her professors helped her with her essay writing, saying, “I’ve gotten better at writing by reading my professors’ comments in my papers.”

The major difference between the two groups was that participants identified personal characteristics and non-participants identified performance habits. In essence, participants spoke about who they were, while non-participants talked about what they did.

Finally, participants noted that asking for help was a personal strength and that this was demonstrated by means of developing their learning skills over time. Non-participants seemed to be more comfortable letting their skills develop naturally; perhaps this was a result of that fact that they felt more prepared for some aspects of university before attending Brock.

## *Learning Skills Participants*

The majority of participants used learning skills services for skills development; in particular, these students utilized the essay-writing workshops and drop-in writing help sessions. They indicated that they had learned basic essay skills, useful transition words and essay structure in the workshops and drop-in. Other learning skills services and workshops used were as follows: critical thinking, APA writing style, grammar, math drop-in sessions, how to write a thesis, chemistry drop-in and notetaking.

Participants decided to participate in learning skills workshops and one-on-one/drop-in sessions because they needed to improve their grades or because they were generally curious about developing their skills. One student said, simply, “I knew that I would be writing essays in university, so I wanted to learn how to write an essay.” Another person stated: “Hey, the assignment is due next week, let’s go and get help, and then it helped so I kept going back.” On the whole, there was a mixture of reactive and proactive reasons for attending the workshops and the one-one-one/drop-in sessions.



## Communication

Participants identified how they had learned about the workshops and one-on-one/drop-in sessions. Their answers paralleled the list of information sources used in the survey: professors, course requirements, roommates, signs around campus, teaching assistants, university fairs, SmartStart and academic advisors.

## Satisfaction with the Workshops and One-on-One and Drop-In Sessions

Students were asked how satisfied they were with the workshops or one-on-one/drop-in sessions. All participants stated that they were extremely satisfied with the workshops and one-on-one/drop-in services, indicating that they had learned from the content of the workshops and other sessions; one student made particular reference to the course materials, saying that “the booklet was key.” While the majority of the comments were positive, some students said that they were not satisfied with the instruction provided through the workshops and one-on-one/drop-in services. According to some, the perceived effectiveness of course material was obscured by some instructors’ weak delivery. In order to improve on subject delivery, students noted that the instructors could be more engaged and clear in their delivery of the materials.

### *Learning Skills Non-Participants*

As a result of active promotion on the part of Learning Skills Services, all non-participants had heard about the learning skills workshops and other learning skills services. The majority of these students noted that they had heard about them during first and second year. One student commented that she had lived in residence during first year “and they used to bring around the schedule of when different workshops were taking place.” Another student stated that the workshops and other learning skills services are broadcast to first- and second-year students because those groups need them the most; upper-year students, according to this respondent, do not require as much assistance with learning skills.

## Communication and Knowledge

Non-participants heard about the learning skills workshops and other learning skills services from professors, residence advisors, student liaisons and posters around campus. However, their knowledge about the workshops and one-on-one/drop-in services was fairly limited. For example, one student noted that in order to use the essay drop-in session, one’s essay needed to be complete one week before the due date.<sup>2</sup> Another student said that he had tried to use this service to have an essay reviewed, but when he arrived, there was a line-up. The student did not want to wait in the line, so he left and never came back. Other students noted that the workshops and other learning skills services sounded helpful but that they were simply not interested in taking them.

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<sup>2</sup> Students are prohibited from using the drop-in service **on the day an essay is due**. However, an essay does not need to be complete for students to receive assistance.

## Reasons Not to Participate

Non-participants were asked to explain why they had not utilized the services. The two predominant answers to this question focused on scheduling and utility. Two scheduling barriers in particular were cited: personal scheduling difficulties and difficulties with scheduling workshops and other learning skills services. One student stated that she just did not have the time to go; she was more concerned with making time for schoolwork and friends. Another student stated that she wanted to take a multiple-choice workshop closer to her exams, but this particular workshop was held in September. She admitted that she was not thinking about exams in September and said that it would make more sense to schedule exam prep workshops closer to the actual exam period. It is important to note, however, that the student was misinformed; exam prep workshops are offered before mid-terms and finals.

Other students stated that they did not take advantage of the workshops or other learning skills services because they did not think they needed any help. One student said, "I've survived this long without going; I can't imagine it would be that helpful now." Another student noted that if she needed help with school, she would not go to Learning Skills Services; she would instead approach her professors or teaching assistants. This same student also noted that the workshops and other learning skills services would probably not be helpful at this point in her academic career.

The answers from the focus groups coincide with the data from the student survey. According to survey respondents, the top two reasons for not using the learning skills workshops and one-on-one/drop-in services were timing and utility. On the other hand, respondents to the survey who had used the workshops and other learning skills services were generally satisfied with the scheduling and the utility of the workshops and services.

## What Would It Take to Participate?

Finally, non-participants were asked what it would take to motivate them to participate in the workshops and one-on-one/drop-in sessions offered by Learning Skills Services. One student stated that the workshops would need to be a course requirement to get her to go; if workshop attendance had an impact on grades, then she would attend. Another student commented that if the workshops were more applicable to the course curriculum, he would attend the workshops. Finally, a few students identified motivation as the driving factor for attendance; they stated, "The only real way to get people to go is for the students themselves to want to go. If it's made mandatory, then the students are probably just going because they have to, but they're probably not getting anything out of it."

## Key Findings of the Formative Analysis

**A majority of students know about the workshops and other learning skills services, and those who do not participate choose not to because of personal scheduling issues and perceived lack of utility.**

Approximately 65 per cent of respondents in the 2009 survey and 80 per cent of respondents in the 2010 survey had heard about the learning skills workshops and one-on-one/drop-in services. The improvement in knowledge about the available services between the two surveys was a direct result of increased communication on the part of Learning Skills Services. Furthermore, there was a significant increase in the proportion of first-year respondents in the 2010 survey who had heard about the learning skills workshops and other services. In particular, the proportion of first-year students from the 2010 survey who had heard about the workshops and other services at SmartStart increased more than 20 per cent from the 2009 survey.

All focus group participants had heard about the learning skills workshops and other services from various information sources on campus. Not surprisingly, students who took the workshops and one-on-one/drop-in sessions got their information from more sources than the students who did not take the workshops or attend the other sessions. Commonly cited sources of information were professors, roommates, signs around campus, teaching assistants, university fairs, SmartStart and academic advisors.

Survey respondents who did not use the learning skills workshops and other services thought that the workshops and other services had little utility and would not fit into their busy schedules. The latter of the two was the more common reason. Focus group participants identified the same reasons for not participating in the workshops or one-on-one/drop-in sessions: scheduling and utility. Some students said that they were simply too busy to take advantage of the learning skills services, and others complained that the workshops and other sessions were not held when they wanted to take them (although the services were, in fact, offered at those times). Other students noted that they did not think they would benefit from taking the workshops or attending the other sessions, as they already had a developed set of skills to succeed in university.

Conversely, learning skills participants found the scheduling and utility of the workshops and other services to be satisfactory. In fact, students who were required to take the workshops were more satisfied with the scheduling than students who voluntarily took the workshops. A non-participant from the focus group indicated that her or she would be more likely to utilize the programs if the workshops and other services were part of a credit requirement.

**Students who used the learning skills workshops and one-on-one/drop-in sessions were satisfied with the service and identified a positive learning outcome from the experience.**

Students who took advantage of the workshops and other services stated that they were generally satisfied with the overall quality, instruction, teaching materials, level of interaction with the instructor and scheduling of the workshops and services. Students who were required to take the workshops were generally more satisfied with the program than students who voluntarily took the workshops. In particular, the required group was more satisfied with the scheduling of the workshops.

The focus groups supported the findings in the surveys: students were pleased with the workshops and one-on-one/drop-in services. In particular, participants commented on

satisfaction with the workshop materials and focus. However, a few of the participants commented that the instruction was not completely satisfactory. These students wanted the instructors to be more engaged with the material in order to enhance the overall experience. This, however, does not coincide with the findings from the survey. Respondents to the survey were satisfied with the instruction in the workshops and one-on-one/drop-in services. Overall, participants recognized a positive learning outcome from the workshops and other learning services. In both the survey and the focus groups, students identified a modest improvement in all learning skills categories, with a very notable improvement in their written communication. Furthermore, these students also observed an improvement in their knowledge of university expectations and overall academic success.

**Students who used the workshops or other learning skills services were more self-aware and motivated than students who did not use the workshops or other learning skills services. This group also felt more unprepared for university than the students who did not use the workshops or other learning skills services.**

Participants identified perseverance and self-awareness as personal strengths, and non-participants identified adaptability as a personal strength. The difference between the two groups is that the participants identified traits that can be considered personal characteristics, while the non-participants identified a skill related to academic performance. In essence, the participants talked about who they were, and the non-participants talked about what they did. As a result, the self-aware, motivated participants were able to identify the fact that they needed help in order to develop the skills necessary to succeed at university. This group took advantage of the learning skills workshops or other services in order to improve their grades and overall university performance. This identification of, or need for, additional skills occurred in a proactive manner for some and in a reactive manner for others.

The non-participants, on the other hand, let their skills develop more organically; they felt more prepared coming into university and did not feel that they needed to get help in order to succeed.

## Summative Analysis

We now turn to the summative analysis of the surveys about learning skills services at Brock. Using administrative data for three cohorts of Brock University students, we will investigate the impact of learning skills services on academic grades and student retention.

### Methodology

#### *Data*

Our analysis makes use of two data sources: records of the Office of the Registrar and records held by Learning Skills Services.

Student academic records were provided by the Office of the Registrar at Brock University. This data file contains anonymous information about all students in the 2006/07, 2007/08 and

2008/09 entering cohorts. The data includes information such as entry term, entry status (e.g., direct entry, transfer, mature student), gender, program of enrolment and, crucially, high school admittance average, first-year average and second-year average. Each student record in this file was assigned a unique reference number to allow the data to be matched with the records provided by Learning Skills Services.

Learning Skills Services provided records of all students who utilized some aspect of their available services in the 2006/07, 2007/08 and 2008/09 academic years. The data included information about which of the five services the student used (drop-in writing, drop-in science, the workshops, consultations or tutor requests). For the workshops, the data contained a separate record for each workshop that each student attended, along with the name and date of the workshop. For all other services, the date of first use in each academic year was provided, along with the number of times those services were used by that student during that academic year. A unique identifier allowed each record to be associated with an entry in the student records of the Office of the Registrar. As the data was split into three files corresponding to the three academic years, it was possible to use the administrative records to identify which students first made use of the available learning skills services in first year, how many times they had visited and which students first used the available learning skills services in second year or later. The merged data combined the academic records of each student with information concerning whether they had used the learning skills services, when they had used them and which services they had used (and how often).

For the purpose of our analysis in this section, except where otherwise noted, we considered only direct entry students who were admitted in the fall to the fall/winter session and who had a valid high school average on file. Fall-admitted students were considered because they constituted 98 per cent of the total sample, and direct entry students were considered because, in the vast majority of cases, mature students, transfer students and second-degree students do not have a high school admittance average on file. In order to make inferences about the impact of Learning Skills Services on first-year grades, it is important to have an academic benchmark from prior to the students' arrival at Brock University. Furthermore, the cohorts examined are limited to the 2006/07, 2007/08, and 2008/09 academic years because the summative analysis is dependent on final marks and final marks were not available for the 2009/10 cohort at the time of the research. For ease of reference, the 2006/07 cohort will be referred to as the 2006 cohort, the 2007/08 as 2007 cohort, and 2008/09 as 2008 cohort for the duration of the report.

For the most part, our analysis focuses on students who used Learning Skills Services during their first year of study; reference to a student who has "participated in learning skills" without any further specification means that this student used Learning Skills Services during his or her first year of enrolment at Brock University. We focus on first-year use of Learning Skills Services for several reasons. First, it appears that students who use the available learning skills services begin to use them, for the most part, during their first year. For instance, in the 2006 cohort, 63 per cent of learning skills participants used the services during first year, while only 19 per cent started using the services during second year. Our focus on first-year use is therefore reflective of when students are most likely to start using Brock's learning skills services. Second, as our records cover the 2006/07 through 2008/09 academic years, we have information on second-year participation for only the 2006 and 2007 cohorts. (First-year final marks for the 2008 cohort

were not available until mid-June of 2009 and second-year final marks were not available until mid-June of 2010.) First-year participation, by contrast, can be analyzed for all three cohorts in our study. We will usually compare the outcomes for first-year participants to the outcomes for all other students.

### *Selection Bias*

The greatest challenge in analyzing the effect of students' use of Learning Skills Services is the possibility of self-selection bias and the associated difficulty of showing causality. We are not dealing with a situation of random assignment; students are free to make use of Learning Skills Services if they so desire. Moreover, while some students are required to make use of a learning skills service as a result of their course enrolment decisions, our data does not identify these students. It also seems plausible that the sort of student who is willing to voluntarily attend workshops on study skills may be taking other measures to improve their grades; so a decision to put additional effort into school may lead to both participation in Learning Skills Services and grade improvements, rather than the services themselves causing improved academic skills. We are not gifted with an ideal natural experiment that allows us to easily conclude that students' use of learning skills services is the causal factor leading to any differences that we find. Where possible, we will use techniques to control for selection bias to the greatest extent possible. For the most part, we will use past academic grades and other administrative data as controls.

One of our techniques for controlling for selection bias, however, will focus on a specific subgroup of students: those who used Learning Skills Services during their second year or later. This is because there is a possibility that the differences in outcomes between those who use Learning Skills Services and those who do not may be due to some inherent difference in the students themselves, rather than to skills imparted by the program. The students who used Learning Skills Services in second year or later are thus of interest, for they may have more in common with the group who used the services in first year (as both groups eventually self-select into the program), but their first-year grades cannot be causally affected by Learning Skills Services. Comparing this group to first-year learning skills participants might therefore give us some insights into possible selection biases.

### *Confidence Intervals*

We are interested in determining whether use of Learning Skills Services leads to improvements in academic outcomes. In our analysis, we examine the academic records of all direct-entry students admitted in fall from the 2006/07 to the 2008/09 academic years who have high school grades on file. However, our goal is not to describe the differences between learning skills participants and non-participants in this sample alone; we are interested in estimating what effect the use of Learning Skills Services might have in the population of all potential learning skills participants. For this purpose, the reporting of confidence intervals is useful; while it may appear that we are dealing with full population data, the 2006, 2007, and 2008 cohorts are, in fact, a *sample* of a greater population of students who might use Learning Skills Services. The use of confidence intervals allows us to estimate a range within which the true effect of using Brock's available learning skills services is likely to lie; this gives us insight into whether the



differences we observe between participants and non-participants are likely to be due to random chance.

### *Analytical Strategy*

Here we provide an overview of the analyses that we will carry out, as well as general methodological notes. Detailed methodology is provided in the subsection in which each analysis is undertaken.

We focus on two metrics of academic achievement: average course grades and student retention. Our analyses will examine the influence of participation in Learning Skills Services on these metrics.

