



Evaluating Postsecondary Supports for Ontario Students With Learning Disabilities

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for the Higher Education Quality Council of Ontario



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Table of Contents

Executive Summary	7
Section 1: Introduction and Background.....	11
Learning Opportunities Task Force (LOTF)	12
Enhanced Services Fund (ESF)	12
Enhanced Services	13
The Summer Transition Program (STP)	13
Relevant Terms.....	14
Purpose of the Study.....	16
Research Sites: Descriptions of Enhanced Services and the STP.....	17
DC and UOIT: Enhanced Services	17
Enhanced Services Extended for This Study.....	17
DC and UOIT: The STP	18
STP Curriculum Design	18
Section 2: Brief Review of the Literature	19
PSE: Increased Demands Require Increased Skills	19
Use of Service Influenced by Self-determination Skills	20
Documentation Disconnection.....	21
The STP and Enhanced Services.....	22
Section 3: Method and Procedure	23
Research Design.....	23
Recruitment.....	23
Procedure	23
Participants	24
Age and Gender	24
Diagnostic Category	25
STP and NSTP Cohorts	25
College Versus University Group Comparisons	26
Qualitative Data Collection	26
Quantitative Data Collection	26

Data Analysis	27
Section 4: Findings from Quantitative and Qualitative Data.....	28
Early Intake Leads to a Smoother Transition	29
Attending the STP Lowers Assessment Barriers	30
Demographics of STP Versus NSTP Students	32
Multiple Attempts.....	33
Motivation and Perseverance	34
Selection Bias	35
Impact of the STP on Academic Outcomes	36
Enhanced Services Use and Academic Performance.....	37
Overall Level of Academic Success.....	37
Relationship Between Enhanced Services and First-Semester Academic Standing	38
Qualitative Data Related to Use of Enhanced Services	40
Comparing the STP and Enhanced Services Use	41
Impact of the STP and Enhanced Services on Academic Performance.....	42
First-Semester Academic Performance	42
Overall Academic Performance	43
STP and NSTP Qualitative Data: Trends in Services Use	45
The STP and Improved Engagement with Disability Centre Services	45
Student Engagement and Proactive Behaviour	48
Seeking Support from Professors and Teaching Assistants.....	49
Students' Willingness to Access Supports.....	51
Extracurricular Campus Engagement	52
Specific Instructional Components and Methods Positively Correlating	54
with Student Success	
Content-Related Components Found Beneficial.....	54
Background Data Related to Increased Workload and Time.....	54
Executive Functioning Skills and Time Management.....	55
Skills and Strategies Learned Through the STP	55
Enhanced Services and Executive Functioning.....	56

Computer Technology and Software Found Beneficial	57
The STP and Technology	57
The STP and AT	57
Ongoing AT	58
Background Data Related to Disability Acceptance and Awareness.....	58
The STP, Disability Awareness and the Acceptance Process	59
Student Homepages.....	60
The STP and How Peer Interaction Promoted Disability Acceptance	60
Enhanced Services and Disability Awareness	61
The STP and Enhanced Services: A Summary	62
Students' Homepages and Interaction with Faculty	63
College and University Differences.....	65
Institutional Comparison of Academic Outcomes	66
First-Semester GPA	66
Reduced Course Load Accommodation	68
Multiple Attempts.....	68
Professor-Student Interaction	69
Section 5: Discussion and Recommendations	70
Positive Effect on Academic Performance	71
The STP	71
Enhanced Services.....	72
The STP and Enhanced Services.....	72
Recommendations for Improving Academic Performance	73
Effect on Student Awareness and Engagement	74
Recommendations for Promoting Awareness and Engagement	74
Academic Success Through Proactive Behaviour and Engagement	74
Recommendations for Promoting Proactive Behaviour and Engagement.....	76
Common Instructional Mechanisms and Methods	76
Recommendations for Improving Instructional Components.....	78
Students' Engagement With Professors Using Homepages	78
Recommendations for Promoting Student Engagement with Professors	80

Institutional Differences and Similarities	80
Recommendations Related to Institutional Similarities.....	81
Documentation Disconnection.....	81
Recommendations for Improving This Disconnection	82
Policy Implications: Intersystem Accessibility	83
Recommendations for Facilitating Length of Study	83
Recommendations for Improving Accessibility in PSE	84
Section 6: Conclusion, Limitations and Further Research	85
Conclusion	85
Limitations.....	85
Recommendations for Further Research.....	86
References.....	87

APPENDIX

Appendix A: Student Services and Accommodations.....	93
Appendix B: Learning Disabilities	94
Appendix C: Attention Deficit Hyperactivity Disorder	95
Appendix D: Sample Student Homepage	96
Appendix E: Learning Strategies Counsellor	97
Appendix F: Assistive Technologist.....	98
Appendix G: DC Summer Transition Program Calendar	99
Appendix H: UOIT Summer Transition Program Calendar	101
Appendix I: Component Elements of Self-Determined Behaviour.....	102
Appendix J: Self-determination Definition and Model	103
Appendix K: Non-Verbal Learning Disorder.....	104
Appendix L: Interview Questions.....	105
Appendix M: Focus Group Questions.....	108
Appendix N: Summer Transition Program Questions	110
Appendix O: Table A1 — GPA Comparisons by STP Status.....	112
Appendix P: Table A2 — Academic Standing Comparisons by STP Status	113

Appendix Q: Table A3 — Differences in Use by STP and NSTP Participants	114
of LSC, Assistive Technologist, DA and ALS Services for First Five Semesters	
Appendix R: Table A4 — Institutional Differences in Use by NSTP Participants.....	115
of LSC, Assistive Technologist, DA and ALS Services for First Four Semesters	

List of Tables

Table 1:	STP and NSTP Group Demographics.....	25
Table 2:	Percentage of STP and NSTP Students in Good Standing in Each Semester	37

List of Figures

Figure 1:	Distribution of Previous Postsecondary Education Attempts for STP and NSTP Students	33
Figure 2:	Levels of Overall Academic Success Among Students With No Previous Attempts and Those With One or More Previous Attempts	35
Figure 3:	Levels of Overall Academic Success Between STP and NSTP Students.....	36
Figure 4:	Overall Level of Academic Success for Low, Moderate and High Users of Enhanced Services	38
Figure 5:	First-Semester Academic Standing for Students Who Used Enhanced Services on a Low, Moderate, Consistent or High Basis	39
Figure 6:	Number of Enhanced Services Appointments by Semester for Successful, Varied-Success and Unsuccessful Students	40
Figure 7:	Number of Enhanced Services Appointments for STP and NSTP Students.....	42
Figure 8:	Number of Enhanced Services Appointments per Semester for Successful, Varied-Success and Unsuccessful Students.....	44
Figure 9:	Comparison of Number of Appointments with LSC, Assistive Technologist, ALS and DA for STP and NSTP Participants	46
Figure 10:	Academic Standing at End of First Semester	66
Figure 11:	First-Semester GPA Based on Enhanced Services Use Category for STP and NSTP Students Among College and University Populations	67

Executive Summary

This longitudinal mixed method study collected quantitative data from 151 students with Learning Disabilities (LD) and/or Attention Deficit Hyperactivity Disorder (AD/HD). Of these, 117 students attended a combination of focus groups and personal interviews and shared their postsecondary education (PSE) experiences as persons with disabilities. The quantitative and qualitative data collection was carried out over two and a half years at the Centre for Students with Disabilities, which provides support and accommodations to college and university students within a shared campus environment at Durham College and the University of Ontario Institute of Technology (UOIT).

The purpose of this study was to evaluate the educational quality of the existing student service programs designed to ensure PSE access for students with LD and/or ADHD, who are an under-represented and at-risk population. Specifically, the study set out to measure and explore the effect of the Summer Transition Program (STP) and enhanced services on promoting students' engagement, academic performance and, ultimately, their ongoing success throughout PSE.

The Ministry's STP funding is earmarked for students with LD. However, the Ministry recognizes that students with LD have high comorbid rates of AD/HD. The STP is offered prior to the commencement of the fall semester to give students with LD and/or ADHD a chance to learn evidence-based learning strategies, self-determination skills and the use of assistive technologies that promote PSE success without the added pressure and demands of a PSE course load. The STP curriculum is delivered in August, in a classroom setting in the morning and in a computer lab in the afternoon. Each day has a specific theme and content is designed to enhance knowledge and skills, such as time management. LD-specific supports were found to improve student outcomes, and the ongoing enhanced supports were believed to ensure accessibility.

This study's most optimistic finding was the positive association between attendance at the STP and use of enhanced services. The study's findings demonstrate that the STP improves the quality of students' transition to PSE by first facilitating an earlier intake requirement and then helping students acquire psychoeducational assessments. STP students complete this process before the academic year begins in September.

Students who did not attend STP (NSTP students) described an overall lengthier and more complicated intake process. Findings from this study demonstrate that the STP improves students' orientation to campus, orientation to services, disability awareness and willingness to self-advocate. STP also promotes their use of student services. On the other hand, when examining the impact of the STP alone, there were no differences between STP and NSTP students in their likelihood of earning a GPA above 2.0 for any of the first five semesters. The sample groups were self-selected or parentally selected. This sample selection could not be controlled for due to ethical reasons and the limited sample size; this may have decreased the measurable effect. A combination of the two programs was found to enhance academic performance.

At the completion of data collection, 87.4 per cent of the students in the present sample were still enrolled in one of the institutions or had graduated. The remaining 12.6 per cent had left school without graduating. The majority of successful students who used supports and accommodations reported that they would not have been as successful had they not used disability and other supports on campus. In particular, high use of enhanced services was associated with an increased likelihood of academic success (GPA > 2.0); in other words, these students obtained an average above 60–64 per cent in college and 60–66 per cent at university in their first semester. The relationship between use of services and increased academic performance was particularly evident among students who attended the STP.

Quantitative and qualitative data suggest that the combination of attending a transition program, continuing to access general support, use of ongoing LD-specific support (including assistive technology training and advocating with professors) positively affects students' academic performance and engagement with the postsecondary community. These positive effects were advanced through the ongoing enhanced LD counselling/coaching designed to improve students' self-determination skills, which include self-awareness, disability awareness and acceptance, and self-management skills.

Additionally, service use differed between STP and NSTP students. For example, within the STP cohort, consistently successful students (i.e., those in good standing in 100 per cent of semesters) used a high number of services at the beginning of their academic careers and decreased services use over time. Among students who chose to attend the STP sessions, those who were mostly unsuccessful (i.e., in good standing in less than 50 per cent of semesters) had low levels of initial services use and often increased their services use over time. In the NSTP group, students who were unsuccessful did not demonstrate the increases in services use seen in the STP group. Students' overall academic performance success was fostered by attending the STP, which either enhanced or reflected students' engagement and willingness to seek support, and by using the services of the Disability Centre and other student services when needed.

A comparison of college and university populations revealed more similarities than differences in students' postsecondary experiences. Students attending both kinds of institutions reported that their disabilities increased their academic demands. They need to make additional effort and time commitments, as well as making additional use of supports and accommodations to help compensate and accommodate these disability-related challenges. These disability-related demands required individuals with LD and/or AD/HD to employ self-management skills, including organizational strategies and time-management skills, to adapt to the expectations of student independence in the postsecondary learning environment. Students reported that receiving assistance in developing time-management and executive functioning skills was highly beneficial to ensuring the successful completion of their studies.