We begin by focusing on course grades. We first compare average high school, first-year and second-year course grades for first-year users of Learning Skills Services to the grades of other students in the same cohort who did not utilize Learning Skills Services. Comparing high school grades gives us insight into whether students with greater academic ability self-select into using Learning Skills Services. Our analysis is supplemented by a comparison of year-to-year changes in grades for first-year learning skills participants, students who first used the available learning skills services in second year or later and non-participants. Examining the group of students who first used Learning Skills Services in second year or later provides us with a control for selection biases. We use t-tests to compare mean academic grades across groups and identify differences.

Our remaining analyses of course grades make use of linear regressions. We begin by analyzing the impact of using Learning Skills Services on first-year final grades by estimating a regression model that includes first-year learning skills participation among its explanatory variables. We then look at whether first-year learning skills participation might have any additional impact on second-year grades by estimating two further linear regression models. We next delve deeper into the details of students' use of Learning Skills Services. In the "Frequency of Use" section, we examine whether increased frequency of use leads to improved grades by estimating a regression model that accounts for rates of use of Learning Skills Services. This is supplemented by an analysis of the partial correlation between frequency of use and first-year grades. Then, in the "Effectiveness by Service Type" section, we allow the impact of Learning Skills Services usage to vary, depending on which of the several categories of services were used. We examine two regression models: one that divides the available learning skills services into five categories and one that further divides the learning skills workshops into subject areas.

In the final subsection of our administrative data analysis, we turn to an examination of student retention. We compare second-year completion rates for first-year learning skills participants to those of other students. We then estimate a logistic regression model of student retention, which controls for some additional factors that may contribute to whether or not a student is retained.

Each of these analyses is discussed in depth in the corresponding subsection of this report.

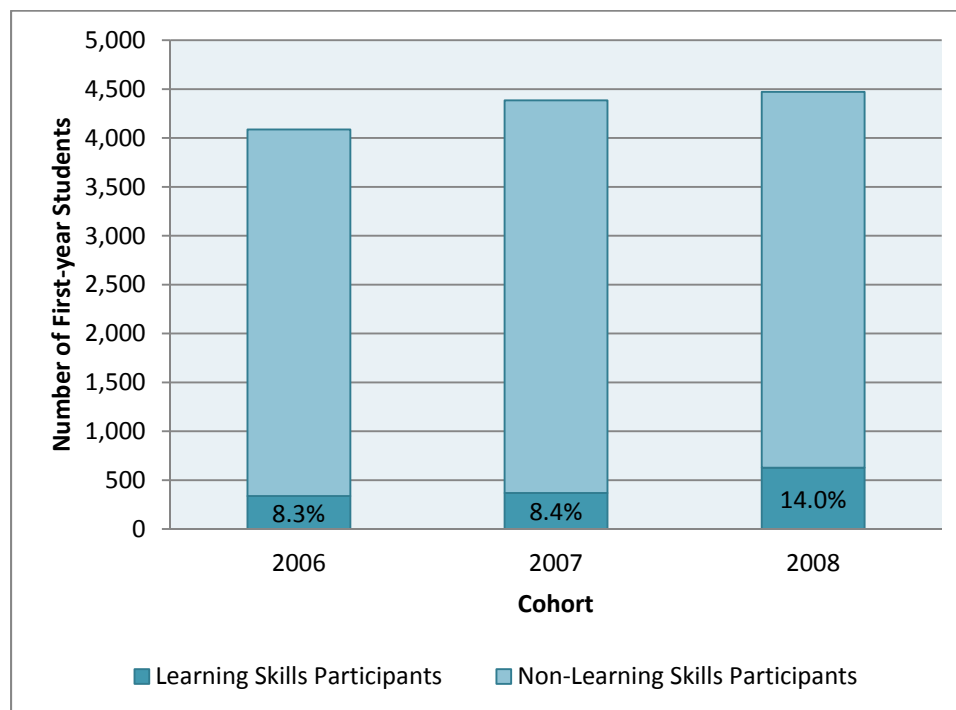
## Learning Skills Participation and Sample Demographics

This section provides an overview of the demographics of the 2006 to 2008 cohorts and the subsample that is analyzed in this paper, as well as providing the profile of students who use Learning Skills Services.

### *Enrolment and Learning Skills Participation*

The number of first-year students who used Learning Skills Services at Brock University has increased since 2006. During the 2006/07 academic year, 338 first-year students representing 8.3 per cent of the first-year, fall-admitted population<sup>3</sup> made use of Learning Skills Services. This number increased to 368 in 2007/08, although higher total enrolment kept the usage percentage steady, at 8.4 per cent. In 2008/09 use of Learning Skills Services increased sharply – to 14 per cent of the first-year population, representing 627 students in total. Learning skills participation numbers are presented, along with first-year enrolment data, in Figure 6.

**Figure 6 - First-year usage rates of learning skills services, fall-admitted population**

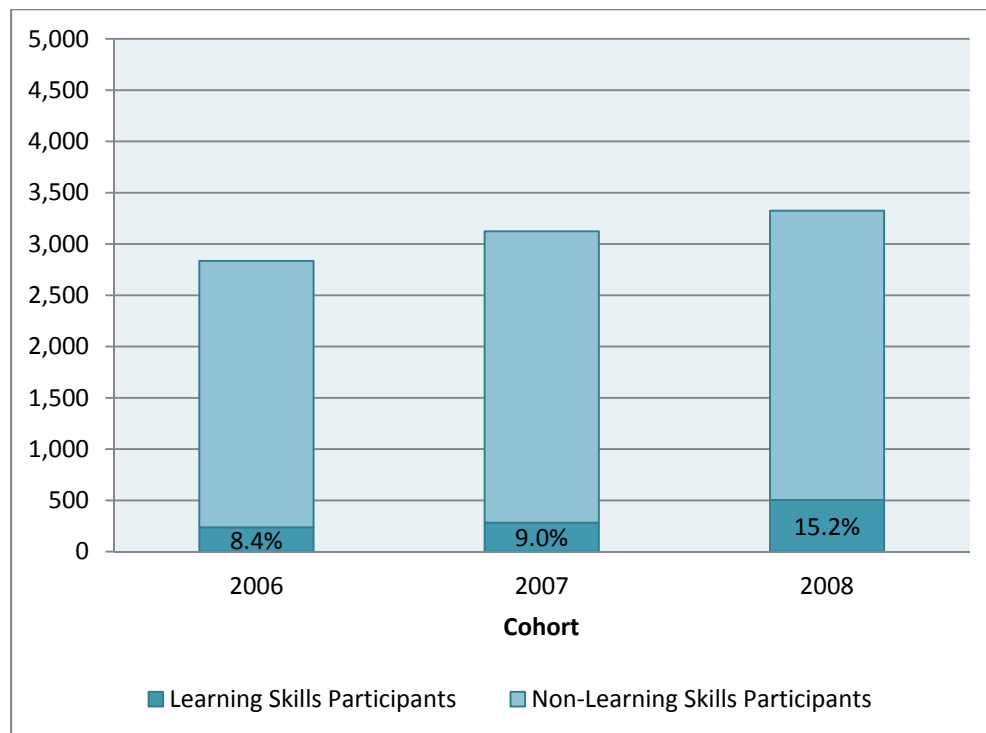


<sup>3</sup> We include non-direct-entry students in these counts.



As previously mentioned, only direct entry students (individuals who enroll directly from high school, including CEGEP and international students) with valid high school grade point averages are included in the upcoming data analysis section. Direct entry students with high school averages on file represent from 69.4 to 74.3 per cent of the first-year population in the years under consideration. A slightly higher percentage of students in this subgroup made use of Learning Skills Services during their first year of study. Participation data for this group of students is presented in Figure 7.

**Figure 7 - First-year usage rates of Learning Skills Services, sample used for analysis**



### Participation by Field of Study

Brock University has many faculties, departments and programs. In the initial file sent from the Office of the Registrar, over one hundred programs were listed for students' field of study. In order to analyze the data, the research team recoded these programs to fit into seven areas or fields of study: fine and performing arts, humanities or social science,<sup>4</sup> business and commerce, math and science, health science and physical education, education<sup>5</sup> and other. Fewer than 0.5

<sup>4</sup> While Brock has both a faculty of humanities and a faculty of social sciences, for the purposes of this study, bachelor of arts students are grouped together into the "humanities or social sciences" category.

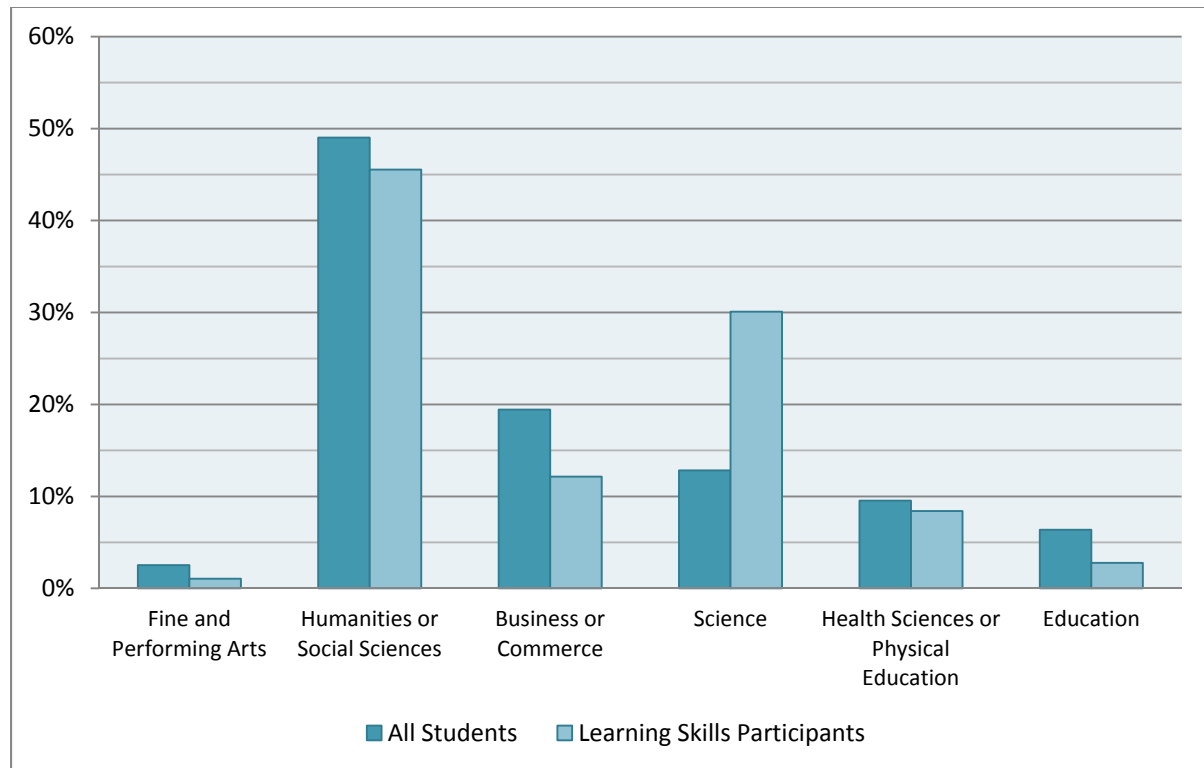
<sup>5</sup> Concurrent education students were classified according to the program in which they were concurrently enrolled.

per cent of students were categorized as “other,” so this group is not presented in the following figures.

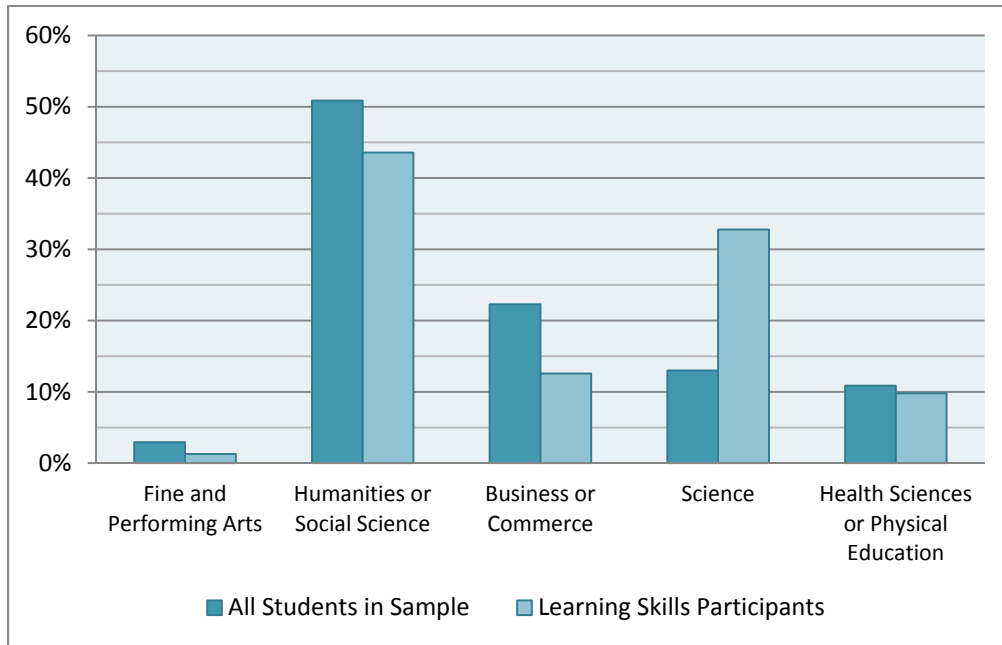
The breakdown of all first-year, fall-admitted students by field of study is compared to that of learning skills participants in Figure 8. The learning skills population contains a disproportionate number of science students: these make up 30 per cent of first-year learning skills users but only 13 per cent of all first-year students. Aside from this, the distribution of learning skills participants by field of study is fairly similar to that of the university population as a whole, with somewhat fewer business students and education students making use of Learning Skills Services in first year. Results are for the most part similar from year to year, with two exceptions (not shown in Figure 8): education students drop sharply from 9% participation in 2006 to less than 1% in 2007 and 2008, while health or physical education students steadily increase their usage rates from 5% in 2006 to 10 % in 2008.

In the subsample of fall-admitted, direct entry students with high school grades on file (see Figure 9), there were no education students and no students categorized as “other.” The distribution of students by faculty is otherwise very similar to the distribution of the entire student population – for both learning skills participants and all first-year students.

**Figure 8 - Breakdown by field of study and learning skills participation in first-year students, fall-admitted population (2006, 2007, 2008)**



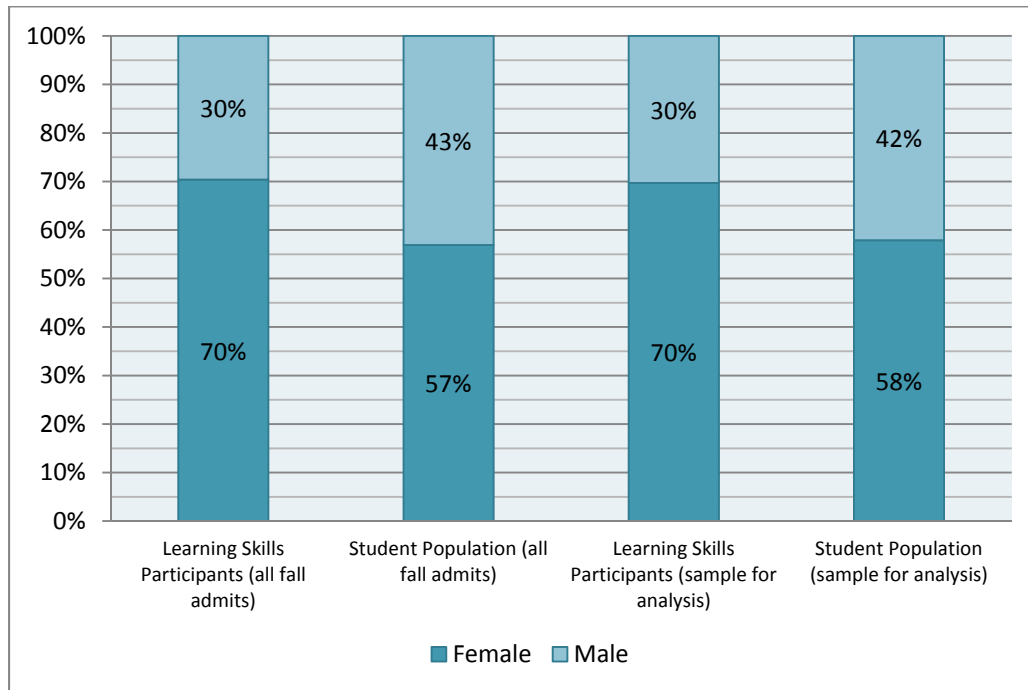
**Figure 9 - Breakdown by field of study and Learning Skills Participation, fall-admitted, direct entry students with high school grades on file. Sample used for analysis (2006, 2007, 2008)**



### Participation by Gender

A disproportionate number of users of Learning Skills Services are female. While the Brock first-year population is 58 per cent female, females make up 70 per cent of learning skills users. This trend also holds in the reduced sample of direct-entry students with valid high school averages. Gender ratios were found to be constant in the 2006 to 2008 period for all groups under consideration. Data for learning skills users and the student population as a whole (broken down by gender) are presented in Figure 10 – both for the entire population of fall-admitted Brock students and for the reduced sample that will be analyzed.

**Figure 10 - Gender breakdown of learning skills participants**



### Comparison of Academic Averages

We now turn to presenting in detail our analyses of the effects of using Learning Skills Services on academic outcomes.

#### Method

We begin by examining differences in academic averages between first-year learning skills participants and other students.<sup>6</sup> We first present the differences in high school, first-year and second-year grades between the two groups. This gives us a quick overview of the differences in academic attainment between first-year learning skills participants and non-participants.

We then examine changes in grades from year to year. This helps correct for differences in level of academic ability between the groups; while learning skills participants may have higher first-year grades simply because they were already better students, this would not necessarily affect the *difference* in grades between high school and the first year of university. By contrast, if students' academic skills have improved by using Learning Skills Services, we would expect their grades to increase relative to those of other students.

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<sup>6</sup> Our sample is restricted to direct-entry students admitted in the fall who have a valid high school average on file. For sample size details, see Appendix D.

We compare grades using a paired samples approach. Each student's average in one academic period is paired with their average in the subsequent academic period to find the difference on a student-by-student basis. The mean change is then analyzed, and confidence intervals are produced, using t-tests. We then compare all the changes for individual learning skills participants to those of other groups, such as non-participants, and use t-tests to estimate confidence intervals on the difference in change in grades between groups. This gives us an estimate of the degree to which learning skills participants experience changes in grades. Note that as a result of our paired samples approach, our comparisons consider only students who actually have grades on file in adjacent years (e.g., the change in grades from first year to second year considers only students with grades available for both first year and second year).<sup>7</sup>

We include a third group in our analysis when studying changes in grades. This third group contains all students who first used a learning skills service in their second year of study or later. This group is included as a control group to examine self-selection effects. If Learning Skills Services draws students who are different from their peers in ways that are unobservable (the focus group results suggests that learning skills participants were self-aware and motivated), these differences may be what are causing improvements in grades, rather than Learning Skills Services itself. Students who first use Learning Skills Services in second year or later may have some characteristics similar to those of first-year participants, as both groups are ultimately drawn to using Learning Skills Services. There is, however, no way that second-year learning skills participation can affect first-year grades. If we find differences in first-year academic outcomes between first- and second-year learning skills participants, this will provide us with some evidence that results for learning skills participants are not merely due to selection effects. Note that as our learning skills participation data covers the academic years 2006 through 2008, we are unable to identify second-year learning skills participants in the 2008 cohort.

## *Results*

Table 5 summarizes the high school, first year, and second year averages of learning skills participants and non-participants, as well as the associated confidence intervals (C.I.).<sup>8</sup> The sample under consideration covers direct-entry students who were admitted to Brock in the fall term (details on the sample sizes are given in Appendix D). Results are presented on a cohort-by-cohort basis, with pooled results for all cohorts presented at the bottom of the table.

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<sup>7</sup> As a result, there are slight differences in sample sizes between our paired samples analysis of changes in marks and our initial summary of average marks. In particular, students who left Brock after a given year will not show up in the change-in-marks analysis between that year and the next in Table 6, but they are included in our summary of average marks in Table 5. As such, our change-in-marks estimates are numerically different from the difference in mean marks from year to year as reported in Table 5.

<sup>8</sup> While we report averages for all direct-entry learning skills participants with high school grades on file, we are still interested in estimating the expected grade difference in the population of all possible learning skills participants. We therefore report confidence intervals, to obtain an estimate of how likely it would be that we would see these results if additional students were sampled (in future years, for instance). For a more detailed discussion, refer to "Methodology" in the Summative Analysis section.

Table 6 summarizes year-by-year grade changes for students who used Learning Skills Services in first year, students who first used Learning Skills Services in second year or later and students who never made use of Learning Skills Services. We also provide pooled results for the 2006-2008 cohorts, and separate pooled results for the 2006 and 2007 cohorts.<sup>9</sup> In Table 7, we report the differences in changes in grades between groups in the pooled 2006 and 2007 cohorts (e.g., the difference between the high school to first-year change in grades for learning skills participants and the high school to first-year change for non-participants), as well as associated confidence intervals. Positive numbers indicate that the first group is doing better (e.g., first-year participants in the “first-year users vs. never used” row).

**Table 5 – Academic averages for learning skills participants and non-participants**

Cohort	First- Year Learning Skills Usage Status	High School		First Year		Second Year	
		Mean	C.I.	Mean	C.I.	Mean	C.I.
2006	Participated	81.1%	[80.4, 81.9]	69.7%	[68.4, 71.0]	71.9%	[70.7, 73.0]
	Did not participate	79.6%	[79.4, 79.8]	67.0%	[66.6, 67.4]	68.6%	[68.2, 68.9]
	Difference	1.5%	[0.8, 2.3]	2.7%	[1.4, 4.0]	3.3%	[2.1, 4.6]
2007	Participated	80.6%	[79.9, 81.3]	70.5%	[69.5, 71.6]	72.6%	[71.6, 73.5]
	Did not participate	78.9%	[78.7, 79.1]	66.4%	[66.0, 66.8]	68.7%	[68.3, 69.1]
	Difference	1.7%	[1.0, 2.4]	4.1%	[3.0, 5.3]	3.9%	[2.9, 4.9]
2008	Participated	80.4%	[79.9, 80.9]	69.4%	[68.6, 70.2]	70.1%	[69.4, 70.9]
	Did not participate	79.0%	[78.8, 79.2]	66.8%	[66.4, 67.2]	68.3%	[67.9, 68.6]
	Difference	1.4%	[0.9, 2.0]	2.6%	[1.7, 3.5]	1.9%	[1.0, 2.8]
<b>All cohorts</b>	<b>Participated</b>	<b>80.6%</b>	<b>[80.3, 81.0]</b>	<b>69.8%</b>	<b>[69.2, 70.4]</b>	<b>71.2%</b>	<b>[70.7, 71.8]</b>
	<b>Did not participate</b>	<b>79.2%</b>	<b>[79.0, 79.3]</b>	<b>66.7%</b>	<b>[66.5, 67.0]</b>	<b>68.5%</b>	<b>[68.3, 68.7]</b>
	<b>Difference</b>	<b>1.5%</b>	<b>[1.1, 1.9]</b>	<b>3.0%</b>	<b>[2.4, 3.7]</b>	<b>2.7%</b>	<b>[2.1, 3.3]</b>

For details on sample sizes, see Appendix D.

Table 5 shows us that the students who participated in Learning Skills Services have slightly higher high school grades. The difference is small but consistent, ranging from 1.4 per cent in 2008 to 1.7 per cent in 2007. It is also statistically significant; the pooled data gives us an estimated difference in high school grades of 1.5 per cent, with a 95 per cent confidence interval of 1.1 per cent to 1.9 per cent. As there is no way that learning skills participation could

<sup>9</sup> Our learning skills participation data only covers the academic years 2006-2008, so we cannot identify second-year or later learning skills participants in the 2008 cohort. We therefore report 2006 and 2007 pooled results separately.

retroactively affect a student's high school grades, there is evidence of a selection bias; students with higher high school grades are somewhat more likely to use a learning skills service.

The gap in academic averages persists throughout the students' first two years at Brock. The gap widens to 3.0 per cent in the first year of study and persists at 2.7 per cent in second year. Year after year, learning skills participants are earning higher grades than other students.

**Table 6 – Changes in academic averages for learning skills participants and non-participants<sup>10</sup>**

Cohort	Year of First Learning Skills Participation	Change from HS to Year 1	Confidence Interval	Change from Year 1 to Year 2	Confidence Interval
2006	Participated in first year	-11.4%	[-12.3, -10.5]	0.9%	[0.4, 1.3]
	Never participated	-12.6%	[-13.0, -12.3]	0.4%	[0.2, 0.5]
	Participated in second year or later	-12.2%	[-13.5, -10.9]	1.2%	[0.6, 1.9]
2007	Participated in first year	-10.0%	[-10.9, -9.2]	1.4%	[1.1, 1.8]
	Never participated	-12.5%	[-12.8, -12.1]	1.0%	[0.8, 1.1]
	Participated in second year or later	-12.4%	[-13.4, -11.3]	2.1%	[1.6, 2.6]
2008	Participated in first year	-11.1%	[-11.7, -10.4]	0.2%	[0.0, 0.3]
	Never participated	-12.2%	[-12.6, -11.9]	0.2%	[0.1, 0.2]
	Participated in second year or later	N/A	N/A	N/A	N/A
2006 and 2007*	Participated in first year	-10.7%	[-11.3, -10.0]	1.2%	[0.9, 1.5]
	Never participated	-12.5%	[-12.8, -12.3]	0.7%	[0.6, 0.8]
	Participated in second year or later	-12.3%*	[-13.1, -11.5]	1.7%*	[1.4, 2.1]
<b>All cohorts</b>	<b>Participated in first year</b>	<b>-10.9%</b>	<b>[-11.3, -10.4]</b>	<b>0.7%</b>	<b>[0.5, 0.8]</b>
	<b>Never participated</b>	<b>-12.4%</b>	<b>[-12.6, -12.3]</b>	<b>0.5%</b>	<b>[0.4, 0.6]</b>

<sup>10</sup> Percentages refer to absolute changes in marks (i.e., a change from 70 per cent to 60 per cent is reported as a change of -10 per cent, not -14 per cent. Also note that, as a result of rounding and differences in the samples under consideration, the numbers reported in this table are not precisely the difference of the marks reported in Table 5. (For example, in the previous table, the mean first-year average is calculated for all students with high school grades on file, while in this table, the first-year to second-year grade change is calculated only for students with marks on file in each of those years.)

Cohort	Year of First Learning Skills Participation	Change from HS to Year 1	Confidence Interval	Change from Year 1 to Year 2	Confidence Interval
	Participated in second year or later**	-12.3%	[-13.1, -11.5]	1.7%	[1.4, 2.1]

For details on sample sizes, see Appendix D.

\*These are the two cohorts for which we can track second-year learning skills participation.

\*\* The numbers for this row include only students from the 2006 and 2007 cohorts.

**Table 7 - Differences in year-to-year changes in grades, 2006 and 2007 cohorts pooled**

Learning Skills Usage Groups Being Compared	Difference in HS to Y1 Grade Change between Groups		Difference in Y1 to Y2 Grade Change between Groups	
	Difference	C.I.	Difference	C.I.
First-year users vs. never used	1.88%	[1.16, 2.62]	0.49%	[0.17, 0.80]
First-year users vs. second year of study or later users	1.63%	[0.51, 2.76]	-0.57%	[-1.05, -0.10]
Second year of study or later users vs. never used	0.26%	[-0.66, 1.17]	1.06%	[0.68, 1.45]

A positive number in the “Difference” column indicates that the first group mentioned (i.e., group A in “A vs. B”) is performing better than the second group. “Second year of study or later users” refers to users whose *first* use of Learning Skills Services was in their second year of study or later.

Tables 6 and 7 show us that students who use Learning Skills Services in their first year experience a smaller drop in grades from high school to first-year university than students who never use a learning skills service. In the 2006-2008 sample, users of Learning Skills Services experience a first-year drop of 10.9 per cent, compared to 12.4 per cent for non-users; the difference between these groups is 1.5 per cent. In particular, first-year learning skills participants perform better than second-year or later participants when transitioning into their first year of university; in the 2006 and 2007 cohorts, students who participated in Learning Skills Services only in second year or later experienced a 12.3 per cent drop in grades, which is 1.6 per cent worse than the 10.7 per cent change experienced by first-year learning skills participants. Moreover, the results for second-year or later participants are very similar to those of non-participants. Since it is plausible that similar selection biases exist among first-year and second-year or later users of Learning Skills Services, the superior performance of first-year users provides evidence supporting the hypothesis that use of Learning Skills Services causes an improvement in grades (or at least less deterioration of grades from high school to first-year university).



There are much smaller differences in first-year to second-year changes in grades between groups. In particular, first-year learning skills participants' grades increase by at most 0.5 per cent more than those of non-participants in any cohort. It therefore appears that the majority of the improvements associated with first-year use of Learning Skills Services occur in first year. Although the higher grades persist, first-year learning skills participants do not see a further substantial increase in grades in second year when compared with their peers.<sup>11</sup>

The results of this section provide some evidence in support of the hypothesis that use of Learning Skills Services improves grades. Learning skills participants consistently obtain higher grades than non-participants, even when accounting for the fact that they have higher high school grades to begin with. First-year learning skills participants maintain their gap in grades over non-participants in second year, although this gap does not appear to widen. And while the differences are small, it is important to remember that Learning Skills Services are a limited form of academic intervention, requiring relatively little time from students, and as such, large effects should not be expected.

In addition, by examining differences between first-year learning skills participants and students who participated in second year or later, we have provided a control for unobservable differences between the groups due to self-selection. Since students who used a learning skills service in first year perform 1.6 per cent better than those who first used a service in second year, in terms of high school to first year change in grades, it is not simply the case that pre-existing differences in the group of students who are eventually drawn to using the learning skills services available at Brock are causing the improvements. The data suggests that something related to using a learning skills service leads to improved grades.

We have not yet accounted for some observable differences in learning skills participants, such as gender and program of study. In the following section, we account for these factors using a regression approach.

## Regression Analysis of First- and Second-Year Outcomes

We have already seen that students who make use of Learning Skills Services differ from the general university population in meaningful ways. For instance, they have different academic averages, and their breakdown by program of study differs from that of the student body as a whole. In this section, we use a linear regression approach to control for some of these factors.