Students from both Durham College and UOIT encountered personal and institutional barriers in accessing services and accommodations. These barriers highlight opportunities for education systems, especially postsecondary institutions, to make changes that will improve accessibility of services. Some students, particularly mature students and others not transitioning to PSE directly from high school, identified a need for more information about available services and

accommodations. Others indicated that faculty would benefit from professional development to instill greater disability awareness and knowledge. Students also indicated that financial support and greater availability of psychoeducational assessments before the start of the postsecondary program would ease their transition and enhance their academic outcomes.

While most students with disabilities recognize the obstacles to their pursuit of higher education, many also expressed their focus on and dedication to achieving their academic goals. This commitment is evidenced by their willingness to prolong their PSE. A few students plan a longer journey from the outset by using general college programs to articulate to oversubscribed college programs, or college programs to articulate to university. Many students with disabilities require extra years in school in order to reduce course loads and/or failure rates. Some students reported that each academic attempt presented an opportunity for self-learning, enhancing their compensatory strategies and acceptance of their disability. Many students in the study, particularly college students and those who did not attend the STP, had previously attempted to attend one or more postsecondary programs.

However, these extended and multiple attempts can also increase debt, result in lost time in the workforce and the loss of completed credits when transferring between programs. Institutions should develop policies to facilitate the success of persons with disabilities, especially those who may have an extended academic path, by improving articulation agreements for all students, and including additional measures for persons with disabilities, with the aim of easing the financial burden of prolonged studies.

Many students, with and without disabilities, transition to the postsecondary setting with the desire to be independent. Students with are apprehensive about disclosing their disabilities to their professors because they fear a negative appraisal and because they have a genuine desire to be the same as non-disabled peers. In addition to the universal factors that affect students' willingness to access student support services, these fears further impede students' willingness to self-identify as individuals with LD and/or AD/HD or to use academic supports and accommodations. Despite the effectiveness and positive outcomes associated with using services, students reported a pattern whereby they undergo an "evaluation process" related to self-disclosure and service needs.

Most of the time, students prefer not to disclose their disabilities or request accommodations, even though they were put in place to create an equal playing field. Students' desire to remain independent conflicts with their disability-related needs and their goals for academic success. These conflicting aims are at the heart of the students' process of evaluating whether or not to self-identify. Furthermore, when students do decide to disclose their disabilities, they encounter a time-consuming process requiring documentation that is often expensive and onerous to obtain. In choosing whether to self-identify or to use services, students' evaluation process also involves assessing the real or perceived risk of discrimination from peers, professors and staff.

Involvement with the STP and enhanced services was found to facilitate students' evaluation of the necessity of services use. These programs appear to promote students' disability awareness and acceptance, increase their willingness to seek services, and decrease their fears of stigmatization and negative responses from the community. For example, students'

disability awareness and acceptance were enhanced through an instructional homepage activity which had students create websites that described their learning profiles. The activity's success demonstrates how the use of a technological and interactive format can enhance student engagement, foster independence and promote interactions with peers. Ultimately, many students who attended the STP reported that the benefits of seeking academic support and accommodations outweighed the psychological costs of self-identifying as a person with disabilities.

The implication of this research for service providers is clear: despite students' desire for independence, they are likely to benefit from the availability and use of support services. Therefore, service providers must find creative ways to establish and maintain a productive connection with students in need. One method of maintaining a connection with these students is to ensure effective collaboration and referrals among student services programs. Students frequently reported having first accessed one student service (e.g., counselling, Student Academic Learning Services) prior to being encouraged to seek services with the Disability Centre. Students also reported that the STP offered an opportunity to work in groups with like peers, which fulfilled their desire for social connections. Therefore, it is recommended that such services feature peer group training sessions and mentoring with senior-level peers and that they facilitate ongoing peer connections made through the programs offered through disability offices.

Ultimately, the goal for postsecondary institutions is to give persons with disabilities a fully accessible environment in which they can achieve their desired independence and anonymity with no need to self-identify. The current study demonstrates that our PSE system has not achieved this level of accessibility. While we continue to work toward this goal, we need to make it easier for students to self-disclose and access disability supports in the current system. This can be accomplished by improving access to updated psychoeducational assessments at a high school level or before PSE commences. Collaboration between secondary and postsecondary systems would promote improved and consistent use of diagnostic standards for accepted professional diagnosis for disabilities.

College and university students with LD and/or AD/HD share similar challenges in PSE. Therefore, similar strategies are needed to improve their postsecondary performance. Students' feedback highlights opportunities to improve outcomes through outreach and marketing of information about accessible services and Universal Instructional Design and professional development for faculty and staff to decrease stigma and discrimination and improve willingness to support campus accessibility.

Students with LD and/or AD/HD are an at-risk population; to continue to evaluate the progress of these students and to better promote the accessibility agenda, institutions are encouraged to introduce and maintain data collection in a standardized and consistent manner. Many disability offices are currently using similar clinical recording software, which could be developed for research use. This data will allow postsecondary institutions to develop a longitudinal understanding of the unique educational challenges and pathways of these students. Particular attention should be paid to issues related to academic performance, retention, delayed entry to PSE, prolonged time to complete programs and multiple PSE attempts.

Section 1: Introduction and Background

The Ontario government has made, and continues to make, a significant commitment to improving postsecondary education (PSE) accessibility for persons with disabilities and a supplementary contribution for people with learning disabilities (LD). The initiatives include improved legislation standards under the *Accessibility for Ontarians with Disabilities Act, 2005*, legislation designed to make Ontario more accessible for persons with disabilities by 2025. Through establishing province-wide accessibility standards, the legislation aims to improve accessibility by identifying, breaking down and preventing barriers to accessibility. This legislation has been supplemented with increased PSE funding for persons with disabilities; in 2010–2011, over \$47 million in funding was provided to help students with disabilities succeed in postsecondary studies. This funding represents an increase of over 45 per cent since 2002–2003, and includes \$8 million in Access to Opportunities funding. The Province of Ontario has also introduced targeted funding for persons with LD, including the Enhanced Services Fund and summer transition funding.

The Higher Education Quality Council of Ontario (HEQCO) commissioned this study in 2008 to better understand “students from under-represented population groups [students with LD]” who need strategies to “increase their participation and maximize the probability that they will graduate” (HEQCO, 2011). Persons with disabilities account for an estimated 10 per cent of the postsecondary population, and approximately half of this population are persons with LD (Henderson, 2001; LOTF, 2002; Murray, Goldstein, Nourse & Edgar, 2000). There are no Canadian national statistics for the disability population in PSE, though Ontario’s College Committee on Disability Issues (CCDI) collects yearly statistics from publicly funded colleges, and in 2010–2011, 2,407 students identified as ADHD/ADD, 8,111 as having LD and 3,951 as having multiple disabilities, which can include LD as a secondary disability. That same year, the Durham College Disability Centre reported that 41 per cent of students with disabilities had been categorized as having LD as their primary disability. In terms of the percentage of students identified under the disability category of LD, the Learning Disabilities Association of Canada reports that as many as “1 in 10 Canadians has a learning disability” (<http://www.ldacta.ca/en/learn-more/ld-basics.html>).

In 2009–2010, there were over 40,803 students registered with disability offices at publicly funded postsecondary institutions in Ontario. 21,961 students with disabilities were registered at public college disability offices, representing about 13 per cent of total college enrolment (Government of Ontario MTCU, 2011; College Committee on Disability Issues). In addition, 744 apprentices were registered with disability offices, 482 of whom were students with LD (. [College Committee on Disability Issues, K. Grant, personal communication, October, 20, 2011). The Inter-University Disability Issues Association comprises disability service providers from Ontario universities but to date, it has not collected statistical data regarding disability categories for each of the different universities.

Postsecondary completion has an equalizing effect on employment outcomes for persons with LD (Madaus, 2006). However, compared with their peers without disabilities, fewer students with LD attend PSE and those who do are less likely to be retained until graduation (Gregg,

2007; Horn & Berkold, 1999; Murray et al., 2000; Newman, Wagner, Cameto & Knokey, 2009). Compared to non-disabled peers, students with LD who do attend PSE are more likely to enroll in training or two-year college programs (Rath & Royer, 2002; Murray et al. 2000; Newman et al., 2009). Although this gap is lessening among North American student populations (Vogel & Holt, 2003; Johnson, 2001; Stodden, 2001; Vogel, Leonard, Scales, Hayeslip, Hermansen & Donnell, 1997; Wagner, 1993), the educational attainment rates of students with LD are typically much lower than those in the non-disabled population.

Learning Opportunities Task Force (LOTF)

The Government of Ontario's agenda for students with LD was originally unveiled by the Honourable Ernie Eves in his 1997 budget speech:

Too few students with learning disabilities get the help that they need to make the transition to college or university. To help these students realize their potential, we will establish pilot projects at the college and university level, to provide real help to learning disabled students in a meaningful way (Nichols, Harrison, McCloskey & Weintraub, 2002: 1).

The Government's \$30 million commitment formed the Learning Opportunities Task Force (LOTF), which carried out its work from 1997 to 2002 was charged with a clear mandate:

1. to improve the transition of students with specific learning disabilities from secondary school to post-secondary education; and
2. to enhance the services and supports that students with [LD] receive ... such that they can complete their education successfully (Nichols et al., 2002: 1).

The supporting evidence from the eight pilot projects (at 13 colleges and universities across the province) that were undertaken under the leadership of the LOTF led to the development of specific student services designed to enhance the strategies, skills and completion-rates of PSE for students with LD. The LOTF's groundbreaking work provided the foundation for the enhanced student services available to persons with LD in Ontario's colleges and universities today. As a result of the LOTF's evidence and findings, the Ministry of Training, Colleges and Universities (MTCU) began providing targeted funding for all colleges and universities across the province so that they could offer improved LD services. The findings also instigated two fiscal initiatives: the Enhanced Services Fund and summer transition funding.

Enhanced Services Fund (ESF)

In 2002, financial support was granted across Ontario by the MTCU's Enhanced Services Fund (ESF) to help colleges and universities provide additional "enhanced" supports specific to using the LOTF approach. The Accessibility Fund for Students with Disabilities still exists. The Enhanced Services Fund (ESF) has been rolled into this fund since 2007/08 and has provided basic support to all postsecondary disability centres to assist them in providing general disability services (see Appendix A). The ESF was initially conceived as a two-year program that included an evaluation process monitored by the LOTF. In the beginning, ESF required PSE institutions

to guarantee that targeted funding would be allocated for a “new opportunity for individualized provision of LS [learning strategies] and AT [assistive technology] instruction and supports” (Nichols et al., 2002: 50).

The funding conditions also included specific requirements for hiring learning disability strategists qualified in learning strategies and assistive technology (AT) instruction. The MTCU funded and organized specific training and development sessions to advance the transfer of knowledge from LD service providers from the original LOTF pilot projects to the newly hired LD professionals. To support province-wide ESF implementation, Cambrian College’s pilot program initiated a staff training project designed to ensure a sufficient pool of Learning Strategists (LS) and Assistive Technologists (AT) with requisite expertise in providing these focused services to postsecondary students with specific learning disabilities. The LS/AT Training Initiative, funded by LOTF and further supported by Cambrian, has now become a provincially recognized training program offering the Assistive Technology Certificate (Nichols et al., 2002: 56).