### *First-Year Outcomes*

First, we carry out a linear regression with first-year average grades as the dependent variable. The independent variables are high school admission average (HS average), a series of indicator variables corresponding to academic programs of enrolment (fine and performing arts,

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<sup>11</sup> As Table 6 shows, second-year or later participants do perform better than non-participants in their second year of university (i.e., when many of them are first using Learning Skills Services). However, we will not investigate their situation further; they are included only for purposes of investigating selection effects.

business, math and science, and health sciences and physical education, with the effect of humanities or social sciences folded into the constant<sup>12</sup>), an indicator variable for gender (male, which is equal to 1 for males and 0 for females), an indicator for co-op student status and an indicator variable corresponding to whether or not the student used a learning skills service in their first academic year (learning skills).

High school admittance average is included to control for academic ability. This allows us to control somewhat for selection effects, by separately considering the effect of past grades. Similarly, the indicator variables for program of enrolment allow for the possibility that students might have different academic results due to differences in grading standards across faculties. The indicator variable for gender allows us to account for the difference in gender breakdown of the group using Learning Skills Services, which contains proportionally more female students than the university population at large.

The results of our linear regression for the 2006, 2007 and 2008 cohorts are summarized in Table 8. The “Effect on Grades” column shows the estimated effect on first-year grades of a change in each of the parameters, all else being equal. The “Std. Error” column provides the standard error on the estimate of the grade change, while the “Significance” column shows the *p*-value resulting from a statistical test of whether the estimated change is different from zero. Significance values of 0.05 or less denote statistically significant results, which are different from zero with at least 95 per cent confidence. Overall estimates based on pooled results for the 2006 to 2008 cohorts are summarized in Table 9.

**Table 8 - Estimates of a linear regression model of first-year grades in the 2006, 2007 and 2008 fall-admit cohorts**

Parameter	2006 FW Cohort			2007 FW Cohort			2008 FW Cohort		
	Effect on Grades (%)	Std. Error	Sig.	Effect on Grades (%)	Std. Error	Sig.	Effect on Grades (%)	Std. Error	Sig.
Learning skills	1.56	0.56	0.005***	2.48	0.52	0.000***	1.24	0.41	0.002***
Fine arts <sup>a</sup>	0.66	0.86	0.445	1.80	0.88	0.042**	1.81	0.90	0.043**
Business <sup>a</sup>	0.28	0.44	0.519	1.50	0.45	0.001***	1.01	0.44	0.021**
Math and science <sup>a</sup>	-1.24	0.50	0.013**	-0.40	0.45	0.373	0.49	0.48	0.303

<sup>12</sup> While there are students at Brock who pursue programs that do not fit in to any of these categories, none of them were present in our sample of direct-entry fall-admitted students with known high school averages. Also, note that while humanities and social sciences are two separate faculties at Brock University, all bachelor of arts recipients were combined into “humanities or social sciences” for the purposes of this analysis.

Parameter	2006 FW Cohort			2007 FW Cohort			2008 FW Cohort		
	Effect on Grades (%)	Std. Error	Sig.	Effect on Grades (%)	Std. Error	Sig.	Effect on Grades (%)	Std. Error	Sig.
Health <sup>a</sup>	1.22	0.55	0.028**	3.14	0.49	0.000***	1.82	0.45	0.000***
Male	-0.58	0.33	0.079*	-1.40	0.32	0.000***	-0.84	0.30	0.005***
Co-Op	-0.40	0.46	0.386	1.42	0.48	0.003***	1.35	0.48	0.005***
HS Average	1.04	0.03	0.000***	1.03	0.03	0.000***	0.94	0.03	0.000***
Constant	-15.62	2.25	0.000***	-14.70	2.18	0.000***	-8.25	2.06	0.000***

Dependent variable: Y1 average. 2006 cohort:  $R^2 = 0.37$ ,  $n = 2,768$ ; 2007 cohort:  $R^2 = 0.38$ ,  $n = 3,036$ ; 2008 cohort:  $R^2 = 0.35$ ,  $n = 3,248$ .

<sup>a</sup>Note that, while some of the fine arts, business, and math and science indicator variables are not individually significant, the block of program-specific indicator variables was significant for each cohort. The reference case for program of study is humanities or social sciences.

\* $p < 0.1$

\*\* $p < 0.05$

\*\*\* $p < 0.01$

**Table 9 - Estimates of a linear regression model for first-year grades in the pooled 2006, 2007 and 2008 fall-admit cohorts**

Parameter	Change in Grades (%)	Standard Error	Significance
Learning skills	1.73	0.28	0.000***
HS average	1.00	0.02	0.000***
Fine arts <sup>a</sup>	1.45	0.51	0.004***
Business <sup>a</sup>	0.94	0.26	0.000***
Math and science <sup>a</sup>	-0.39	0.27	0.152
Health <sup>a</sup>	2.12	0.28	0.000***
Male	-0.95	0.18	0.000***
Co-Op	0.77	0.27	0.005***
Constant	-12.53	1.24	0.000***

Dependent variable: Y1 average.  $R^2 = 0.36$ ,  $n = 9,052$ .

<sup>a</sup>Note that while the math and science indicator variable is not individually significant, the block of program-specific indicator variables is significant. The reference case for program of study is humanities or social science

\*\*\* $p < 0.01$

Participation in Learning Skills Services was found to have a highly significant impact on first-year grades in all cohorts. The effect ranges from 1.24 per cent in the 2008 cohort (with a

confidence interval of 0.42 per cent to 2.06 per cent, determined by +/- two standard errors, assuming normal distribution) to 2.48 per cent in the 2007 cohort (with a confidence interval of 1.44 per cent to 3.52 per cent, determined by +/- two standard errors, assuming normal distribution). The breakdown by cohort shows that the effect of using the learning skills services available at Brock is similar across years. In all cohorts, the use of learning skills services is associated with a small but positive change in first-year grades. Overall, in the 2006 to 2008 pooled data, learning skills participation is associated with a 1.73 per cent improvement in grades, with a confidence interval of 1.17 per cent to 2.29 per cent (determined by +/- two standard errors, assuming normal distribution).

### *Second-Year Outcomes*

While first-year use of the learning services available at Brock is associated with an improvement in first-year grades, it is plausible that it also has an additional impact on second-year grades. There might be a time lag between the period when a learning skills service is used and the time when its full effect on academic outcomes is realized. A workshop on notetaking, for instance, will not improve a student's already existing notes from the first two months of school, while a workshop taken near the end of second semester cannot possibly have an effect on first-semester grades. By contrast, whatever skills a student acquires in the workshops are available to be applied throughout the entirety of second year; thus, it is a reasonable possibility that the full effect of taking workshops in first year may appear only in second year. As such, we will now analyze the effect of the use of learning skills services on second-year grades.

In analyzing second-year outcomes, we are faced with the choice of whether or not to use first-year grades as a control. There are plausible rationales for both omitting and including first-year grades in our model. On the one hand, since first-year grades are in part explained by the use of learning skills services, they are clearly not "pre-program" controls. On the other hand, first-year grades are a *much* stronger predictor of second-year outcomes than high school grades. We believe that both approaches have value. In essence, a regression model that uses first-year grades as controls will estimate the *additional effect* of first-year learning skills services use on second-year grades, beyond any effect that already appears in increased first-year grades. If the primary effect of the use of learning skills services is to improve second-year grades, but not first-year grades, an effect would still appear in a model controlling for first-year grades. In addition, a model that uses high school grades as a control would estimate the total effect on second-year grades of using learning skills services – including any effect that works through the intermediary of improving first-year academic outcomes. As such, we will estimate two models for second-year grades: one that uses high school grades as a control for academic ability and one that uses first-year university grades.

Our models contain the same explanatory variables as our model for first-year outcomes. These are as follows: indicators for program of study, gender, co-op status, a control for past academic ability and a constant. The two models differ only in whether high school grades (Model A) or first-year grades (Model B) are used to control for academic ability. We estimate these models for the pooled 2006 cohorts and present the results in Table 10. The results for each individual cohort are broadly similar.

**Table 10 - Effect of learning skills participation on second-year grades – Regression results**

	Model A (includes HS grades)			Model B (includes first-year grades)		
	Change in Grades (%)	Std. Err.	Sig.	Change in Grades (%)	Std. Err.	Sig.
Learning skills	1.42	0.26	0.000***	0.15	0.10	0.146
HS average	0.93	0.02	0.000***	N/A	N/A	N/A
First-year average	N/A	N/A	N/A	0.92	0.004	0.000***
Fine arts <sup>a</sup>	1.22	0.49	0.012**	0.39	0.20	0.045**
Business <sup>a</sup>	0.15	0.24	0.542	-0.03	0.10	0.728
Math and science <sup>a</sup>	-0.13	-0.13	0.619	0.65	0.10	0.000***
Health <sup>a</sup>	2.08	0.27	0.000***	0.48	0.11	0.000***
Male	-1.04	0.17	0.000***	-0.49	0.07	0.000***
Co-op	0.54	0.26	0.034**	-0.20	0.10	0.049**
Constant	-5.09	1.18	0.000***	6.33	0.24	0.000***

Model A:  $R^2 = 0.377$ ,  $n = 7,895$ . Model B:  $R^2 = 0.903$ ,  $n = 7,895$ .

<sup>a</sup>In both models, the effect of the group of program indicator variables is statistically significant.

\*\* $p < 0.05$

\*\*\* $p < 0.01$

Model A shows that, when controlling for other observable influences of academic success, first-year users of Learning Skills Services experience somewhat higher second-year grades than other students. The overall effect is of about 1.42 per cent, which is similar to the estimated impact on first-year grades in the previous regression. Model B shows us that if we control separately for first-year average, the impact on second-year grades of use of Brock’s Learning Skills Services is not significantly different from zero. Our conclusion, therefore, is that the use of Learning Skills Services is associated with an increase in grades that occurs primarily in the year when the service is used. While the higher grades persist, there appears to be no delayed effect that leads to an additional “bump” in grades in the next academic year.

### Frequency of Use

Students make use of the offerings of Learning Skills Services to different degrees. As Table 11 shows, nearly half of first-year participants make use of Learning Skills Services once and do not return for the rest of the year. For other students, Learning Skills Services is an ongoing

resource: 15 per cent of students return 7 times or more, with one student setting an impressive record of 40 visits in a single year. In this section, we will examine whether higher levels of participation are associated with improved academic outcomes.

**Table 11 - First-year rates of use of Learning Skills Services among users**

Frequency of First-Year Use	Percentage of Students
1	47.3%
2	16.0%
3	9.0%
4	4.8%
5	3.8%
6	3.8%
7 or more	15.2%

Sample:  $n = 1,016$  first-year learning skills users

We have taken two approaches to analyzing the effect of the intensity of use of Learning Skills Services. First, we estimated a variant of the linear regression model from the previous section, one that included indicator variables for levels of usage of Learning Skills Services. Second, we examined the partial correlation between the frequency of use of Learning Skills Services and first-year grades among learning skills participants, controlling for other covariates.

We classified each student into one of four mutually exclusive groups based on how often they made use of Learning Skills Services. The first and largest group consisted of students who did not use Learning Skills Services during first year. The remaining groups consisted of “single-visit” students (47.3 per cent of users), “occasional users” (who used Brock’s Learning Skills Services two or three times – 25% of users) and “frequent users” (who used Learning Skills Services four or more times – 27.7 per cent of users). We created indicator variables for “single-visit” students, “occasional visitors” and “frequent visitors”; our base case was the non-user.

We employed a linear regression model with first-year grades as the dependent variable. Our explanatory variables were then high school grades, gender, a series of program of study indicator variables (with humanities or social sciences as the base case), co-op status, a constant and the three indicator variables for frequency of use of Learning Skills Services (with the reference case being non-use of Learning Skills Services). Our sample was all fall-admitted, direct-entry students in the 2006, 2007 and 2008 cohorts who had both high school and first-year grades on file. Results for the regression are presented in Table 12, below. Table 13 presents results for Wald tests of equality of the Learning Skills Services usage-level parameter

estimates, (e.g., tests of whether a single visit has the same effect as occasional visits or whether occasional visits have the same overall effect as frequent visits).

**Table 12 - Effect of usage intensity on first-year grades – Regression results**

Parameter	Change in Grades <sup>13</sup>	Standard Error	Significance
Single LSS visit	1.42%	0.37	0.000***
Occasional LSS use	1.76%	0.51	0.001***
Frequent LSS use	2.49%	0.50	0.000***
HS admit average	0.998%	0.016	0.000***
Male	-0.94%	0.18	0.000***
Fine arts	1.45%	0.51	0.004***
Business	0.94%	0.26	0.000***
Math and science	-0.51%	0.28	0.065*
Health	2.11%	0.28	0.000***
Co-op student	0.78%	0.27	0.004***
Constant	-12.48%	1.24	0.000***

$R^2 = 0.392$ ,  $n = 8,957$ . The reference case for the program of study indicator variables is humanities or social sciences. The block of program of study indicator variables was statistically significant.

\* $p < 0.1$

\*\*\* $p < 0.01$

**Table 13 - Wald Test of the equality of the effects of LSS usage intensity levels**

Test	Significance Level
Single LSS visit = Occasional LSS use	0.575
Occasional LSS use = Frequent LSS use	0.293
Single LSS visit = Frequent LSS use	0.076

While higher usage rates of Learning Skills Services are associated with higher grades, the effect is not particularly large. Students who use Learning Skills Services only once obtain

<sup>13</sup> In percentage points (i.e., the unit in which an academic grade out of 100 is measured). (We use % as a shorthand.)

grades that are 1.4 per cent higher than those of non-visitors, while occasional users do only slightly better, with grades that are 1.8 per cent higher than those of non-visitors. Frequent users do the best, with a 2.5 per cent improvement over non-users. However, there are no statistically significant differences between these three usage levels. The significance levels in Table 13 are all greater than 0.05, so we cannot reject with 95 per cent confidence the possibility that the effect of use of Learning Skills Services on grades would be the same among one-time visitors, occasional users and frequent users, all else equal, were we to sample additional cohorts of students. What we can say is that all three groups experience statistically significant grade improvements over non-users of Learning Skills Services. Even the students who show up at Learning Skills Services once and never return do better academically, all else being equal, than students who do not make use of the services.

To test whether higher usage levels were correlated with higher grades within the population of learning skills users, we carried out a partial-correlation analysis. This allowed us to determine the correlation between first-year grades and frequency of use of the learning skills available at Brock, controlling for other factors that may have influenced grade outcomes. We controlled for our usual covariates: high school admittance average, gender, co-op status and program. Since we were interested in whether increased use of Learning Skills Services led to a greater effect on grades, rather than whether Learning Skills Services usage had any effect at all, we restricted our analysis to only the 1,016 students who had used a learning skills service during first year. We have reported the results for the correlation of first-year grades with our three levels of usage, a broader six levels of usage<sup>14</sup> and the raw frequency counts, to show that the estimated correlation value does not differ much based on the way in which workshop usage rates are grouped. Results are given in Table 14.

**Table 14 - Partial correlation between Learning Skills Services usage rates and first-year grades**

Usage Rate Measurement	Correlation with First-Year Average	Significance
3 usage groups	0.062	0.048
6 usage groups	0.047	0.134
Raw frequency of use	0.043	0.170

Sample size:  $n = 1,016$ . Covariates: Gender, co-op status, high school average and academic program indicator variables.

Regardless of how the usage rates are described, the correlation with year 1 grades is very small but positive. When usage rates are broadly defined (i.e., once, sometimes, often), the correlation is just barely statistically significant, at 95 per cent; however, allowing more granularity in usage levels decreases the correlation. The correlation between higher levels of

<sup>14</sup> The six groupings are: one visit, 2–4 visits, 5–7 visits, 8–10 visits, 11–13 visits and 14+ visits.



learning skills participation and higher grade levels is weak at best; repeated usage of Learning Skills Services does not appear to be associated with much higher grades than occasional visits.

### Effectiveness by Service Type

Learning Skills Services offers several categories of services. Up to this point in the analysis, we have made no differentiation based on the type of service that a student used. In this section, we examine whether different services have different impacts on academic outcomes.

There are five principal categories of services offered by Learning Skills Services. The first two are drop-in writing and science sessions, where students can receive help with essays or problem solving from professional Learning Skills staff or Learning Skills student peers. The third category comprises a selection of workshops (interactive presentations that address particular concerns about a variety of general and academic topics); this is the most popular single category of learning skills service. The fourth and fifth categories are used the least. The fourth category consists of professional consultations where students, referred by faculty or staff, attend a scheduled, one-hour, one-on-one session with a professional Learning Skills instructor regarding a specific skills area. The fifth category comprises requests to see a recommended student tutor for one-on-one instruction. As these five kinds of services are quite diverse, there may be differences in academic outcomes by type of service.<sup>15</sup>

To analyze the effectiveness of service type, we identified which services each student used and in which year they first participated in a given service. Following our previous approach, we created indicator variables that were equal to 1 if a student used a given category of service during first year and equal to zero if the student did not use that category of service. If a student used several services, they were counted in each category. The administrative records of Learning Skills Services were used to identify which services students participated in. Our sample contained all fall-admitted, direct entry students with high school and first-year grades on file.

The breakdown of first-year participation in Learning Skills Services by cohort is given in Table 15.

**Table 15 - Number of first-year users of Learning Skills Services by service type**

Cohort	Drop-In Writing	Drop-In Science	Workshops	Consultation	Tutor Request
2006	39	98	113	8	0
2007	69	77	155	13	12
2008	98	181	299	13	39

<sup>15</sup> The range of services offered by Learning Skills Services is discussed in the “Learning Skills at Brock University” section near the beginning of this report.

From this breakdown, we can see that the most popular services were the workshops, followed by the drop-in science and drop-in writing services. In particular, very few students made use of consultations or tutor requests, likely due to these being the only two services that require a referral (consultations) or payment (tutors). Indeed, the sample sizes for consultations and tutor requests were so small that it is highly unlikely that we will be able to make useful inferences about these two services.

To allow for a possible variation in outcomes by type of service, we repeat our previous regression analysis, adding indicator variables for the five services. We consider the effect of the use of the learning skills services available at Brock on first-year averages for the 2006, 2007 and 2008 FW cohorts combined. Our dependent variable is therefore average first-year grades, and our explanatory variables are high school admission average (HS average), a series of indicator variables for program of study (with arts and social sciences as the reference case), an indicator for male students, an indicator for co-op students and a series of indicators representing the five categories of Learning Skills Services. Results are summarized in Table 16, below.

**Table 16 - First-year grades regression model results accounting for service type, 2006, 2007 and 2008 Cohorts**

Parameter	Change in Grades <sup>16</sup>	Standard Error	Significance
Fine Arts	1.46	0.51	0.004***
Business	0.95	0.26	0.000***
Math and science <sup>a</sup>	-0.29	0.29	0.321
Health	2.14	0.28	0.000***
Male	-0.95	0.18	0.000***
Co-op	0.77	0.27	0.005***
Drop-in writing	1.91	0.58	0.001***
Drop-in science	0.98	0.47	0.039**
Workshops	1.62	0.36	0.000***
Consultation	-1.99	1.39	0.153
Tutor	-0.89	1.13	0.434
HS average	0.997	0.016	0.000***
Constant	-12.37	1.24	0.000***

<sup>16</sup> In percentage points

Dependent variable: Y1 average.  $R^2 = 0.36$ ,  $n = 8,957$ . The reference case for program of study is humanities or social science.

<sup>a</sup>Note that, while the math and science indicator variable is not individually significant, the block of program-specific indicator variables is significant.

\*\* $p < 0.05$

\*\*\* $p < 0.01$

Three services have a statistically significant impact on grades. The largest effect is due to the drop-in writing service; this is associated with a 1.9 per cent increase in grades. The second-largest effect is due to the workshops, which are associated with a 1.6 per cent improvement. The drop-in science services are associated with the smallest grade increase (1 per cent), though this is still statistically significant, at 95 per cent confidence. It should be noted, however, that due to the size of the standard error on the estimates, we cannot say with 95 per cent confidence that the drop-in writing service performs better than the workshops or that these perform better than the drop-in science service; we can merely state that these are the three services with effects on grades that are statistically different from zero. Consultations and tutor requests do not lead to any statistically significant changes in grades, in part due to the very low sample sizes among these groups. Thus, the three most popular services, the drop-in writing and science services and the workshops, seem to be associated with improved grades; all three of these services are contributing to the positive results associated with use of Learning Skills Services.

### *Workshops*

A further level of diversity in the Learning Skills Services offerings has been captured in the data. The offerings in the learning skills “workshops” category are not homogeneous, and they cover a variety of possible topics, with about 70 different titles, ranging from “A Crash Course in Essay Writing” to “Avoiding Procrastination” to “Chemical Equations: Finding Balance.” In this section, we delve further into the academic results of students who attend different types of workshops.

Analyzing about 70 different workshop types, each with very small numbers of participants, is impractical. We therefore group the workshops into five broad categories: writing, general university skills and time management, study skills and exam preparation, math and science, and social science. The breakdown of first-year learning skills participants by cohort and type of workshop, for fall-admitted students with valid high school and first-year averages, is shown in Table 17.

**Table 17 - Number of first-year users of Learning Skills Services by workshop type**

Cohort	Writing	University Skills	Study Skills and Exam Prep	Math and Science	Social Science
2006	24	41	67	0	0
2007	44	48	59	32	4
2008	65	49	80	36	11

Results are for first-year, direct-entry, fall-admitted students with valid high school averages.

To analyze the effect of these different workshop types on grades, we repeat our previous regression, replacing the indicator for the “Workshop” category of services with five indicators for the five workshop types. The dependent variable is the first-year average, and all other independent variables are the same as in the previous regression. We consider the combined results from the 2006, 2007 and 2008 cohorts. Results are presented in Table 18.

**Table 18 - First-year grades regression results accounting for workshop type – 2006, 2007 and 2008 Cohorts**

Parameter	Change in Grades <sup>17</sup>	Standard Error	Significance
Fine arts	1.43	0.51	0.005***
Business	0.96	0.26	0.000***
Math and science <sup>a</sup>	-0.26	0.29	0.374
Health	2.15	0.28	0.000***
Male	-0.94	0.18	0.000***
Co-op	0.77	0.27	0.005***
Drop-in writing	1.81	0.58	0.002***
Drop-in science	1.17	0.48	0.015**
Consultation	-1.96	1.40	0.160
Tutor	-0.91	1.13	0.423
Writing workshop	2.26	0.73	0.002***
University skills and time management workshop	0.72	0.76	0.345
Study skills workshop	1.80	0.61	0.003***
Math and science workshop	-0.01	1.01	0.994

<sup>17</sup> in percentage points

Parameter	Change in Grades <sup>17</sup>	Standard Error	Significance
Social science workshop	2.02	2.20	0.358
HS average	0.996	0.016	0.000***
Constant	-12.29	1.24	0.000***

Dependent variable: Y1 average.  $R^2 = 0.36$ ,  $n = 8,957$ . The reference case for program of study is humanities or social science.

<sup>a</sup>Note that, while the math and science indicator variable is not individually significant, the block of program-specific indicator variables is significant.

\*\* $p < 0.05$

\*\*\* $p < 0.01$

Only two of the workshop subcategories offer an improvement in first-year grades that is statistically significant. Writing workshops are associated with a 2.3 per cent improvement in grades, while study skills workshops are associated with a 1.8 per cent improvement; both of these results are significant, at 95 per cent confidence. In particular, the general university skills and time management workshops, despite their relatively large number of users, do not produce an improvement that is statistically different from zero. The math/science and social science workshops do not have a statistically significant impact on first-year grades either; while the point estimate of 2.0 per cent for the social science workshop may look promising initially, the very small number of students taking that workshop – only 15 in first year – leads to a very large standard error on the estimate. It is also worth noting that the results for drop-in writing and drop-in science services are still statistically significant when categorizing service type with this greater level of granularity.

Overall, breaking down the available learning skills services into their components informs us of a few things. First, and unsurprisingly, the use of Learning Skills Services continues to be a significant predictor of grades once we allow different effects for the different service types. Second, and more interestingly, the analysis reveals that the three most popular services appear to be the most effective. The drop-in writing service, the drop-in science service and the workshops are the only services leading to statistically significant increases in first-year grades; the drop-in writing service and the workshops improve grades by about 1.9 per cent and 1.6 per cent respectively, while the drop-in science service has a lower estimated impact – of 1.0 per cent. Delving deeper into the different types of workshops, we find that writing workshops and workshops that teach study and exam prep skills are the most strongly associated with improved grades. With estimated improvements of 2.3 per cent and 1.8 per cent, respectively, they are the only workshops that have statistically significant impacts on student outcomes; these two categories of workshops drive the results for workshops as a whole.

## Retention

In this section, we examine the effect of using Learning Skills Services on student retention. For the purposes of this analysis, we will use the word “retention” in a very specific sense. We will consider a student to be retained through second year if they have both a final first-year grade and a final second-year grade on file in the administrative data. The presence of a second-year grade means that the student returned and completed a second year of study in the 2007-2009 period; the absence of such a grade implies that a student either dropped all of their courses and did not return or did not register for a second year of study in the time period under consideration. Students who have a first-year average on file but no second-year average will be considered to have been “not retained.”<sup>18</sup> As before, we restrict our analysis to direct-entry students admitted in the fall. To keep our sample in line with the rest of this report, we will also require that these students have a high school average on file. Our definitions of “retained” and “not retained” also imply that all students under consideration have a first-year average on file in the administrative records. We will compare the results of two groups of students: those who participated in Learning Skills Services during their first year of study and those who did not.<sup>19</sup>

We will focus on the effect of first-year learning skills participation on second-year retention. We will not analyze the effect of first-year participation on first-year completion because there is a clear potential for a survival bias. Since learning skills services are offered throughout the academic year, a student who has continued to attend Brock throughout a given year of study has more opportunities to make use of the learning skills offerings; first-year completion may then cause first-year learning skills participation, rather than vice versa. No such question of reverse causation arises when analyzing the effect of first-year learning skills participation on second-year retention.

Using the above definitions, retention rates by cohort for students by learning skills status are presented in Table 19.

Table 20 shows the retention rates of participants and non-participants for all cohorts combined.

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<sup>18</sup> While Brock University considers all of the above students still to be Brock students who were “retained,” for the purposes of this study, we will reserve this term to refer only to students who returned to Brock during the time period under consideration.

<sup>19</sup> Note that our group of non-participants includes students who first used Learning Skills Services during second year or later. While it is possible that second-year participation influenced their retention decision, excluding these students seems to be more problematic than including them. As discussed in the following paragraph in the text, students who stay longer at Brock have more chances to use Learning Skills Services. Excluding these students from our analysis may result in artificially lower retention rates for the group of non-first-year participants, because our criteria for exclusion would be associated with retention in a manner unrelated to the effect of the workshops themselves (e.g., a third-year learning skills participant is necessarily a student who has been retained through second year; information on their future learning skills participation provides information on their continued presence at Brock). We prefer to include these students as “non-participants” and obtain a conservative estimate of the difference in retention rates between first-year learning skills participants and other students.

**Table 19 - Second-year retention rates by first-year learning skills participation – by cohort**

Learning Skills Status in First Year	Second-Year Retention Rates					
	2006 Cohort		2007 Cohort		2008 Cohort	
	Rate	C.I.	Rate	C.I.	Rate	C.I.
Participant	89.5%	[84.9%, 92.8%]	93.5%	[90.0%,95.9%]	93.2%	[90.6%, 95.1%]
Non-participant	88.0%	[86.5%, 89.0%]	87.4%	[86.1%, 88.6%]	87.5%	[86.2%, 88.7%]

2006 cohort: n = 2,768; 2007 cohort: n = 3036; 2008 cohort: n = 3,248

**Table 20 - Second-year retention rates by first-year learning skills participation status – All cohorts combined**

Learning Skills Status in First Year	Retention Rate	Confidence Interval
Participant	92.4%	[90.6%, 93.9%]
Non-participant	87.6%	[86.8%, 88.3%]

Sample size: n = 9,052

The results show us that first-year learning skills participants experience higher rates of retention. With the exception of the 2006 cohort, where both participants and non-participants experience similar retention rates, the difference is of about 5 to 6 percentage points, and it is statistically significant, at 95 per cent confidence. Overall, in the pooled 2006-2008 sample, learning skills participants experience retention rates that are 5 per cent higher than those of their peers; the difference between groups is statistically significant, at 95 per cent confidence. To account for observable differences between participants and non-participants, we use logistic regression. We estimate two similar models. Both models contain the following explanatory variables: first-year learning skills participation status, gender, co-op status, a series of indicator variables corresponding to program of enrolment (with humanities or social science as the reference case) and control variables for academic ability. The models differ only in whether high school admittance averages or first-year final grades are used to control for academic ability. We refer to the model that uses high school grades as the “HS control model” and the model that uses first year grades as the “Y1 control model.” Each model has different strengths. The HS control model uses controls that are clearly pre-program outcomes (high school grades) but that are weaker predictors of second-year retention than first-year grades. The Y1 model uses stronger controls (first-year grades), but we expect from our previous regression analysis that the first-year grades may be partially determined by learning skills participation (i.e., they are not fully exogenous). In essence, our Y1 model estimates the effect of use of Learning Skills Services on retention *controlling for* any effect it may have on grades, while our high school model makes no such distinction.

In both models, rather than using raw grades, we group students into grade categories according to their performance relative to their peers. We divide students into four categories according to whether they are in the top, second, third or bottom quartile of the grade distribution, and we enter three of these categories as indicator variables in the model. Our base case is an average in the bottom quartile. We use grade quartiles, rather than raw grades, to allow for differing effects on retention across different ranges of grades.<sup>20</sup>

Table 21 presents our results for both models, for the combined data of the 2006-2008 cohorts. For each model, we report the logistic coefficient estimate (the “Estimate” column) and the contribution to the odds-ratio of a unit change in the independent variable. Since all of our variables are indicator variables, the odds-ratio simply gives us the change in odds, all else equal, of membership in the group described by the variable. For instance, for the “Male” variable in our HS control model, the odds-ratio is 0.98, which tells us that, all else equal, a male student is 0.98 times as likely as a female student to complete his second year of study.