Enhanced Services

Evidence-based research from the LOTF pilot programs revealed the high value that students with LD placed on their opportunity to receive individualized learning strategies counselling and AT instruction and support. These LD-specific services and supports are referred to as enhanced services.

Enhanced services are individualized because of the heterogeneous nature of LD, which is connected to student processing deficits and strengths. Thus, strategic instruction needs to be developed for each student’s unique learning needs and academic requirements. The individual counselling or coaching component focuses on specific LD-related issues rather than therapeutic counselling, and it is intended to enhance academic success and completion of PSE. The AT component emphasizes computer support to augment the use of AT by students with LD. It is intended to encourage students to learn the skills they need to use AT and computer programs that can help them compensate for processing deficits. For example, text-to-speech software can help compensate for a reading disability created by a deficit in phonological processing.

The Summer Transition Program (STP)

One of the strongest recommendations made by the LOTF was that students with LD have an opportunity to participate in “proven transition programming,” and that these programs be available to interested students with LD (Nichols et al., 2002: 33). Today in Ontario, all publicly funded colleges and universities provide some kind of transition program for students with LD. The MTCU has supported a Summer Transition Program (STP) for students with LD at Ontario’s colleges and universities since 2006 (pilot transition programs were funded before this date). In 2011–2012, the government provided just over \$2M a year to Ontario colleges and universities to advance the transition of students with LD from secondary to postsecondary education. There is no similar provincial transition initiative anywhere else in Canada, although STPs for LD students are offered at a few PSE institutions in other provinces.

The STP LD curriculum designs and program lengths in Ontario vary, ranging from one day to eight weeks. Some programs offer PSE orientations to students with LD when students are still attending high school, whereas others offer summer camps/programs lasting from one week to six weeks. Descriptions of college and university LD transition programs are available on each institution's website, and some are available on the Learning Disabilities Association of Ontario website (<http://www.ldao.ca/>), while descriptions for colleges are on the CCDI website (<http://www.disabilityissues.ca/english/index.html>). Instruction is primarily provided in person, although some institutions offer eight-week online courses. The content is similar, sharing common learning outcomes. Learning outcomes and skills development focus on general postsecondary and disability campus orientation, disability/self-awareness, self-advocacy skills, LD-specific learning strategy skills and AT training.

Ontario's colleges and universities collaborate with local school boards, special education departments and guidance counsellors to recruit special education students while they are still in high school. As well, each postsecondary institution that has received summer transition funding is obliged to develop a marketing strategy as part of its yearly transition proposal to the MTCU. Collaborative provincial marketing strategies include posting information on targeted websites, such as those of the Learning Disabilities Association of Ontario (LDAO) and the College Committee on Disability Issues (CCDI). In 2010, a DVD was prepared of the different provincial STPs and distributed at a conference for high school guidance counsellors.

Relevant Terms

For the purpose of this study, disabilities are described in the context of PSE. Other terms are defined to provide additional background information.

Persons with disabilities. *Persons with disabilities* have been identified as persons who face barriers in the environment of higher education and as a minority group, for whom additional actions are required to achieve the mandate of educational equality (Ontario Human Rights Commission, 2006).

Learning Disability. A *learning disability* (LD) is a category of disability. It is a lifelong disorder that is not a global cognitive impairment, but rather the result of one or more specific processing deficits that affect learning. These deficits impact the acquisition, retention or organization of learned material and ultimately affect specific academic areas like reading, writing, mathematics and executive functions. (For a full definition, see Appendix B.)

Attention Deficit Hyperactivity Disorder. *Attention Deficit Hyperactivity Disorder* (ADHD) is a neurobiological disorder. There are three core symptoms: inability to regulate attention, inability to regulate activity and difficulty suppressing inhibitory behaviour, resulting in impulsivity. Difficulty regulating emotions is often an issue as well. Today, executive function deficits are recognized as the core processing deficits associated with ADHD and ADD (Brown, 2005). (For a full definition, see Appendix C.)

Executive Function. *Executive functioning* is the mental process that allows us to plan ahead, evaluate the past, start and finish a task and manage our time. Executive functioning skills

enable us to identify a problem, find solutions, organize ourselves, regulate our behaviour and emotions, control our attention levels and resist distractions. Students with LD and/or ADHD can have executive functioning deficits that negatively affect their PSE (Centre for ADHD Awareness, Canada [CADDAC], 2011).

Comorbidity: LD and ADHD. *Comorbidity* describes situations in which two or more diagnostically distinguishable conditions tend to occur together (Learning Disabilities Association of Ontario [LDAO], 2003). Approximately 25–40 per cent of students with LD are also diagnosed with ADHD (Dykman & Ackerman, 1991; Willcutt & Pennington, 2000; Willcutt, Pennington, Olson, Chhabildas & Hulslander, 2005). At the research site, the Disability Centre did not initially offer LD team (enhanced services) or STP support services to students with ADHD because of the original funding parameters. It later extended specialized enhanced services, traditionally targeted to students with LD, to students with LD and/or ADHD. (see the table “Distribution of Diagnostic Categories in College and University Samples” in Appendix C)

Successful, Varied-Success and Unsuccessful Students. Students were categorized as “successful” if they had a grade point average (GPA) above 2.0 in all semesters, as having “varied success” if they had a GPA above 2.0 for more than half but less than all of their semesters (50–99 per cent) and as “unsuccessful” if they had a GPA above 2.0 in fewer than half of their semesters (< 50 per cent). At Durham College (DC), a GPA of 2.0 is equal to 60–64 per cent, or a C letter grade, and is termed “Acceptable.” At the University of Ontario Institute of Technology (UOIT), a GPA of 2.0 is equal to 60–66 per cent, or a C letter grade.

The Student Homepage. The *student homepage* is a personal website that students create during the STP so that they can share information related to their disability and educational accommodations with their professors. A student’s website has several pages. Students work with a template that includes the following components:

- 1) Introduction — information about the homepage;
- 2) About Me — a page that describes the student’s strengths, interests and general information;
- 3) My Disability — a page that describes the student’s cognitive and processing strengths and weaknesses;
- 4) Accommodation — a page listing the student’s approved accommodations;
- 5) Faculty — a page that shares information about Universal Instructional Design; and
- 6) LD Links — links to resources about LD and ADHD or other comorbid disabilities. (see the sample homepage in Appendix D)

Educational Quality. The HEQCO’s definition of *educational quality* refers to the intended outcomes of the intervention. These may include, but are not limited to, “enhanced academic

performance, increased engagement and satisfaction, higher retention and graduate rates and improved market experience” (Higher Education Quality Council of Ontario [HEQCO], 2008: 2).

Purpose of the Study

The HEQCO issued a Request for Proposals in 2008, with a focus on “The Role of Student Service in Promoting Educational Quality.” This study was selected as one of the existing student service projects to be evaluated in regard to education quality, and the contract was awarded to Durham College. Before this research study was carried out, the Disability Centre at this research site had not collected long-term data regarding the effectiveness of the enhanced services or the STP offered to students with LD and/or ADHD.

This study’s longitudinal mixed method research design was used to evaluate the educational quality of enhanced services and the STP for students with LD and/or ADHD. Both qualitative and quantitative data were used to understand students’ academic experience as persons with learning disabilities in the PSE environment. Students’ engagement with enhanced student services, instructor supports and campus life were explored using focus groups and interviews. Durham and UOIT share the Disability Centre – a generic term used for this study to refer to the DC and UOIT Centre for Students with Disabilities – which provides support and accommodations to college and university students, and through which this study was conducted. This approach allowed the researchers to compare and contrast students’ experiences in both the college and university setting.

The purpose of this study was to measure and explore the effect of the STP and enhanced services on promoting students’ engagement, academic performance and, ultimately, ongoing success throughout their PSE. It is anticipated that this research will prove useful for educational practitioners and members of the educational community, across the postsecondary system, in supporting students with LD and/or ADHD.

This study was guided by the following research questions:

1. Do the STP and/or enhanced services for LD and/or ADHD students positively affect their academic performance as well as their engagement and retention rates?
2. Did successful students with LD and/or ADHD report enhanced institutional engagement, and more proactive behaviours in seeking supports, than unsuccessful students?
3. Did any specific intervention or instructional component correlate positively with students’ experiences or outcomes?
4. Did students who created a web page (student homepage) for college and university faculty report experiencing any differences in their engagement with professors?
5. Were there differences reported

Research Sites: Descriptions of Enhanced Services and the STP

DC and UOIT: Enhanced Services

“Enhanced services” was the original name, given in 2002, for LD-targeted support services at DC and UOIT, and these services were developed as a result of receiving targeted funding from the ESF (see Appendix A, “Enhanced Services Personnel”). It was decided to use the term “enhanced services” for the current study to distinguish these LD services from the other general disability supports offered by the Disability Centre (see Appendix A, “General Disability Services Personnel”).

The targeted funding enabled the hiring of a team of three LD specialists: two learning strategists/counsellors (LSCs), as briefly described elsewhere (see Appendix E), and one assistive technologist (see Appendix F). These LD specialists make up the Learning Disability Team, which offers enhanced services for students with LD and/or ADHD throughout the calendar year. The Learning Disability Team works with general Disability Centre service providers, including disability advisors (DAs) — a case manager, non-counselling support staff and Alternative Format and Test Centre personnel — in an effort to ensure PSE accessibility.

The two LSC team members provide support services specifically to LD students; these include LD and/or ADHD screening and referral to psychologists, psychoeducational assessment and review with explanation, academic and disability counselling, and coaching and mentoring to improve learning strategies, study skills, time management, goal setting and stress management. LSC personnel are required to have a master’s degree in psychology (for more details, see Appendix E.)

The assistive technologist helps students with LD assess their AT needs and then provides specific training on the use of assistive software and devices that improve students’ accessibility and decrease the impact of processing deficits. Instruction includes the integration of AT and learning skills to improve students’ ability to compensate for their disability and increase their ability to work independently. Assistive technologists are usually required to have a college diploma or university degree in technology, with additional training and/or experience in disability-related adaptive/assistive technologies usually provided through the Cambrian College Assistive Technology Certificate program.

Enhanced Services Extended for This Study

For this study, it was decided that the academic learning services (ALS) – the generic name used to describe the service offered through Student Academic Learning Services at DC (SALS) and the Academic Success Centre at UOIT (see Appendix A) – supports available to all students on campus would be included as enhanced services. The decision to expand beyond the original LD enhanced services was a response to informal feedback from students with LD, who indicated that they found these services helpful to learn general self management skills. In addition, the LSCs noted that some students were gaining basic time management and learning strategies/skills from personnel in those learning support areas. This study wanted to include

these experiences, and include how these non-disability-specific services would enhance the academic performance or engagement of students with LD.

DC and UOIT: The STP

The government of Ontario initially selected a few institutions to pilot a summer transition program. DC and UOIT were part of this first group of STP developers, excluding the LOTF pilots and researchers, and the first STP pilot on the campus took place in 2003.

The STP is specifically designed to meet the needs of students with LD and/or ADHD. It begins in May with a one-day outreach session offered to high school students with LD and/or ADHD and their parents, at which time students receive a general orientation and information about the STP and the process of accessing disability supports in college or university. Students who wish to attend the STP then submit disability documentation and complete an in-person intake session with an LSC. Before being accepted into the program, students are required to provide or complete a current psychoeducational assessment; they then attend the program at the end of the summer. Psychoeducational assessment are considered valid for life after the age of 18 years; before age 18, assessment data are not considered stable because the person is still developing. Before age 18, psychoeducational assessment results are only considered valid for three to five years.

The STP consists of a two-week program delivered to college students (see Appendix G) and a one-week program delivered to university students (see Appendix H) at the end of August. The curriculum for both institutions is similar and includes themed days, an emphasis on self-advocacy, self-awareness and disability awareness, emotional coping strategies and learning strategies, time management study skills, and a celebration day. With the exception of the student homepages, the content and themes delivered in the program are similar to STPs offered at other PSE institutions.

STP Curriculum Design

The STP curriculum is delivered in a classroom setting in the morning and in a computer lab in the afternoon. Each day has a specific theme, and content is designed to enhance knowledge and skills related to self-determination and learning strategies. In the morning, content is delivered using modes of instruction commonly found in the postsecondary setting, including lectures and presentations (using PowerPoint), as well as group and hands-on activities. In the afternoon, students work in the computer lab, where they learn to use assistive software, such as Kurzweil (2010) (a trademark for comprehensive reading, writing and learning screen-reading software for any struggling reader, including individuals with LD, such as dyslexia, attention deficit disorder or those for whom English is not their first language) and Inspiration (a trademark name for software used for visual mapping, outlining, writing and making presentations). They also carry out activities required to create their student homepages. All technology activity modules are built on each other over the course of the program, and are related back to the morning's curriculum (see appendices G and H).

Section 2: Brief Review of the Literature

Students with LD and/or ADHD experience disability-related barriers when pursuing PSE (Gregg, 2007; Denhart, 2008). Denhart's (2008) exploration of the barriers experienced by college students with LD revealed that they frequently reported an increased workload and reluctance to access accommodation for fear of stigma and being misunderstood by faculty. These barriers are compatible with those reported by the LOTF pilot project findings:

The greatest barriers cited by all groups interviewed were the lack of transitional support.... Students [with LD] are frequently unprepared for the more challenging academic environment ... [and] reluctant to disclose their learning disabilities.... They sometimes expressed feelings of shame and embarrassment when dealing with faculty who expressed skepticism about their documented accommodation needs (Nichols et al., 2002: 8).

PSE: Increased Demands Require Increased Skills

Students with LD transition to a postsecondary environment with increased demands for skills in reading, writing, listening and memorizing. These demands place additional challenges on persons with this disability. Upton and Harper (2002) surveyed 937 students with LD and ADHD and documented how they had to work harder and spend more time to fulfill the same expectations as their non-disabled peers, despite their equal cognitive ability. Processing deficits affected these students' achievement and this required accommodation. Weyandt and DuPaul (2006) reported that students with ADHD described experiencing more academic problems than students without the disorder and they had less adaptive academic coping behaviour.

To meet academic demands, students with LD and ADHD need to acquire academic coping strategies, self-discipline and organizational and study skills, including skills in managing academic workloads and expectations. (Brinckerhoff et al., 2002; Nichols et al., 2002; Rath & Royer, 2002) It is evident that the basic skills needed for learning are a challenge for these students, and developing strategies to improve these weaknesses or compensate for them is paramount to their success (Swanson & Trainin, 2005). Computer technology and diverse kinds of software have been found to reduce barriers and should be considered a method of intervention for persons with LD and/or ADHD to increase educational accessibility (Burgstahler, 2003; Hecker, Burns, Elkind, Elkind & Katz, 2002; Houchins, 2001; Raskind & Higgins, 1998). For students with LD, AT can foster postsecondary success by being used to compensate for difficulties in reading, writing, spelling and other areas (Bryant, Bryant & Raskind, 1998).

Use of Service Influenced by Self-determination Skills

The willingness and preparedness of students with LD and ADHD to access supports become an important aspect of PSE success (Foley, 2006; Gregg, 2007). “Students with LD must possess an array of additional non-academic skills and attributes to ensure their success in the college environment” (Foley, 2006: 645). All postsecondary students are required to make autonomous efforts to succeed academically and socially, but students with LD need an additional level of independence and self-advocacy skills. They need to first self-identify as persons with a disability, then register at a postsecondary campus disability office and provide or obtain appropriate health practitioner documentation to verify their declared claim. They then have to make the self-determined choice to seek available supports and services, thereby self-disclosing (Rothstein, 2003) their disability to the professor/staff to provide support and accommodations in accordance with the *Canadian Charter of Rights and Freedoms*.

For students who fear possible discrimination or a negative appraisal, communicating personal information to a professor can be daunting (Skinner, 2007; Denhart, 2008). Hartman-Hall & Haaga (2002) reported that students with LD who believed that there was a stigma associated with their disability were less willing to ask for help and had lower self-esteem. Another factor described in Skinner and Lindstrom’s (2003) review of the issues of transition was that there are some students who are determined to “have a fresh start” and succeed without disability support. The authors conclude that students who choose not to disclose their disability can jeopardize their academic success. Foley (2006) reported that “some students may be reluctant to identify themselves as having disabilities under any circumstances. In either case, by the time it is realized that they need academic assistance, it is likely to be “too little and too late” (Foley, 2006: 645).

The current trend in postsecondary services is to design programs and enhanced services for students with LD that include components aimed at self-determination (see appendices I & J) and self-advocacy, which is considered an element of self-determination. A large body of research substantiates that students with disabilities can develop self-determination through intervention and curriculum (Algozzine, Browder, Karvonen, Test & Wood, 2001; Brinckerhoff, 1994; Field & Hoffman, 1994). Algozzine et al. (2001) completed a comprehensive review of studies that promoted one or more components of self-determination. Fifty-one studies were reviewed and the findings revealed that self-advocacy was the primary focus for students with learning disabilities. Overall, “the population of focus in most of the self-determination literature is transitioned students with disabilities” (Algozzine et al., 2001: 220).

When students disclose their disabilities they run a risk, however small, of receiving a negative response. However, if they do not disclose their disabilities they risk a poor academic outcome. Ongoing enhanced services may help students improve their disability awareness and promote better choices and acceptance; this, in turn, can promote increased use of the services available to them.

Documentation Disconnection

Students with disabilities in PSE are required to provide documentation from a registered health professional (i.e. a registered psychologist) confirming diagnosis of their proclaimed disability. For persons with LD, this involves having a psychoeducational assessment to verify their cognitive ability and any processing deficits that explain lower achievement, a negative academic impact, and below-average academic achievement. This disability documentation helps students arrange accommodations and make bursary applications, giving them the funds needed to cover disability costs. Additionally, it provides information necessary to enhance the students' understanding of their own disability; this, in turn, initiates the acceptance process.

The route that college and university students take to access accommodations is hampered by the current “documentation disconnection” that exists between the secondary and postsecondary education systems (Harrison, Laroche & Nichols, 2007). This transition barrier has been identified in the final LOTF report and in the LD transition research literature (Nichols et al., 2002; Gregg, 2007).

The requirements for labeling a student's disability in the secondary education system are different than those in the postsecondary education system. Typically, the postsecondary requirements for accessing services are more consistent with current diagnostic categories used by health professionals (National Joint Committee on Learning Disabilities [NJCLD], 2007; Rothstein, 2003; Weber & Bennett, 1999). In the postsecondary system, accountabilities lie with the *Charter*, which ensures access to education for persons with disabilities. Therefore, college and university disability offices require documentation from a health practitioner that diagnosed the student's disability. The requirements for identifying, defined under Ontario's *Education Act* as accessing special education support, are not necessarily linked to diagnostic criteria and the categories and requirements are different from the postsecondary disability requirements defined by health professionals.

By contrast, the secondary system is governed by the *Education Act* and uses an identification category designed in the early 1980s to improve educational support for students with special education needs. The identification process does not require a full psychoeducational assessment; a portion of students have documentation with diagnosis and some do not. Some students are identified solely based on teachers' evaluations. As well, the identification process does not include a category for ADHD; instead, students are identified as 'Behavioral', and this classification may not address their learning needs or include current understanding of the connection between executive functioning processing deficits and ADHD.

When students possess a current psychoeducational assessment, the information makes them aware of their disability and allows them to make meaningful postsecondary choices and access compensation for their disabilities. An up-to-date assessment also outlines the current academic impact, which will give students the concrete information required to assess their PSE needs for additional supports. After the students have up-to-date assessments, they must understand them and be able to translate psychological terminology into their personal learning profile of strengths and weaknesses, so that they can develop strategies to be efficient. Dalke & Schmitt (1987) reported that 60 to 80 per cent of participants in a transition and follow-up program had

not had their learning disability clearly explained to them before they entered the program. The transition literature finds that the explanation of students' psychoeducational assessments, and therefore their processing deficits and strengths, was highly regarded by students and viewed as an essential component of the STP benefits (Tsagris, 2010; Dalke & Schmitt, 1987).

Higgins, Raskind, Goldberg & Herman (2002) described a five-stage model of LD acceptance. The first stage is student awareness of differences, though their disability has not yet been identified. The second stage is the "labelling event" where a psychoeducational assessment is completed and an accurate diagnosis is provided. For many students with LD and/or ADHD, the first year of PSE is when they first receive a formal diagnosis and read or see their assessment. Higgins's stage three is "understanding and negotiating with the label," and here students are helped by having the support of knowledgeable LSCs. LSCs can also help students progress to stage four, compartmentalization. This stage occurs once the nature of the disability is clear and the individual's weaknesses are minimized and strengths are maximized. The enhanced services team assists students in this exploration and the STP is designed to begin this process. Stage five is transformation, when students accept their LD and come to view the disability as a positive force in their lives.

The STP and Enhanced Services

The literature identifies a number of important key skills for students with LD and/or ADHD to succeed in the postsecondary environment. PSE generally increases academic demands upon students. Learning additional skills (learning strategies) to cope with these demands is one way to compensate for academic weaknesses. Additional time, effort and commitment are also needed. Moreover, students with a disability have an increased responsibility to self-advocate about their disability and confront their fears about embarrassment and possible discrimination.

Students' unpreparedness requires them to learn numerous new skills to handle their unfamiliar environment. Along with the necessity of new learning, comes the extra workload of postsecondary studies and the demands of compensating for deficits. It is believed that students should prepare for PSE before the academic year begins, since the demands will be greater during the school year. Therefore, disability service providers have been called upon to develop transition programs that take place over the summer months in order to arm students with the skills and knowledge they need before starting postsecondary schooling.

There is evidence that summer programs and ongoing support programs help students with disabilities remove barriers that impede their access to education (Algozzine et al., 2001; Brinckerhoff et al., 2002; Dalke & Schmitt, 1987; Denhart, 2008; Karvonen, Test, Wood, Browder & Algozzine, 2004; Nichols et al., 2002; Raskind & Higgins, 1998; Rath & Royer, 2002; Rothman, Maldonado & Rothman, 2008; Tsagris, 2010). Troiano, Liefeld and Trachtenberg (2010) tracked 262 students with LD and collected data regarding academic performance and use of student service. The five-year study found that students with LD who attended learning supports regularly were more likely to have higher grades and completion rates than those who did not use supports. This study and others have shown promising findings regarding the benefit of the STP and enhanced services. While the published research on adult/postsecondary

students with disabilities is evolving, there are fewer studies that explore PSE outcomes of interventions for students with LD. The aim of this study is to contribute to this body of literature.