**Table 21 - Logistic regression model of student retention – Estimation results**

Variable	HS Control Model		Y1 Control Model	
	Estimate	Odds-ratio	Estimate	Odds-ratio
First-year learning skills	0.45 **	1.57	0.33 *	1.39
Male	-0.02	0.98	0.09	1.09
Co-op	-0.16	0.85	-0.25 *	0.78
Fine arts	-0.21	0.81	-0.41 *	0.66
Business	0.56 **	1.74	0.49 **	1.63
Science	0.36 **	1.43	0.44 **	1.55
Health	0.44 **	1.54	0.20	1.23
HS grade top quartile	1.17 **	3.22	N/A	N/A
HS grade quartile 2	0.62 **	1.86	N/A	N/A
HS grade quartile 3	0.29 **	1.33	N/A	N/A
Y1 grade top quartile	N/A	N/A	2.07 **	7.92

<sup>20</sup> It seems plausible to us that students with generally low grades might experience poor retention, but that, after a certain grade level is reached, higher grades may not lead to higher chances of retention. As such, it seems reasonable not to require the same grades regression coefficient for all students. Our approach allows, for instance, for a student with an average in the second quartile to have the same estimated probability of retention as a student in the first quartile. Using raw grades would necessitate that each additional grade point attained have the same contribution to the input of the logistic function; a student with a 95 average would necessarily have a higher estimated probability of retention (assuming a positive relationship) than a student with a 94, 84 or any other value less than 95, all else equal.



Variable	HS Control Model		Y1 Control Model	
	Estimate	Odds-ratio	Estimate	Odds-ratio
Y1 grade quartile 2	N/A	N/A	1.73 **	5.65
Y1 grade quartile 3	N/A	N/A	1.36 **	3.89
Constant	1.36 **	3.89	0.77 **	2.15

\*\* Statistically significant at 99 per cent; \* at 95 per cent. HS control model: H-L Goodness-of-fit test  $p = 0.713$ . Cox and Snell  $R^2 = 0.028$ . Nagelkerke  $R^2 = 0.053$ . Y1 control model: H-L Goodness-of-fit test  $p = 0.36$ . Cox and Snell  $R^2 = 0.078$ . Nagelkerke  $R^2 = .150$ . Base case for program of study is humanities or social science; base case for grades is the bottom quartile

In both models, the effect of first-year learning skills participation on retention is positive and statistically significant. In the HS control model, students who participated in learning skills in first year are 1.6 times more likely to be retained than students who did not, all else equal. In the Y1 control model, these students are 1.4 times more likely to be retained than non-participants. Thus, regardless of the controls we use, we find that learning skills participation is a statistically significant predictor of retention. While the effect of learning skills participation diminishes when controlling for first-year grades, it is still different from zero, with 95 per cent confidence.<sup>21</sup>

### Key Findings from the Summative Analysis

**The series of analyses performed on the administrative data point towards a common conclusion: learning skills use has a small but positive impact on academic outcomes. This effect is statistically significant, is present in each of the analyses performed and persists when controlling for other factors that may influence academic outcomes.**

The students who use Learning Skills Services consistently receive first-year grades that are two to four percentage points higher than those of their peers. These students, however, come from a background of greater high school academic achievement, with high school averages that are approximately 1.5 per cent greater than those of their classmates. However, when considering changes in grades from high school to first year, learning skills participants see their grades drop by 1 to 2 percentage points less than the drop experienced by their peers. In particular, students who use learning skills in second year or later, who may share some of the same selection biases as first-year users, perform no better than non-participants and indeed

<sup>21</sup> It should be noted, however, that neither of these models offers particularly impressive fits to the data. While the Hosmer-Lemeshow goodness-of-fit test does not indicate that either model fails to adequately fit the data, both the Cox and Snell  $R^2$  index and the Nagelkerke  $R^2$  index indicate that the independent variables in the models do not explain the behaviour of the dependent variable particularly well. Indeed, testing the predictive power of these models on the sample used to estimate them, we find that the models predict that all students will be retained, as even the most at-risk groups identified by the models are still more likely to complete second year than to leave. Nevertheless, these models represent our best attempt to control for all available, observable factors that might influence retention. The results from their estimation are certainly consistent with the hypothesis that first-year use of Learning Skills Services has a positive impact on retention.

worse than first-year participants. Regression results controlling for high school average further suggest that use of Learning Skills Services is associated with an increase in first-year grades of about 1.7 per cent. There is therefore evidence supporting the hypothesis that use of Learning Skills Services provides a small, but statistically significant, increase in grades.

Looking at specific services, the drop-in writing services, drop-in science services and learning skills workshops are each effective at improving grades. The effect is a 1.9 per cent increase in first-year grades for the writing services, a 1.6 per cent increase for the workshops and a 1.0 per cent increase for the drop-in science services; each of these effects is statistically significant, at 95 per cent confidence. The workshops that teach writing skills and those that teach study and exam prep skills are the only subcategories of workshops that have a statistically significant effect on grades. Both of these improve grades by about 2 per cent.

Use of Learning Skills Services also has an impact on student retention. First-year learning skills participants experience second-year completion rates that are 5 per cent higher than those of their peers; this difference is statistically significant, at 95 per cent confidence. Estimates of a logistic model of retention found use of Learning Skills Services to be a statistically significant predictor of retention, with the odds of retention for learning skills users about 1.4 times greater than those of non-users.

Taken together, these results consistently show that learning skills use is associated with a small but statistically significant improvement in academic outcomes.

## Conclusions

Overall, the learning skills workshops and one-on-one/drop-in services offered by the Learning Skills Services in Matheson Library at Brock University have a positive impact on student academic outcomes. In addition, users of these services are satisfied with the program delivery and perceive these services to have a positive effect on their skills development. The small but positive impact of use of Learning Skills Services is impressive, given the limited nature of this intervention.

### Formative Analysis

The formative analysis indicates that students who use the learning skills workshops and one-on-one/drop-in sessions are satisfied with the delivery of the workshops, and they perceive an academic benefit from the service. The formative analysis also sheds light on aspects of program communication that can help increase knowledge of the service. Finally, the formative data provide a clearer picture of the types of students who use the learning skills workshops and one-on-one/drop-in services, and identifies the personal qualities they value for university success.

### **Students who use Learning Skills Services are self-motivated, aware and academically strong.**

The administrative data show that students who used Learning Skills Services had higher academic averages than students who did not participate. The obvious question that needs to

be asked is this: Are the students who took the learning skills workshops the keeners or motivated students who want to succeed at university? The focus group data lend some insight into that question.

In the focus groups, students who took the learning skills workshops did not feel prepared for the workload when they were coming into university. Yet, on the whole, students who used Learning Skills Services had higher high school grades than students who did not use the services. The focus group data also indicate that the students who used Learning Skills Services identified motivation and self-awareness as personal strengths. The participant groups identified personal characteristics as skills that helped them succeed at university, whereas the non-participants talked about specific academic skills that helped them succeed. The self-awareness and motivation of the participants played a key role in these students' decisions to seek out, either proactively or retroactively, assistance to transition from high school to university.

As one focus group participant who did not take the learning skills workshop indicated, students who want help are going to find it. There is a correlation between using the learning skills services and increased retention and academic success. This correlation can be explained by looking at the type of student who uses Learning Skills Services. The workshop content might be a component of their increased academic success, but motivation, self-awareness and willingness to seek help is driving them to be successful. The attitude of the student has a lot to do with their academic success; however, the workshops are clearly providing them with skills that are helping them experience academic success.

**Students are aware that the workshops and other services exist, but they lack specific knowledge about the usefulness and scheduling of these services.**

The data from the survey indicate that a majority of students know about the learning skills workshops and one-on-one/drop-in services, but many lack specific knowledge about the content and utility of the workshops. Approximately 80 per cent and 63 per cent of survey respondents had heard about the learning skills workshops and one-on-one/drop-in services, respectively. However, when the workshop non-participants were asked why they did not take a workshop, 17 per cent said that they were not aware of the workshops, 14 per cent did not know enough about them and 19 per cent did not think they would be useful. This point was reiterated in the focus groups. Several of the students identified that they would go to professors and TAs for help but not to Learning Skills Services. (Perhaps they were not aware of the content and utility of the workshops.) Another student stated that he might attend the workshops if the content was more relevant to the courses he was taking. Connecting the relevance of the workshops to academic success could educate more students about the benefits of the service.

According to survey respondents, the primary reason for not participating in the learning skill workshops and drop-in services was that their schedules were too full to accommodate the service. However, since there is no specific time commitment for the drop-in services, and most of the workshops are one to two hours long, students may consider the workshops to be a more burdensome time commitment than they really are. In the focus groups, students stated that they would prefer to spend time on homework and social outings rather than attend the

workshops and drop-ins. Finally, one student in the focus group indicated that the scheduling of the workshops was a barrier for her to participate. This student wanted to take a multiple-choice exam writing workshop in November right before December exams, but she thought the multiple choice exam workshops were offered only in September. However, the workshop on multiple choice exams was actually offered around exam time. Again, education about the workshops could have informed this student about workshop scheduling – and communication about scheduling in general could educate students and promote participation.

It is important to note that respondents to the survey were generally satisfied with the scheduling of the workshops, and students who were required to take the workshops were more satisfied with their overall quality and scheduling than students who voluntarily took them. Increasing the number of courses that require the workshops as part of the curriculum could increase knowledge about the workshops on campus. Moreover, this could increase peer communication about the service and highlight the perceived utility of the workshops.

While better communication concerning the scheduling and utility of the workshops could increase attendance, motivation will continue to be the primary driver of students to the workshops. If students are aware that the workshops and drop-in services exist and they are not seeking out more information about them or attending the services, it is possible that they are content with their current situation. This phenomenon was identified in the focus groups; some students stated that they were quite content with their current academic study processes. Motivation is the key factor in participation; students who are not motivated to improve their skills are not going to seek out assistance regardless of the communication and knowledge they receive about the services available to them.

### **Students who use Learning Skills Services are satisfied with the service and identified positive learning outcomes.**

The survey asked respondents who participated in the various learning skills workshops to rate their satisfaction with the overall quality of the workshop, the instruction, the teaching materials, the level of interaction with the instructors and the scheduling of the workshops. Overall, students rated their satisfaction with each area for each workshop quite high. Furthermore, the focus group participants were also satisfied with their overall experience with the workshops and referenced the course materials as a very useful outcome. Students who were required to take the workshops were generally more satisfied with the experience than students who voluntarily took the workshops. Increasing the number of courses that require the workshops as part of the curriculum could increase overall satisfaction with the service.

There was a small discrepancy between the survey data and the focus group data. In the focus groups, some students noted that they were not satisfied with the instructors of their workshops. These individuals noted that some of the instructors seemed disengaged and uninterested in the course material and that this did not enhance their experience with the workshop. On the other hand, the data from the survey indicate that respondents who took the workshops were satisfied with the course instruction and the level of interaction with the instructors. In all but one workshop (math), the mean instruction score on a five-point Likert scale was 4.0 or higher. Perhaps the unengaged instructors that the focus group participants experienced were isolated

instances. Regardless, it is evident that instruction plays an important role in students' impressions and satisfaction with the learning skills workshops.

Finally, participants in the workshops and drop-in services identified a positive learning outcome. Both formative data sources identified a modest improvement in many academic skills, including a notable perceived increase in their written communication. The summative analysis supports the participants' perceived improvement in overall academic skills.

## Summative Analysis

The summative analysis consistently provides evidence of a small, yet statistically significant, improvement in academic outcomes associated with the use of Learning Skills Services. Although the effect is small, it is nevertheless impressive for such a limited intervention. This impact is present across all the models that were estimated, and it remains when controlling for other determinants of academic success.

### **The use of Learning Skills Services has a small, but non-trivial, statistically significant impact on academic outcomes.**

Users of Learning Skills Services consistently outperform their classmates. Year by year, they obtain higher first-year and second-year averages; their first-year grades are on average 3.0 per cent higher than those of their classmates, while their second-year grades are on average 2.7 per cent higher. These differences are statistically significant, at 95 per cent confidence. Learning skills users, however, also come from a background of greater high school academic achievement, which may explain some of these differences. On average, students who use learning skills services have high school averages that are 1.5 per cent higher than those of their peers; this difference is significant, at 95 per cent confidence. There is thus a difference in academic attainment that pre-dates use of learning skills, although it is not as pronounced as the differences in university grades. To control for this pre-existing difference, we first looked at yearly changes in grades, including students who first used learning skills in second year or later as a control group – and then employed a regression approach.

Students who used a learning skills service in first year saw a smaller decline in their grades when transitioning from high school to university than students who did not use a learning skills service. Their first-year drop in grades was 1.5 per cent less severe, a difference that is statistically significant. Importantly, when considering high school to first-year change in grades in the 2006 and 2007 cohorts, students who first used learning skills in second year or later saw their grades drop by 1.6 per cent more than did first-year users, a statistically significant difference. There was no difference between second-year users and students who never used learning skills. Since students who first used learning skills in second-year may share some of the same unobservable selection biases with first-year users, the difference in results between these groups provides evidence suggesting that learning skills use may be the cause of the grade difference.

Regression analysis (controlling for the effects of past grades, program of study, co-op status and gender) suggests that use of a learning skills service is associated with a small but

statistically significant improvement in grades. First-year learning skills participants experience a 1.7 per cent increase in first-year grades compared to other students, and this increase is statistically significant, at 95 per cent confidence. While improved grades persist, no additional increase is found in second-year grades.

Examining the different types of services shows that the three most-used learning skills services – drop-in writing, drop-in science and the learning skills workshops – are each associated with a statistically significant increase in first-year grades. Looking in more detail at the workshops, those teaching writing skills and exam prep skills are the only subcategories of workshops that have a statistically significant effect on grades. Writing workshops, the drop-in writing service and exam prep workshops each improve grades by roughly 2 per cent, while the drop-in science service is associated with a 1 per cent improvement.

Learning skills participants also experience higher retention rates. Second-year retention rates were 5 per cent higher among first-year users of learning skills than retention rates of their peers; this difference is statistically significant, at 95 per cent confidence. First-year use of learning skills services was found to be a significant predictor of second-year retention in a logistic model of student retention, with the odds of completing second year being 1.4 times higher among learning skills users.

In all, the evidence suggests that learning skills has a positive effect on academic outcomes. While selection bias exists, the relationship between learning skills participation and improved outcomes remains after controlling for all relevant observables. And although the effects of learning skills are small, it is important to remember that the assistance provided by Learning Skills Services is an unobtrusive initiative that students are broadly satisfied with, for which participation is mostly voluntary and does not require very much time. Therefore, even small effects are impressive for what is ultimately a relatively limited academic intervention. Based on the conclusions drawn from this evaluation, recommendations regarding content development, promotion of services and delivery of services will further heighten the impact of Learning Skills Services.