Section 3: Method and Procedure

Research Design

The research design was a longitudinal cohort study carried out over two and a half years (between January 2009 and July 2011) using a mix of qualitative and quantitative data collection methods. Participants were recruited from the population of students with LD and/or ADHD who were registered with the Disability Centre at Durham College/UOIT. Registration with the Disability Centre does not imply that students seek accommodations, disclose to professors or use services. The related factors that may encourage registration are parental cohesion (Tsagris, 2010) and factors that lessen intake barriers, such as the need for assessment or fear of discrimination from peers or professors; all of these influence students' willingness to use service and disclose (Skinner, 2007).

The data from students who attended the STP were compared with students who did not attend the STP (NSTP students). Data were collected to compare students' participation in enhanced services, engagement with their professors, academic achievement and retention rates. Additionally, the experiences of students who attended college were compared with those who attended university in order to contrast data across the two PSE systems.

Recruitment

Recruitment was staggered over the two and half years, and continued until the end of data collection in January 2011 regardless of when the students began their studies. The students who attended the STP and NSTP were recruited using various strategies, including outreach at Disability Centre events, referrals from Disability Centre staff, targeted e-mails to Disability Centre students and advertising posters in the Disability Centre and the exam centre. Most students who attended the STP were recruited for this study when they attended an intake session for the STP or during the first days of attending the STP. All students were offered incentives to participate in the study. Incentives began with a \$5 gift card and then increased to \$10 and \$30 gift cards or \$30 honoraria. The \$30 amount was effective in improving participation in interviews and focus groups.

Procedure

The data collected was a mix of qualitative and quantitative data; the procedure for each is described as it occurred during the project. After students had signed a consent form, they were invited to participate in focus groups during their first academic year and to return for individual follow-up interviews after they had completed one or more semesters. The purpose of the focus groups was to gain students' feedback about their experiences with PSE and the STP (if they attended) as well as their first-term experiences of disability services/enhanced services.

After each semester, information — including GPAs and retention and graduation rates — were collected from institutional databases. Individuals who were unsuccessful — defined as having a GPA below 2.0 (below 60 per cent) in a given semester — or who had withdrawn from their program were contacted for follow-up interviews at the beginning of the next semester. All successful students — those who entered their second year or completed a one-year program — were invited to be interviewed individually in the fall of the next academic year.

Students were contacted by e-mail and telephone; Disability Centre staff also arranged interviews. The 151 participants were invited to attend focus groups and interviews. Of these, 117 attended: 41 participated in focus groups; 55 participated in interviews; and 21 participated in multiple interviews or a focus group and interview. A total of 34 students did not attend either a focus group or an interview; for these participants, quantitative data, including use of services, grades, retention and disability and demographic information were collected and analyzed. Two students asked to be withdrawn from the study; data collected until their time of withdrawal were included in the findings.

Participants

A total of 165 college and university students were recruited to participate from a population of approximately 350 students per year who are registered with the Disability Centre. The aim was to select only participants with LD and/or ADHD and with average cognitive abilities so that the study could control, where possible, for the independent impact of cognitive ability. However, when up-to-date assessments were received later in the students' academic careers, a small proportion of participants no longer met the research criteria of average cognitive abilities or the diagnostic criteria for either LD or ADHD. Students were considered to have met inclusionary criteria if they had average cognitive abilities in either the verbal or the non-verbal domain. Statistically, the average range has a lower limit at the 16th percentile. Thus, students were considered to have reasonable cognitive ability if they were at or above this percentile.

As a result of all this, 14 participants were excluded from the final sample. There were 22 participants for whom there was no cognitive ability information; however, they were kept in the study because they met the diagnostic criteria for ADHD (Students with ADHD can access accommodations if they have received a diagnosis from a physician. In these cases a full psychoeducational assessment was not required because they had been diagnosed with a disability by a licensed health practitioner). In this way, the final study sample was narrowed down to 151 participants.

Age and Gender

Participants were between 17 and 36 years of age (mean = 20.5, SD = 3.88) (see Table 1). The sample had a larger proportion of males (N = 96) than females (N = 55). This is consistent with the increased frequency of ADHD in males in the population (American Psychiatric Association, 2000). Research has also reported increased rates of LD in males than in females, but the degree of difference varies based on the definition and measurement of reading disability employed (Limbrick, Wheldall & Madelaine, 2008).

Diagnostic Category

There were no significant differences between the STP and NSTP groups regarding distribution across the disability categories of LD, ADHD or LD/ADHD.¹ Individuals with LD (Appendix B), ADHD (Appendix C) and Non-Verbal Learning Disorder (NVLD) (Appendix K) were eligible to attend the STP and use the enhanced services designed to meet these populations' specific needs for learning strategies, counselling and AT. The Disability Centre includes individuals with NVLD in the population known as "persons with learning disabilities." Table 1 reviews the disability-related demographic information for the present sample. In the present sample, the comorbid disorders included one participant with obsessive compulsive disorder, nine with Asperger's Syndrome, four with anxiety, five with depression, one with bipolar disorder and others with Alcohol-Related Neurodevelopmental Disorder, Tourette Syndrome, cerebral palsy, Triple X Syndrome and language disorder.

STP and NSTP Cohorts

The participants self-selected or used parental selection (Tsagris 2010) to attend or not attend the STP. During the three academic years in which the research was conducted, a total of 118 students attended the STP. From this population, 77 students consented to participate in the research. These students make up the cohort of the STP sample group for this study; 44 were attending college, and 33 were attending university (see Table 1). A portion of students who self-selected to not attend the STP (NSTP cohort) consented to participate in this study, and these students make up the NSTP sample group of 74 participants. Of these, 51 were attending college, and 23 were attending university (see Table 1).

Table 1: STP and NSTP Group Demographics

Variable	STP Group	NSTP Group
	N (% of STP Group)	N (% of NSTP Group)
Sample Size	77 (51%)	74 (49%)
Institution		
College	44 (57.1%)	51 (68.9%)
University	33 (42.9%)	23 (31.1%)
Age	M = 18.86 yrs (SD = 2.95)	M = 20.92 (SD = 4.01)
Gender		
Female	22 (28.6%)	33 (44.6%)
Male	55 (71.4%)	41 (55.4%)

¹ The proportions of participants diagnosed with LD, ADHD or both were investigated in the STP and NSTP groups. A three (disability status) by two (STP status) chi-square analysis was conducted. The differences between the STP and NSTP groups, displayed in Table 1, were not statistically significant, $\chi^2(2, N = 151) = 3.11, p = .21$.

Variable	STP Group	NSTP Group
	N (% of STP Group)	N (% of NSTP Group)
Diagnostic Category		
LD only	45 (58.4%)	42 (56.4%)
ADHD only	13 (16.9%)	20 (27.0%)
LD and ADHD	19 (24.7%)	12 (16.2%)
Number of Previous Attempts*		
None	57 (79.2%)	36 (50.0%)
One	10 (13.9%)	23 (31.9%)
Two	4 (5.6%)	7 (9.7%)
Three	1 (1.4%)	5 (6.9%)
Four or more	0 (0%)	1 (1.4%)

*Data available for 72 participants in the STP group and 72 participants in the NSTP group. Percentages apply to only these participants.

College Versus University Group Comparisons

Analyses were also conducted to compare the demographic characteristics of the college and university populations. Results of a two (institution) by two (gender) chi-square indicated a significantly higher percentage of male students in the university population (82.1 per cent) than in the college population (52.2 per cent), $X^2(1, N = 151) = 13.25, p < .01$. These findings are consistent with the UOIT student population gender ratios and are institution-specific. UOIT is unique in having a higher male student ratio compared with other universities in the province.

An independent samples t-test revealed no institutional differences in the age at which students entered their program ($t(1,148) = .441, p < .66$); the mean age of entry was 20.0 years for college students and 19.7 years for university students. Participants were classified as “mature students” if they were 23 years of age or older and 14.6 per cent of the sample fell into this category. A two (mature student) by two (institution) chi-square analysis revealed that the proportions of mature students were similar in the two institutions ($X^2(1, N = 151) = .306, p = .58$); 15.8 per cent of college students and 12.5 per cent of university students were in the mature student category.

Qualitative Data Collection

Quantitative data were collected by accessing information in students’ disability documentation records, intake form, and from institutional and departmental electronic databases. All students signed a research consent form, which included an information release permitting researchers to access quantitative data from institutional and departmental databases. SPSS, a computer program used for statistical analysis, was used to create a database to store and analyze the quantitative data.

Quantitative Data Collection

Quantitative data were collected by accessing information in students' disability documentation records, intake form, and from institutional and departmental electronic databases. All students signed a research consent form, which included an information release permitting researchers to access quantitative data from institutional and departmental databases. SPSS, a computer program used for statistical analysis, was used to create a database to store and analyze the quantitative data.

Data Analysis

Individual student profiles were developed from student interviews and departmental files. The transcribed data were reviewed by the principal investigator (PI), co-investigator (CI) and research assistants (RAs), who carefully read each individual interview, underlining or highlighting material that stood out, and making notes. The investigators met to compare themes and possible interpretations, and then developed a list of possible concepts, themes and events. These were compared with concepts in previous literature, and negotiated terms were chosen to reflect the best language and to define concepts, typologies (related concepts) and themes. This process is consistent with data analysis described by Rubin & Rubin (2005).

This initial hand-coding process produced a set of themes and sub-themes. Once the process was complete, all transcripts were analyzed using NVivo 9. Next, the PI and RAs re-coded all of the interviews in accordance with a coding scheme based on these themes and compared the groups. The researchers engaged in frequent discussions and clarifications to ensure that the interviews continued to be coded consistently and reliably and to ensure inter-rater reliability. Concepts, themes and relationships were categorized, reviewed and further charted to compare the STP and NSTP sample groups, and college and university cohorts, according to each main theme and category of academic success (defined primarily by semester GPA). From these data sets, summaries were compiled and compared.

Section 4: Findings from Quantitative and Qualitative Data

The findings from this mixed method study are presented using an interconnected format drawing on both qualitative and quantitative data analyses in order to provide the most balanced and comprehensible answers to the research questions (Onwuegbuzi & Teddlie, 2003). As explained by expert researchers in this method,

in parallel mixed analysis, once both sets of analysis have been conducted and verified, the researcher has the option of interpreting and writing up the sets of findings separately or in some integrated manner (Onwuegbuzi & Teddlie, 2003: 365).

The aim of this study was to evaluate the role of the summer transition and enhanced services programs in promoting educational quality for students with LD and/or ADHD. The apparent effects of the STP and students' use of enhanced services on their retention, academic performance and engagement are reported. The research questions guide most of the presentation of this study's findings. The quotes presented from the student focus groups and interviews use students' initials or pseudonyms selected by the students, followed by the institution and sample group (either STP or NSTP, and in sections where they apply, whether the students were successful, had varied success or were unsuccessful).

Evaluating the general disability services was not the focus of this research study. However, one of the strongest themes that emerged from the qualitative data was the high value that students with LD and/or ADHD placed on the use of disability-related accommodations (e.g., extra time allowances, AT) to create a level playing field in their PSE careers. Commonly recommended accommodations included, but were not limited to, additional time for test completion, use of an alternative environment or format for lectures (PowerPoint), use of AT in the computer lab, use of alternative formats (converting hard-copy textbooks to digital format for use with reading software, AT) and reduced course load. Most of the college and university students stated that using accommodations was necessary for their academic success. Students described these benefits as follows:

Yes. If I didn't use the Disability Centre I probably would have failed all my midterms ... because I didn't have the extra time that I need.... The only reason I mainly came to the Disability Centre was just to get time and a half for the tests (Ryan: University, NSTP)

Yeah, reduced course load; I need my extra time for exams.... If that would be ever taken away from me ... it would be academic suicide. (Traveller: University, NSTP)

Student participants reported that their initiation of contact with the Disability Centre was greatly influenced by their awareness and willingness to use the services and supports available. Access to accommodation does not require registration with the Disability Centre; students can request accommodation directly from professors, although the accepted protocol is to have the Disability Centre verify that the documentation is appropriate and fits the accommodation. Participants from both college and university described the value of outreach initiatives provided

by Disability Centre staff. Some students reported that they chose their postsecondary institution based on their experience of meeting Disability Centre staff at outreach and recruitment events. On the other hand, an equal number of participants stated that they were unaware of the services available to them. One student stated, “I wasn’t aware. I knew that I was going to say that I had a learning disability for the following year; it’s just that I didn’t know.” (MDB: College, NSTP)

Students Recommended: Greater effort is needed to advance marketing and public awareness strategies for this target population and their support networks. Students with LD and/or ADHD place a high value on disability outreach and dissemination of disability supports.

Research Question 1: Do the STP and enhanced services for LD students positively affect students’ academic performance as well as their engagement and retention rates?

Early Intake Leads to a Smoother Transition

When students engaged with the Disability Centre early, they reported smoother transitions to higher education and improved experiences with the Disability Centre than students who initiated contact later. The Disability Centre is open during the summer months to give students an opportunity to start the intake process before September and before an increased demand for service increases lineups and waiting times. Regrettably, some students reported that they were unaware of this. Some NSTP students who were not transitioning directly from high school thought that they had missed out on information about the services and programs available and the process for accessing supports. For example, one mature college student stated:

I knew there was a procedure for getting into the ... [Disability] Centre.... [The] first day of school, I came down here and tried to get an appointment and ... didn’t realize that I could have done that in the summertime. I figured it was closed, you know, everybody was on vacation ... (Rangler: College, NSTP).

A student who did not attend the STP describes how he experienced a waiting time of one month for the intake session. The student said, “Initially, it was a long process because I came in September, and it was October when it was my first appointment” (Rangler: College, NSTP). This lack of information about the process of accessing disability services was particularly evident among students who did not attend the STP or those who were not transitioning directly from high school. One student described the intake process as a barrier and as “the biggest hassle for me yet” (Tux: College, NSTP). In contrast, students who attended the STP became oriented with the Disability Centre’s services and more familiar with its personnel. A college STP student described how she did not think she would have been aware of the Disability Centre without attending the STP. She stated:

If you don't go to the Summer Transition Program, you wouldn't know who to go and see, who is your disability advisor, you wouldn't get an idea ... where they are, what they can deal with.... You also get an idea of what goes on in the Learner Support Centre (Tori: College, STP).

All students who attended the STP were required to register with the Disability Centre before the STP started. This requirement smoothed the process of accessing disability services, and during intake, the students were guided through the process of accessing support. For example, barriers to service use, such as not having an up-to-date assessment, were dealt with before the STP began. For example, one student stated:

When I came here you guys were such a big help.... 'Yeah, the first day you show up here, you can stop by and drop in your assessment, and we'll start working on accommodations,' you guys [said], 'Do it right now, let's get it over with. Give me your psych,' all that stuff. You guys knew what you were doing (Track: University, STP).

Support at the secondary school level assisted students in the recruitment and intake process at postsecondary institutions. The majority of students who attended the STP indicated that they were encouraged to attend by parents and, less often, high school guidance counsellors and disability advisors whom they met at outreach events. For example, when one student was asked why she attended the STP, she stated, "This might be bad for me to say, considering how old I am, but my mother made me. There was no choice for me" (Tori: College, STP). The STP sample group was younger and more likely to transition directly from high school than the NSTP group (see Table 1 above).

The majority of students who did not participate in the STP reported that they were not aware that the STP was offered. A few students reported being aware of the program, but chose to spend the last weeks of summer working or on vacation. Several students who did not attend the STP believed that if they had sought services earlier, their transition would have been quicker and their academic performance more successful.

Students Recommended: Increased effort and outreach to students transitioning to PSE regarding disability services and the STP.

Attending the STP Lowers Assessment Barriers

As discussed in Section 2, there is a discrepancy between the secondary education system's identification requirements that do not necessitate a diagnosis of a disability, and those of PSE, which demand both a diagnosis of disability and a psychoeducational assessment for persons with LD. The secondary education identification policies and procedures are set out by the *Education Amendment Act* of 1980 (Bill 82), which provides the foundation for the establishment of Identification, Placement and Review Committees as well as the development of Individual Education Plans. The Individual Education plans (IEP) do not require data from a psychoeducational assessment, or recommendations based on data from psychoeducational assessments. They are designed for high school teachers individualize their teaching style. In

accordance with standards recommended by the Ontario Psychological Association, a psychological assessment provides an adequate diagnosis of a learning disability,. It includes an up-to-date description of functional skills, strengths and difficulties, recommendations for learning strategies and academic accommodation, as well as, a listing of useful coping and compensatory strategies (Nichols et al., 2002). “In contrast, a *diagnosis*, which is listed as one of the Controlled Acts under the Regulated Health Professions Act (1991), involves the formulation of a psychological interpretation that is consistent with an accepted nomenclature and associated body of knowledge and research” (Ontario College of Psychologists, as cited in Harrison et al. (2007b). This disconnection stems from differences in law and requires students to have completed a psychoeducational assessment before they transition to PSE. The assessment verifies average cognitive ability, the invisible effects of the disability and areas of strengths, and helps to provide recommendations for improving academic outcomes through learning strategies, use of AT and accommodation (details are provided in Appendix A).

Many participants reported that obtaining a recent psychoeducational assessment was a barrier for several reasons. One reason was the cost of obtaining it, which could be anywhere from \$1,800 to \$2,400. They also found the process to obtain an assessment — completion of clinical assistance forms, a clinical interview with an LD screener, etc. — difficult to complete. Moreover, once this process has been completed, the waiting time to receive the assessment can be from three to six months, and may be longer if there is limited access to psychologists in the local area. Lastly, the time commitment to complete an assessment can total eight to 10 hours.

In addition to the obstacle of obtaining an assessment, some students reported that they did not know that assistance was available. For example, James stated, “I did try to get an assessment done once, but I didn’t.... I wasn’t aware that I could actually access the centre to help me” (James: University, NSTP).

The data regarding students’ experience of barriers revealed a strong sub-theme affecting both access and use of service. Qualitative data indicated that accessing documentation in a timely manner was a particular issue for students who did not attend the STP. One student stated:

... I was waiting on my assessment to go through ... half the semester was over and they were trying to find funding for this.... The process really interrupted the school year ... (MDB: College, NSTP).

In addition to the barriers to access faced in the PSE setting, some students reported that their high school teachers had given them incorrect information regarding the PSE documentation requirements. A student who had an assessment before the STP began expressed her frustration:

I was told in Grade 10 that they [high school] could write a letter.... [Now] I know that [an assessment was required] at every university... So I was just angry at the high school (Curly: University, STP).

STP students experienced fewer assessment-related barriers. Each year, the Disability Centre facilitates the completion of 15 to 20 assessments before the STP begins; a portion of the targeted summer transition funding makes this possible. Some of the funding can be applied to psychoeducational assessments, which permits the PSE institution to arrange assessments and have funds to back venture costs if a student does not qualify for disability bursary funding. The NSTP students were more likely to indicate that a lack of an assessment affected their access to services. In addition, students recounted difficulties obtaining the required psychoeducational assessments (with a waiting time of several months).

To explore the association between academic success and the timing of a student's assessment, students were categorized according to their overall level of academic success across all semesters as "successful," "varied success" and "unsuccessful." A two (assessment before or after) by three (overall level of academic success) chi-square analysis revealed a significant association between assessment timing and overall level of academic success (χ^2 (2, $N = 131$) = 7.91, $p = .02$). This indicated that 91.0 per cent of successful students, 67.9 per cent of varied-success students and 83.3 per cent of unsuccessful students had assessments conducted before their program began. Follow-up analyses to identify differences among the groups revealed that students who were successful were significantly more likely to have had an assessment conducted before their program began than students with varied success (χ^2 (1, $N = 95$) = 7.99, $p < .01$). Results of the other comparisons (unsuccessful vs. varied success and unsuccessful vs. successful) were not significantly different.

Students Recommended: Improve access to psychoeducational assessments, public information regarding the PSE documentation requirements, and awareness on the part of high school teachers about PSE. One student stated:

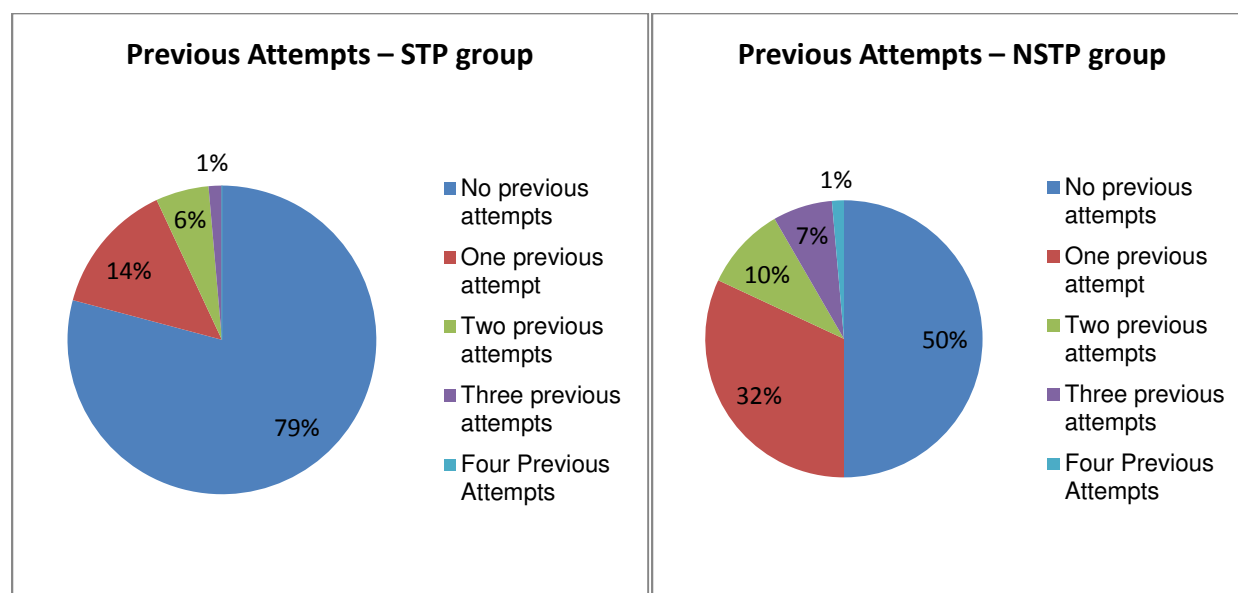
Just making it easier ... instead of paying \$1,800, paying a hundred bucks, just to get them going — you have to apply and do this [the bursary], and it's just a lot of unneeded headaches ... it's difficult, long and complicated (Ryan: University, STP).