## Recommendations

### Development

The current data suggest that learning skills workshops are particularly beneficial to first- and second-year students. However, this may be due to the generalized nature of the workshops currently being offered. In the future, additional workshops will be designed to accommodate the needs of upper-level students as well, by modifying the content to reflect discipline-specific expectations. In order to generate *discipline specific* workshops Learning Skills Services staff has been expanded to include specialists in history, biology, literature and computer science. Assessment of the benefit of workshops to third- and fourth-year students presents obstacles. For example, if a fourth-year student participates in a workshop for the first time, it will not be possible to assess the benefit of the workshop using the current model of correlating grades and use of learning skills workshops over the period of a year or two years. However, Learning Skills Services recognizes that upper-level students need academic support.



## Promotion

According to the survey, 80 per cent of students are aware of the workshops and other services offered by Learning Skills Services. However, despite a general awareness of the services, some students were unclear about both the scheduling and the utility of the workshops and other services.

In order to improve communication of services, a number of additional promotional measures will be implemented. For example, social networking sites like Facebook and MySpace will be used to promote services. Video web teasers are also in development, each of which will provide a small amount of instructional material followed by information about how students can register for the full workshop. The videos will be available through the university website so that student access can be tracked, and the website will include the date and time of the upcoming workshop.

Learning Skills Services also plans to increase promotion of services to faculty members, as the current data suggest that students are most satisfied with the instruction and scheduling of the workshop instruction and scheduling when it takes place during class time.

## Delivery

The primary reason cited by students for non-participation in workshops and other services was time constraints. In order to address this issue, Essay-Zone – the interactive online writing workshop currently offered on a class-by-class basis – will be made available to the entire student population. Online workshops allow students to access learning support at any time of day and for any length of time. Numeracy-Zone, an interactive online workshop for math, is also in development. Other online workshops are being considered as well. Participation in the online learning workshops will be tracked through online registration.

## APPENDIX A – Description of Learning Skills Workshops

### ***University Readiness (five 2-hr sessions)***

This series offers a thorough look at a variety of study skills for students including time management, getting the most out of lectures, skills and strategies for seminars, essay writing, and preparing for exams. Work in a friendly, small-group environment to learn how to succeed at university.

*Time Management*  
*Getting the Most out of Lectures*  
*Skills and Strategies for Seminars*  
*Overview of Essay Writing*  
*Preparing for Exams*

### ***University Writing—Total Experience (three 2-hr sessions)***

This three-part series offers a comprehensive look at the whole process of essay writing including a discussion on narrowing a topic, forming a thesis, outlining a paper, forming a first draft, writing good paragraphs, proofreading, and using correct format, style, citation, and grammar. In addition, through in-class writing activities, the instructor helps each individual identify his or her own strengths and weaknesses, and provides custom-tailored guidelines for improving writing. The workshop will include practical, hands-on work with online resources to develop your research skills.

### ***Fall/Spring Study Skills Review (five workshops condensed into one 4-hr session with two short breaks)***

This workshop offers a survey of the study skills required to succeed at university. Topics include time management, getting the most out of lectures, skills and strategies for seminars, overview of essay writing, and preparing for exams. This condensed workshop will benefit students by reviewing the key areas in study skills.

*FALL SESSION (for mature and first-year students)*  
*SPRING SESSION (for students taking spring and summer courses)*

### **Boost Your Grades**

#### ***Time Management (1 hr)***

Learn useful skills for structuring your time and addressing common time management issues such as having a job, studying, and maintaining motivation.

#### ***Avoiding Procrastination (1 hr)***

Putting things off again? Don't wait another second. Take this workshop and learn how to battle this particular student time-management pitfall.

#### ***Getting the Most out of Lectures (1 hr)***

Learn techniques for preparing for lectures as well as effective strategies for taking notes, listening for key points, and summarizing main ideas.



***What is Your Learning Style? (1 hr)***

Learning style refers to the manner in which our brains learn and store information. Do you know what your particular learning style is? We can become better learners by understanding our own learning styles and how we learn best. This workshop introduces you to some characteristics of each type of learner as well as some tips for how you can learn best.

***Skills and Strategies for Seminars (1 hr)***

Learn how to make the most of your seminars through better preparation skills, active listening strategies, and better note-taking. Also, discover how participation enhances your seminar experience. Come and practice your skills in a mock seminar!

***Improving Your Memory (1 hr)***

Stop forgetting! This workshop takes you through various strategies for improving short- and long-term memory, retaining what you study, and remembering for tests and exams.

***Critical Thinking Skills (2 hr)***

Explore how critical thinking can improve the quality of your research, assignments, and decision making. Get tips on questioning as well as analyzing and evaluating evidence, logic, and arguments.

***Studying Effectively (1 hr)***

Studying is a skill that requires practice. This workshop will provide you with a variety of techniques for studying effectively, and help you discern which strategies work best for you.

***Blueprint for Success (2 hr)***

Can you improve results? Assignments, tests, and exams do not always indicate your potential. This workshop includes tips on how to write stronger exams, how to take better notes, and how to get more out of studying.

***Making a Speech/Presentation (1.5 hr)***

Learn how to communicate your ideas to a group effectively. This workshop emphasizes high-quality presentation skills and proven strategies for success in giving a speech.

***Making a Speech/Presentation Using PowerPoint (1.5 hr)***

Learn how to communicate your ideas to a group effectively. This workshop emphasizes high-quality presentation skills while using PowerPoint.

***Creating a Poster Session (1.5 hr)***

This workshop deals with the process of creating a poster session from conceptualization to completion using Microsoft Publisher. Learn how to use this form of communication effectively.

***Forming a Study Group (1 hr)***

Have you ever wondered if you would benefit from joining a study group? In this workshop, you will learn how to organize and run a study group, and things to watch out for.

## **Math**

### ***Succeed in Mathematics (2 hr)***

All students that are required to take a university level math course could benefit from this workshop.

### ***Algebra Basics (2 hr)***

This workshop reviews key basics of algebra and highlights common errors noted by TA's.

### ***Exponents and Fractions (2 hr)***

This workshop includes a review of all operations with fractions and exponents.

### ***Solving Mathematical Equations (2 hr)***

Students will benefit from various strategies to improve their problem solving skills.

## **Science**

### ***Succeed in the Sciences (2 hr)***

Improve your success in the sciences through time management, reading strategies, problem solving, effective study skills, and getting the most out of your labs.

### ***Problem Solving in Chemistry (2 hr)***

This workshop gives you strategies for how to approach hard-to-solve problems and tackle difficult concepts.

### ***Chemistry Strategies (2 hr)***

A group of four or more students can order a workshop on any of the topics listed below, or on another topic of your choice.

Dimensional Analysis

Redox Reactions

Organic Reactions

Balancing Equations

Chemical Nomenclature

Acid-Base Equilibria

Gas Laws

Kinetics

Titration

### ***Overview of Writing for Science Undergraduates (2 hr)***

This workshop covers the seven steps of effective writing and ways to achieve clarity, precision, and organization in common assignments such as lab reports and essays.

### ***Crash Course in Writing Your Science Thesis (3 hr)***

Writing a science thesis can be a daunting task. In this workshop, you'll learn how to break down the process into manageable elements and use appropriate science writing techniques.

### ***Science Writing Workshop Series for Graduate Students (five 2-hr sessions)***

This series of workshops starts by examining what is considered scientific writing and how scientific writing differs depending on the audience. You will learn how to write concisely, edit

your writing, and avoid common grammatical errors in scientific writing. Sessions also focus on writing abstracts, literature reviews, research papers, and preparing presentations.

***Grammar for Science Students (1 hr)***

This workshop will go over the common errors made by science students when writing, and give you tips on how to improve your grammar.

***CBE Style for Biology (1.5 hr)***

Documenting sources in biology requires knowledge of CBE style (Council of Biology Editors). Come to this workshop to become comfortable with how to use this style.

***Making Your Senior Science Presentation (2 hr)***

This workshop will help you prepare and present your senior science project with confidence.

***Preparing for Science Exams (2 hr)***

Learn strategies for taking and organizing science notes, studying science material, solving problems, and answering various types of science exam questions.

**Essay Writing**

***Crash Course in Essay Writing (3 hr)***

This workshop offers a thorough survey of the essay writing process, including narrowing a topic, forming a thesis statement, outlining the essay, composing paragraphs, writing a rough draft, using proper format, and proofreading and editing.

***Overview of Essay Writing (2 hr)***

This workshop offers a brief, yet thorough, survey of the essay writing process, including narrowing a topic, forming a thesis statement, outlining the essay, composing paragraphs, writing a rough draft, proper formatting, and proofreading and editing.

***Persuasive Essays (1.5 hr)***

Learn techniques for effective persuasive writing. This workshop offers a brief, yet thorough, survey of the essay writing process with emphasis on developing a focused arguable thesis and effective outline for the essay.

***Crash Course in Paragraphs, Introductions, and Conclusions (1 hr)***

Polish your paragraph writing skills and learn to write effective introductions and conclusions.

***Paragraph Writing (1 hr)***

Learn how to create logically ordered, well thought-out, stylish paragraphs that communicate your main ideas.

***Thesis Statements (1 hr)***

Do you struggle with thesis statements? This workshop shows you how to structure thesis statements for maximum impact and effectiveness.

***Introductions and Conclusions (1 hr)***

This workshop guides you through the process of composing dynamic and effective introductions and conclusions for your essays.

***Pre-Writing and Mind Mapping (1 hr)***

Learn how to start on a writing assignment. This workshop helps you learn to generate ideas and begin the writing process.

***Quoting and Paraphrasing (1 hr)***

Learn strategies to integrate quotations and paraphrases effectively into your essay.

***Proofreading, Editing, and Revising (1 hr)***

Learn practical skills for editing and proofreading that will help you identify common structural problems, such as clarity and flow, as well as sentence and grammar problems. Don't let structure, grammar, and formatting tarnish your great ideas!

**Specialized Writing*****Book Report, Critique, or Review (1 hr)***

- A book report or review is a description, analysis, and evaluation of a book, film, concert, play, etc.
- A critique is a summary of a work of knowledge or opinion, and an in-depth critical reaction to the work.

This workshop shows how to read and evaluate material from a critical viewpoint. Learn what to include and what not to include, questions to ask when analyzing, and how to identify strengths and weaknesses.

***Literature Review (1.5 hr)***

A review of the literature is a survey, paper, or research essay that makes sense of an issue through analysis and comparison of the writings of others. This workshop shows how to a) read and evaluate material from a critical viewpoint, and b) how to organize and write the review of the literature.

***Writing for Business (1 hr)***

This workshop discusses etiquette, effectiveness, and efficiency in business writing; and covers the formats of various types of written business communications.

***Business Report (1 hr)***

This workshop discusses the elements of a business report, its objectives, and how to create logical flow.

***Business Communication (1 hr)***

Learn how to use effective speaking skills and appropriate non-verbal communication in a business setting.

***Précis (1 hr)***

This workshop covers the steps involved in writing a précis, its role, and specialized uses.

***Abstract (1 hr)***

This workshop discusses the purpose of an abstract, the various types of abstracts, and how to write a good abstract.

***Annotated Bibliography (1 hr)***

Learn about the various types of annotated bibliographies, what to include, and what not to include.

***Crash Course in Writing Your Science Thesis (3 hr)***

Writing a science thesis can be a daunting task. In this workshop, you'll learn how to break down the process into manageable elements and use appropriate science writing techniques.

**Grammar*****Fixing Faulty Grammar (1 hr)***

This workshop gives clear explanations of common grammatical terms and concepts. It includes analysis of parts of speech, pronoun use, subject-verb agreement, and sentence structure.

***Punctuating Correctly (1 hr)***

This workshop will teach you how to 1) correctly use punctuation marks (commas, semicolons, and colons, dashes) to produce clear sentences without comma splices or run-ons, and 2) use apostrophes properly.

***Developing Good Writing Style (2 hr)***

Jazz up your writing style. Learn techniques for effective sentence structure, word usage, transitions, etc.

***Grammar for Science Students (1 hr)***

This workshop will go over the common errors made by science students when writing, and give you tips on how to improve your grammar.

**Documentation*****Academic Integrity—Avoiding Plagiarism (1 hr)***

Worried about plagiarism? This workshop offers insight into the concept of plagiarism and provides tips on how to avoid it. Plagiarism is a serious academic issue. We recommend taking this workshop in conjunction with an MLA, APA, or Chicago Style workshop.

***Chicago Style for Humanities (1.5 hr)***

Learn how to document sources and format papers using Chicago style for humanities courses (footnotes/endnotes with bibliography).

***Chicago Style for Sciences and Social Sciences (1.5 hr)***

Learn how to document sources and format papers using Chicago style for science and social science courses (parenthetical citation with reference list).

***APA Style (1.5 hr)***

Learn how to document sources and format papers using APA style.

***MLA Style (1.5 hr)***

Learn how to document sources and format papers using MLA style.

***ASA Style (1.5 hr)***

Learn how to document sources and format papers using ASA style.

**Reading**

***Reading Critically in the Humanities (2 hr)***

Learn tips for difficult reading, ways to improve your reading habits, and strategies for remembering, especially with regard to reading humanities texts.

***Reading Critically in the Sciences (2 hr)***

Learn tips for difficult reading, ways to improve your reading habits, and strategies for remembering, especially with regard to reading science texts.

***Reading Critically in the Social Sciences (2 hr)***

Learn tips for difficult reading, ways to improve your reading habits, and strategies for remembering, especially with regard to reading social science texts.

**Exams**

***Exam Preparation (1.5 hr)***

Come to this workshop to learn tips on how to study and how to use techniques that aid comprehension and recall. Don't let your exams catch you off guard. Learn how to prepare for exams now.

***Handling Exam Anxiety (1.5 hr)***

This workshop provides a holistic and guided approach to stress management. You will learn strategies that enhance success and reduce the anxiety that often accompanies exam writing.

***Last-Minute Exam Prep (1.5 hr)***

It's not too late! In one simple session, learn helpful and practical tips on how to study when time is running out. Sign up now, or you will miss this opportunity.

***Writing Multiple Choice Exams (1 hr)***

From improving your memory to critical thinking skills, this workshop provides proven strategies that will help you succeed on multiple choice exams.

***Exam Overview – Multiple Choice, Short Answer, and Essay Exams (1.5 hr)***

In this workshop you will learn strategies to maximize your potential when preparing for specific exam formats. Learn what you can do before, during, and after writing multiple choice, short answer, and essay style exams to increase your academic success.

**Tutoring**

***How to Tutor (2 hr)***

This workshop will discuss how to set up a professional relationship between tutor and tutee, how to recognize different learning styles, how to tutor effectively, and how to deal with difficult situations.

## APPENDIX B

### 2009 Survey Instrument

Thank you for participating in this short questionnaire.