Demographics of STP Versus NSTP Students

Before investigating the relationships among the STP, services use and academic performance, analyses were conducted to explore the demographic characteristics of the STP and NSTP groups. T-tests were conducted to compare the age of STP and NSTP participants. This data is presented in Table 1 (see Section 3). The groups were self-selected or parentally selected by attendance in the STP.

It was assumed that students who had previous PSE experience would be less interested in an orientation/transition program. To determine whether STP or NSTP students were more likely to have made a previous attempt at PSE, a two (STP status) by two (previous attempts status) chi-square analysis was conducted. Results indicated that individuals who attended the STP were significantly less likely (20.8 per cent) than NSTP participants (50.0 per cent; χ^2 (1, $N = 144$) = 13.39, $p < .01$) to have made one or more previous PSE attempts. The distribution of previous educational attempts for STP and NSTP participants is displayed in Figure 1.

Figure 1: Distribution of Previous Postsecondary Education Attempts for STP and NSTP Students



Given that 35.4 per cent of the overall sample had made one or more previous attempts at PSE, analyses were conducted to determine how these individuals differed from those who had not made previous attempts. An independent samples t-test was conducted to compare the age of individuals who had made one or more previous attempts (previous attempts group) with those who had not made previous attempts (no previous attempts group).

Results indicated that those in the previous attempts group were significantly older when they started their program ($M = 22.16$, $SD = 4.90$) than those in the no previous attempts group ($M = 18.72$, $SD = 2.06$; $t(59.82) = -4.79$, $p < .01$). A two (previous attempt status) by two (gender) chi-square analysis was conducted to determine whether the proportion of males and females differed between the groups. Results indicated that there were significantly more males (65.5 per cent) in the no previous attempts group than in the previous attempts group (51.0 per cent), $X^2(1, N = 144) = 5.07$, $p = .02$.

Multiple Attempts

For many participants with LD and/or ADHD, their academic journeys often included multiple attempts at PSE; 42.4 per cent of college students and 23.1 per cent of university students had made a previous PSE attempt. Some students who described poor academic outcomes attributed these outcomes to not accessing student services or not being aware that services, supports, and accommodations were available. One student, who was placed on academic suspension from his studies at the university and began a new program at the college, described what he would have done differently:

Be able to seek support when I actually needed it. Seek out specific people in my life that I can use as supports or encouragement, if not support, to get things done (James: University, NSTP).

Motivation and Perseverance

Students who had made previous attempts at PSE provided insight into the various steps taken by students with LD and/or ADHD to achieve their PSE goals. Their retrospective accounts of previous experiences in PSE settings provide information about their disability acceptance processes, and changes in their willingness to use services. Most of the student participants were committed to overcoming the obstacles or limitations presented by their disability. An overarching trend in both college and university students' stories was their determination to achieve their goals regardless of the time or effort required. Their persistence is evident in statements such as the following:

I'm going to keep going until there's no other way [but] that I have to drop out, until I've failed every single course. Otherwise, I'm going to stay in, and I'm going to do my best (Ernesto: University, NSTP).

Participants described internal struggles or external obstacles that required significant motivation to overcome in order to make the effort and sacrifices necessary to pursue their academic goals. The majority were highly motivated in their academic studies, and they reported a wide range of motivating factors. Some students were motivated by a desire to prove their capabilities to themselves and others (e.g., previous teachers, parents). Some were motivated to achieve success to disprove low expectations or negative perceptions about individuals with disabilities that they had encountered in the past. For example, one student stated:

I think it's part of who I am, but it's also a part of the disability because when you're a child, I remember this clearly, sitting in with teachers and helpers and [them saying], 'She can't — we're going to keep her back.' And that [was] — as a child — [as if] they think that you're not really understanding, but you understand them. And to me, I always thought, 'Well, no, I'm going to show you that I'm capable of doing this' (B: College, NSTP).

Some students who had experienced failure and disappointment reported that the experience had motivated them to work harder in the future. One student, for example, said:

Failure can be a big motivator. For me, I went to school all this time for this specific career, and then it didn't pan out. So now I'm much more motivated because I don't want to fail like that again, and I'm 35. If I fail like that again, I'm going to be homeless (ML: College, NSTP).

Previous failures also caused some students to re-evaluate their willingness to use supports and accommodations. For example, one student described the process of becoming more proactive in his learning:

Making the changes, I went from being the student that didn't ask questions ... or just kind of sat back and watched things happen. Versus the next semester, I became my own advocate and [I thought], 'Okay. This is how it is, this is how I've got to readjust, [my attitude about proactive behaviour] and this is what I've got to do, and [Disability Centre staff] is who I need to get to help me' (MDB: College, NSTP).

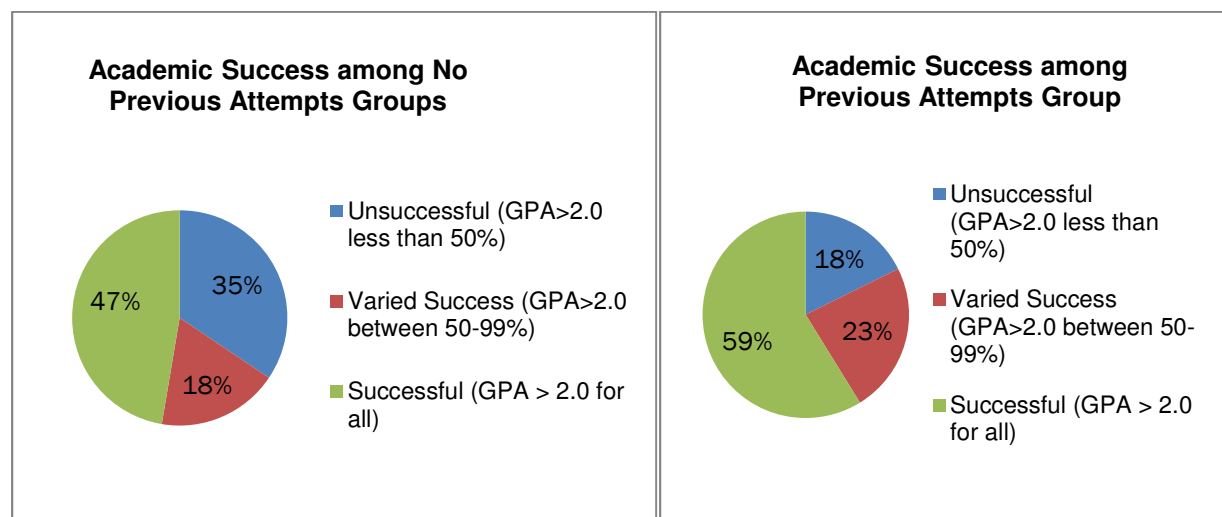
Students Recommend: Design a transition program for second-attempt students who have some PSE experience but less experience with disability-related issues, or for mature students, with content that addresses their particular transition to PSE.

Selection Bias

As previously mentioned, several students reported that adults had encouraged them to attend the STP or use services; they indicated that they were happy they had attended and thought the experience had been beneficial. Those who did not find the STP beneficial reported that they already knew much of the content covered; that is, they found that the content overlapped with information they had learned in high school or during previous PSE attempts.

The association between the number of previous attempts and academic performance was explored. To determine whether the groups' academic performance differed, a two (previous attempts status) by three (overall level of academic success) chi-square analysis was conducted. In terms of overall levels of academic success, students were categorized as successful, having varied success or unsuccessful; more details are provided above (see "Related Terms.") The results of the chi-square did not reveal a statistically significant relationship between previous attempt status and level of success (χ^2 (2, N = 144) = 4.55, p = .10) and the pattern of results is presented in Figure 2.

Figure 2: Levels of Overall Academic Success Among Students With No Previous Attempts and Those With One or More Previous Attempts

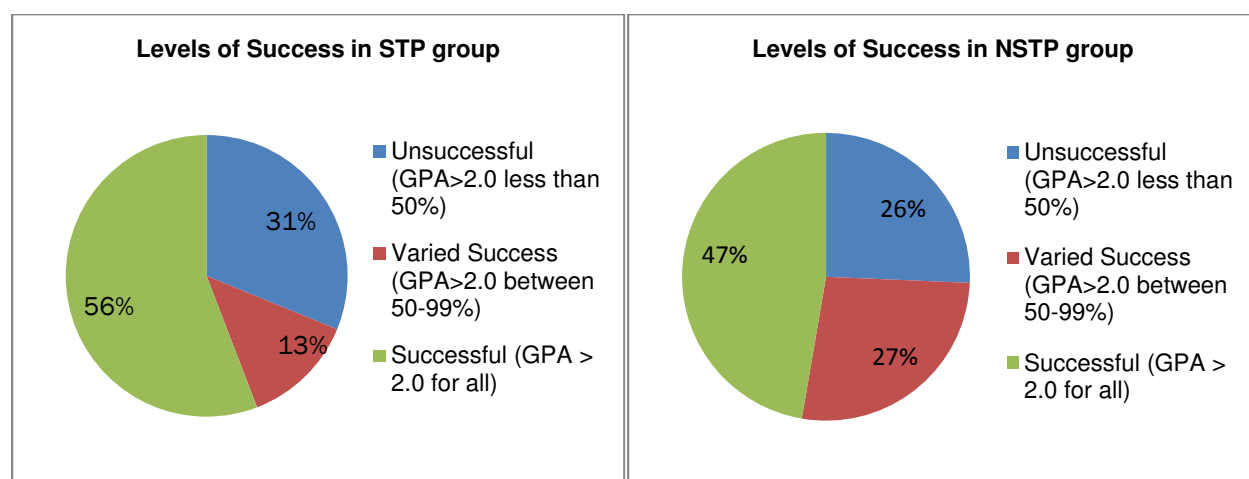


Impact of the STP on Academic Outcomes

The impact of STP attendance on academic performance was investigated in several ways. First, analyses were conducted to compare overall levels of academic success and retention between STP and NSTP groups. Additional analyses were conducted for each semester to determine whether academic differences between STP and NSTP students emerged during their programs.

To determine whether the STP and NSTP groups differed with regard to their overall level of academic success, a two (STP status) by three (overall level of academic success) chi-square analysis was conducted. The pattern of results is presented in Figure 3.

Figure 3: Levels of Overall Academic Success Between STP and NSTP Students



The next objective was to determine whether retention rates differed between students who had and had not attended the STP. A two (STP status) by two (retention status) chi-square analysis was conducted. Retention status had two levels: students were classified as “retained” if (at the end of data collection) they continued to be enrolled in college/university or had graduated from their program; students were classified as “not retained” if they had left their program without graduating. The results of the chi-square analysis indicated no significant differences in retention based on STP attendance ($X^2(1, N = 151) = .11, p = .74$); 88.3 per cent of students who attended the STP and 86.5 per cent of students who did not attend the STP were retained.