1. In which academic year did you first enroll 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?
  - a. Younger than 18
  - b. 18
  - c. 19
  - d. 20
  - e. 21
  - f. 22
  - g. 23
  - h. Older than 23



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

- c. More than 30 minutes and less than 1 hour per week
  - d. More than 1 hour and less than 3 hours per week
  - e. More than 3 hours per week
  - f. 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?
- a. Very Interested
  - b. Somewhat Interested
  - c. Not Interested
  - d. 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.)
- a. Course instructor
  - b. Teaching assistant
  - c. Tutor
  - d. Friend or peer
  - e. Parent, sibling, or partner
  - f. Other
  - g. 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?
- a. Yes
  - b. No
29. Have you previously heard about the Learning Skills one-on-one tutoring sessions?
- a. Yes
  - b. No
30. If you have heard about the Learning Skills workshops or one-on-one sessions, how did you hear about them?
- a. Smart Start
  - b. Campus Posters or Advertising
  - c. Academic/Faculty Advisor
  - d. University Website
  - e. Course Instructor/Professor
  - f. Students/Friends
  - g. Student Services
  - h. Other
  - i. 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?
- Yes
  - No
37. If yes, which ones?
- Volunteers Plus
  - International Plus
  - Info Skills
  - Med Plus
  - Experience Works
  - Leadership Development
  - 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 its 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*

Page – 3

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

Page – 4

**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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q32 Improve my exam writing skills</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q33 Improve my connection with the Brock community</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q34 Increase my confidence</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q35 Increase my academic success</b>		
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 - 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]	
	<i>Required answers: 0      Allowed answers: 1</i>

<b>Q45 Improve my exam writing skills</b>	
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]	
	<i>Required answers: 0      Allowed answers: 1</i>

<b>Q46 Improve my connection with the Brock community</b>	
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]	
	<i>Required answers: 0      Allowed answers: 1</i>

<b>Q47 Increase my confidence</b>	
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]	
	<i>Required answers: 0      Allowed answers: 1</i>

<b>Q48 Increase my academic success</b>	
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q56 Improve my oral communication</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q57 Improve my understanding of what is expected of me at university</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q58 Improve my exam writing skills</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q59 Improve my connection with the Brock community</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q71 Improve my exam writing skills</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q72 Improve my connection with the Brock community</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q73 Increase my confidence</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q74 Increase my academic success</b>		
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 - Writing Workshop

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]
<i>Required answers: 0</i> <i>Allowed answers: 1</i>

<b>Q82 Improve my oral communication</b>
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]
<i>Required answers: 0</i> <i>Allowed answers: 1</i>

<b>Q83 Improve my understanding of what is expected of me at university</b>
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]
<i>Required answers: 0</i> <i>Allowed answers: 1</i>

<b>Q84 Improve my exam writing skills</b>
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]
<i>Required answers: 0</i> <i>Allowed answers: 1</i>



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]
<i>Required answers: 0</i> <i>Allowed answers: 1</i>

<b>Q97 Improve my exam writing skills</b>
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]
<i>Required answers: 0</i> <i>Allowed answers: 1</i>

<b>Q98 Improve my connection with the Brock community</b>
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]
<i>Required answers: 0</i> <i>Allowed answers: 1</i>

<b>Q99 Increase my confidence</b>
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]
<i>Required answers: 0</i> <i>Allowed answers: 1</i>

<b>Q100 Increase my academic success</b>
--

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 - 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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q108 Improve my oral communication</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q109 Improve my understanding of what is expected of me at university</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q110 Improve my exam writing skills</b>		
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]		
	<i>Required answers: 0</i>	<i>Allowed answers: 1</i>

<b>Q111 Improve my connection with the Brock community</b>		
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]
<i>Required answers: 0</i> <i>Allowed answers: 1</i>

<b>Q112 Increase my confidence</b>
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]
<i>Required answers: 0</i> <i>Allowed answers: 1</i>

<b>Q113 Increase my academic success</b>
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]
<i>Required answers: 0</i> <i>Allowed answers: 1</i>

*Next Page: Sequential*



## APPENDIX C – Focus Group Guides

### Learning Skills Participants Focus Group Guide

#### *Moderator Introduction*

Good morning/afternoon. My name is (name) and I work in education research. Thank you all for coming to participate in this discussion today. As you know, we are here to discuss the learning skills services offered by the Learning Skills Centre at Brock University, particularly your experiences. You all took at least one learning skills service in the last three years? How many of you have ever participated in a focus group before?

I'd like to begin with some guidelines for how this group will work. The purpose of this group is to give each of you the opportunity to voice your opinions and tell me your thoughts on a number of different areas related to your university experience and the course. I will ask a number of different questions to guide the discussion.

As you were told, we are being audio recorded. This is so I can focus on our conversation without taking notes. I will listen to the mp3 later to remind me of what we discussed.

Your opinions and thoughts are all important. There are no right answers to the questions I will ask. These are about your experiences and opinions, which may differ from others' in the group. Please feel free to disagree with one another. However, I do ask that you are each respectful of one another and that, as much as possible, only one person speak at a time, especially since the microphone won't be able to pick up all of your voices at once.

Of course, anything we discuss here is strictly confidential; this study is for research purposes only.

## **Participant Introductions**

I would like to go around and have everyone introduce themselves.

Please say:

- your name
- your programme
- your year
- What learning skills service you took

## **WRITE DOWN THE SEATING CHART**

### **Preparation for University**

**Overall, how prepared were you for university?**

- In what ways were you prepared for university?
- In what ways were you not prepared for university?
- How were your high school grades?
- How do your high school grades compare to your university grades?

### **Personal Skills Assessment**

#### **HAND OUT THE SKILLS ASSESSMENT SHEET #1**

I want to spend some time talking about your skills.

**What kinds of skills are necessary for success in university?**

**What skills are strengths for you?**

- How have you developed these skills?
- How have these strengths impacted your academic success?

**What skills do you think are weaknesses for you?**

- How could you improve on these skills?
- How have these weaknesses impacted your academic success?
- What kind of support would you like to have access to at Brock University with regard to your weaknesses?
  - What format would you like to these supports to take?

## **HAND OUT SHEET #2**

**Have you ever participated in any skills development opportunities at Brock University?**

- Which ones?
- When?
- Why?
- How did you find out about those opportunities?
- 

### **Learning Skills Services**

**You are all here because you have taken at least one learning skills service. Is that correct?**

**Thinking back to when you first learned about and decided to take a learning skills service:**

**When did you first learn about the learning skills services?**

- Probe: when in academic career
- Did you learn about the services before or after your first day at Brock University?

**How did you find out about the learning skills services?**

**Were you encouraged by anyone in particular to take the learning skills services?**

- Who encouraged you to take them?
- What did they tell you about the services?

**Why did you decide to take the learning skills services?**

- Why did you decide to take that (in reference to a course or program) one in particular?
- 

**What did you expect to get out of the service?**

### **Thoughts on the Learning Skills Services**

I'd like to know more of your impressions of the services.

**What did you like about the learning skills services?**

**What did you dislike about the learning skills services?**

**Why these things?**

### **Impact of the Learning Skills Services**

**In what ways has the service you took impacted your academics?**

**Has your university/ academic habits changed since taking the course? If yes, in what ways?**

**How would you rate your academic confidence level before and after taking the learning skills workshops?**

**Do you think you have retained the information learned in the learning skills service?  
Wrap Up**

**Does anyone have any final comments on the learning skills services or anything we've discussed today?**

**Does anyone have any questions for me?**

We're done.

Thank you for your participation.

This was a very interesting discussion for me.

## **Learning Skills Non-Participants Focus Group Guide**

### ***Moderator Introduction***

Good morning/afternoon. My name is (name) and I work in education research. Thank you all for coming to participate in this discussion today. We are here to talk about some of your academic experiences at Brock University and gain a better understanding of how you approach your university success.

How many of you have ever participated in a focus group before?

I'd like to begin with some guidelines for how the group will work. The purpose of this group is to give each of you the opportunity to voice your opinions and tell me your thoughts on a number of different areas related to your university experience and skills development. I will ask a number of different questions to guide the discussion.

As you were told, we are being audio recorded. This is so I can focus on our conversation without taking notes. I will listen to the mp3 later to remind me of what we discussed.

Your opinions and thoughts are all important. There are no right answers to the questions I will ask. These are about your experiences and opinions, which may differ from others' in the group.

Please feel free to disagree with one another. However, I do ask that you are each respectful of one another and that, as much as possible, only one person speak at a time, especially since the microphones won't be able to pick up all of your voices at once. Of course, anything we discuss here is strictly confidential; this study is for research purposes only.

## **Participant Introductions**

I would like to go around and have everyone introduce themselves.

Please say:

- your name
- your programme
- your year

## **WRITE DOWN THE SEATING CHART**

### **Preparation for University**

#### **Overall, how prepared were you for university?**

- In what ways were you prepared for university?
- In what ways were you not prepared for university?
- How were your high school grades?
- How do your high school grades compare to your university grades?
- Currently, how are you doing academically

### **Personal Skills Assessment**

#### **HAND OUT THE SKILLS ASSESSMENT SHEET #1**

I want to spend some time talking about your skills.

#### **What kinds of skills are necessary for success in university?**

#### **What skills are strengths for you?**

- How have you developed these skills?
- How have these strengths impacted your academic success?

#### **What skills do you think are weaknesses for you?**

- How could you improve on these skills?
- How have these weaknesses impacted your academic success?
- What kind of support would you like to have access to at Brock University with regard to your weaknesses?
  - What format would you like to these supports to take?

#### **How do your skills now compare to your skills when you first entered university?**

#### **How have they changed or not?**

### **Learning Skills Services**

One of the ways that some students work on improving their skills is through the Learning Skills Centre at Brock University.

None of you has participated in any of their services or taken any of their courses. Is that correct?

**Have you ever heard of the services offered or the centre?**

**What do you know about the learning skills centre?**

**When did you learn about the learning skills centre?**

- When in academic career?
- Did you learn about it before or after entering Brock U?
- 

**How did you find out about it?**

**Were you ever encouraged by anyone in particular to take a class or drop into the drop in centre?**

- Who encouraged you?
- What did they tell you?

**Why didn't you take a learning skills service?**

**Wrap Up**

**Does anyone have any final comments on anything we've discussed this afternoon?**

**Does anyone have any questions for me?**

We're done.

Thank you for your participation.

This was a very interesting discussion for me.

## Appendix D – Sample Sizes for Comparison of Academic Averages and Supplemental Tables

This appendix provides sample sizes for the groups of students analyzed in the comparison of academic averages section of the report (Table 5 and Table 6).

Table 22 presents sample sizes for direct-entry fall-admitted students with high school grades on file, by year, whether they used learning-skills in first-year, and whether they have first-year or second-year academic averages on file. These sample sizes refer to the data used in Table 5 (Academic Averages for Learning Skills Participants and Non-Participants).

**Table 22 - Sample Sizes Corresponding to Table 5**

<b>Cohort</b>	<b>First-year Learning Skills Usage Status</b>	<b>Has a High School Average</b>	<b>Has a Year 1 Average</b>	<b>Has a Year 2 Average</b>
<b>2006</b>	Participated	237	237	212
	Did not participate	2,598	2,531	2,222
<b>2007</b>	Participated	282	279	261
	Did not participate	2,842	2,757	2,409
<b>2008</b>	Participated	504	500	466
	Did not participate	2,820	2,748	2,405
<b>All cohorts</b>	Participated	1023	1016	939
	Did not participate	8,260	8,036	7,036

Table 23 presents sample-sizes that correspond to Table 6 (Changes in Academic Averages for Learning Skills Participants and Non-Participants).

**Table 23 - Sample Sizes Corresponding to Table 6**

<b>Cohort</b>	<b>Year of First Use of Learning Skills</b>	<b>Has a high school and first year grade</b>	<b>Has a high school, first year and second year grade</b>
<b>2006</b>	Participated in first-year	237	212
	Never participated	2,399	2,092
	Participated in second-year or later	132	130
<b>2007</b>	Participated in first-year	279	261
	Never participated	2,570	2,225
	Participated in second-year or later	187	184
<b>2008</b>	Participated in first-year	500	466
	Never participated	2748	2,405
	Participated in second-year or later	N/A	N/A
<b>2006 and 2007</b>	Participated in first-year	516	473
	Never participated	4,969	4,317
	Participated in second-year or later	319	314
<b>All cohorts</b>	Participated in first-year	1,016	939
	Never participated	7,717	6,722
	Participated in second-year or later	319	314

**Table 24 - Survey Respondents by Gender**

<b>Are you:</b>	<b>2009</b>	<b>2010</b>
Male	35%	30%
Female	65%	70%



**Table 25 - Survey Respondents Awareness to Learning Skills Services**

	YES	NO
Have you previously heard about Learning Skills workshops? (2009)	66%	34%
Have you previously heard about Learning Skills workshops? (2010)	79%	21%
Have you previously heard about the one-on-one tutoring sessions? (2009)	27%	73%
Have you previously heard about the drop-in service in the Learning Commons? (2010)	63%	37%
Have you completed any of the Learning Skills workshops? (2009)	24%	76%
Have you completed any of the Learning Skills workshops? (2010)	28%	72%

**Table 26 - Level of Diversity of Survey Respondents' Workshop Participation**

Number of Workshop Categories Taken	Percent of Respondents
One	58%
Two	26%
Three	12%
More than four	4%

**Table 27 - Survey Respondents' Participation in Workshops by Category**

Workshop Category	Respondent Participation	Respondent Mandatory Participation
Writing	39%	22%
Study Skills	37%	20%
Exam Prep	27%	9%
Essay Zone	26%	58%
Documentation	23%	30%
Science	10%	10%
Math	4%	3%
All workshops	N/A	19%

**Table 28 - Respondents' Satisfaction with the Workshops and Perceived Utility of the Workshops**

Satisfaction with.....	Math	Online Essay Zone	Exam Prep	Study skills	Documentation	Science	Writing	Total
Overall quality	3.8	4.1	4.1	4.0	4.2	3.9	4.0	<b>4.0</b>
Instruction	3.8	4.0	4.1	4.0	4.2	4.0	4.0	<b>4.0</b>
Teaching materials	3.7	4.0	4.0	3.8	4.0	3.8	3.9	<b>3.9</b>
Level of interaction with the instructor	3.7	N/A	4.0	4.0	4.1	3.9	4.0	<b>4.0</b>
Scheduling	3.6	N/A	3.9	3.8	3.9	3.8	3.9	<b>3.8</b>

The workshop helped me to.....	Math	Online Essay Zone	Exam Prep	Study skills	Documentation	Science	Writing	Total
Improve my written communication	3.5	3.6	3.5	3.5	3.9	3.7	3.8	<b>3.6</b>
Improve my oral communication	3.2	3.1	3.0	3.1	3.3	3.2	3.1	<b>3.1</b>
Improve my understanding of what is expected of me at university	3.5	3.9	3.8	3.7	4.0	4.0	3.7	<b>3.8</b>
Improve my exam writing skills	3.5	3.3	3.7	3.4	3.5	3.8	3.4	<b>3.5</b>
Improve my connection with the Brock community	3.1	3.0	3.3	3.1	3.3	3.2	3.0	<b>3.1</b>
Increase my confidence	3.4	3.3	3.6	3.4	3.7	3.8	3.4	<b>3.5</b>
Increase my academic success	3.5	3.6	3.6	3.5	3.9	4.0	3.6	<b>3.6</b>

**Table 29 - Respondents' Answers to the Question: Why have you so far chosen not to participate in a Learning Skills workshop or Drop-in Service?**

Response	
I'm too busy to participate in the workshops or drop-in	31%
I did not think that the workshops or drop-in would be useful to me	19%
I didn't hear about the workshops or drop-in	17%
I heard about the workshops or drop-in but I did not know enough about them	14%
I don't know	10%
I heard bad things about the workshops or drop-ins from students that had taken them	1%
Other <sup>22</sup>	8%

<sup>22</sup> no write in option given for other