Next, analyses were conducted for each semester to determine whether the association between STP and academic performance varied over time. T-tests were conducted to determine whether students who did and did not attend the STP differed in their GPA for each semester. These analyses were conducted for each of the college and university populations individually because of institutional differences in the GPA scales. Results indicated that for the first five semesters, there were no significant differences in GPA between STP and NSTP groups in either the college or the university population. The results are presented in Appendix O.

To determine whether the likelihood of being in good academic standing differed between those who did and did not attend the STP, chi-square analyses were conducted. To investigate this relationship, a two (STP status) by two (academic standing) chi-square analysis was conducted for each of the first five semesters. Academic standing was measured based on whether the individual was successful (GPA >2.0) or unsuccessful (GPA <2.0) in a given semester. Results indicated no difference between those who did and did not attend the STP in their likelihood of being successful for any of the first five semesters. The percentages of students who were successful in each of these semesters are displayed in Table 2 below. A more detailed version of this table with significance levels is presented in Appendix P.

Table 2: Percentage of STP and NSTP Students in Good Standing in Each Semester

Group	First Semester	Second Semester	Third Semester	Fourth Semester	Fifth Semester
STP	66.2%	67.5%	77.8%	78.6%	79.2%
NSTP	68.5%	76.0%	65.9%	65.0%	100%

Across analyses, it can be concluded that exposure to the STP alone is not associated with increased academic performance. However, it is important to recall that the STP and NSTP groups were self- or parentally selected and that the groups' demographics were not the same (e.g., in age, number of previous attempts). On average, participants in the STP group were younger and were less likely to have had a previous PSE attempt. When comparing STP and NSTP groups, similar academic outcomes in the first semester could be interpreted as positive. It may suggest a positive PSE orientation for the STP group who are, on average, less familiar with PSE than those in the NSTP group. On the other hand, it is important to consider the positive effect of other factors, such as the benefits of STP on an early and smoother disability intake process and earlier access to psychoeducational assessment.

Enhanced Services Use and Academic Performance

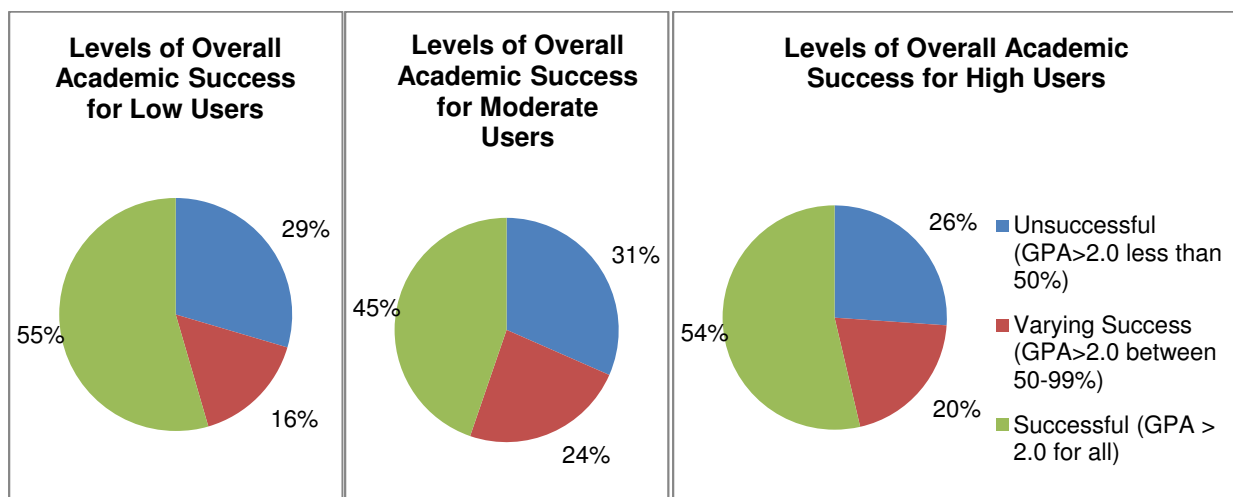
The study's next objective was to determine the association between enhanced services use and academic performance. This relationship was examined in a number of ways. First, the overall level of enhanced services use and the overall level of academic success were examined. Then analyses were conducted within individual semesters to determine whether there was an association between services use and academic standing or GPA.

Overall Level of Academic Success

To examine the association between overall level of services use and overall level of academic success, a three (services use category) by three (overall academic success) chi-square analysis was conducted. For services use categorization, the number of appointments with an LSC, assistive technologist or Academic Learning Service (ALS) was tallied for each semester. Students were classified as low users if they had zero to two appointments in all semesters, moderate users if they had three or more appointments during at least one semester and high

users if they had five or more appointments during at least one semester. In terms of overall academic success, students were categorized as successful if they had a GPA above 2.0 in all semesters, as having varied success if they had a GPA above 2.0 for more than half but less than all of their semesters (50–99 per cent) and as unsuccessful if they had a GPA above 2.0 in less than half of their semesters (<50 per cent). The results of the chi-square analysis did not indicate a significant relationship between services use category and overall academic success ($X^2 (4, N = 151) = 1.39, p = .85$). The levels of success for each services use category are displayed in Figure 4.

Figure 4: Overall Level of Academic Success for Low, Moderate and High Users of Enhanced Services



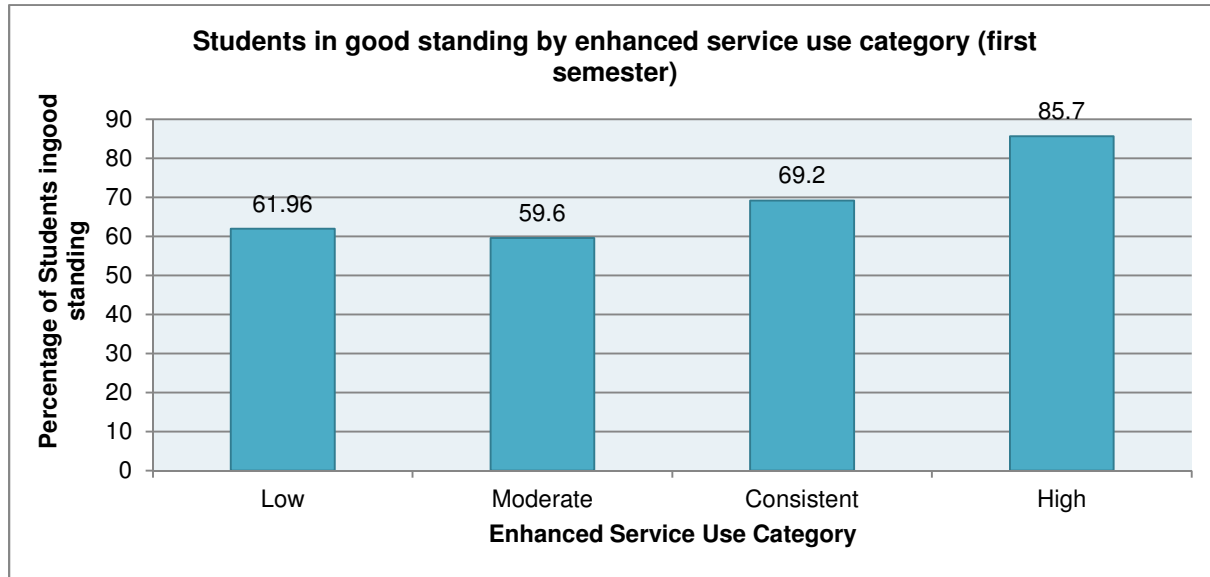
Relationship Between Enhanced Services and First-Semester Academic Standing

Next, analyses were conducted to determine whether services use in the first semester of one's program was associated with an increased likelihood of academic success in that semester. Participants were divided based on their total number of appointments with an LSC, assistive technologist or ALS in the first semester. Students were classified as "consistent-high" users if they attended five or more appointments, and "low-moderate" users if they had between zero and four appointments. A two (first-semester standing) by two (enhanced services use category) chi-square analysis was conducted. The findings indicated that increased services use was associated with a higher likelihood of success ($X^2 (1, N = 148) = 4.55, p = .03$). Significantly more students who used services on a "consistent-high" basis (77.8 per cent) were more often in good standing at the end of the first semester than students who used services on a "low-moderate" basis (60.6 percent).

Participants were re-categorized into four groups based on first-semester enhanced services use (LSC, assistive technologist and ALS). Students were classified as "high" users if they had attended eight or more appointments in a given semester, "consistent" users if they had five to

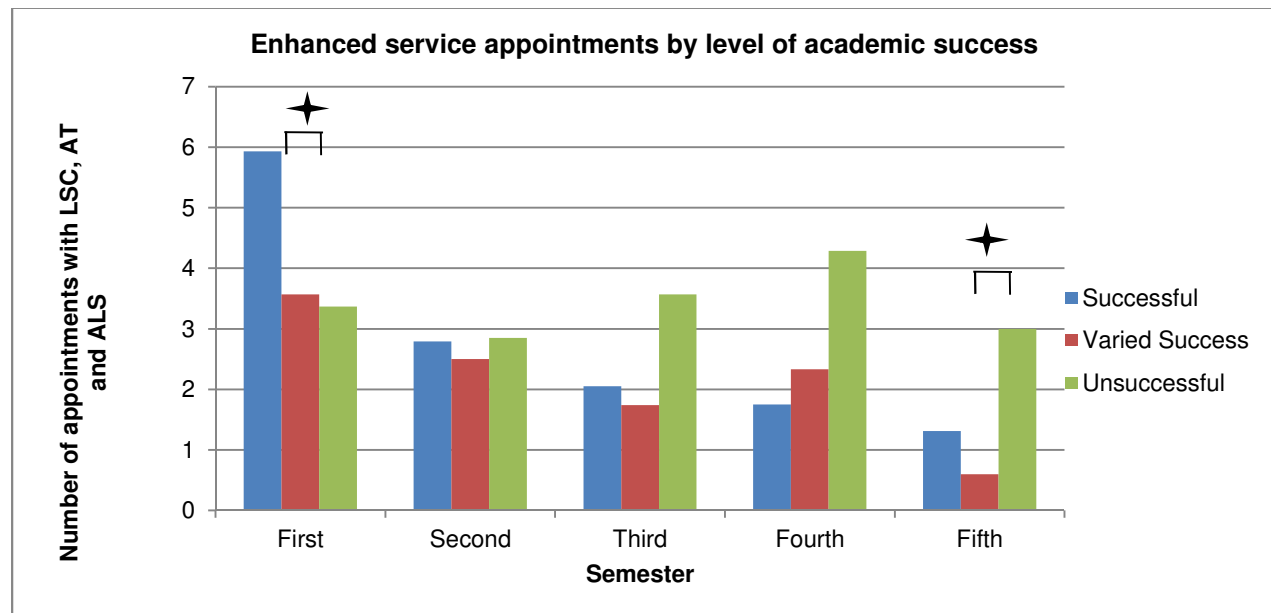
seven appointments, “moderate” users if they had two to four appointments and “low” users if they had zero to one appointment. The results of a four (first-semester services use category) by two (first semester) chi-square analysis were not statistically significant ($\chi^2 (3, N = 148) = 6.26, p = .10$), and the pattern of results is displayed in Figure 5.

Figure 5: First-Semester Academic Standing for Students Who Used Enhanced Services on a Low, Moderate, Consistent or High Basis



Thus far, support is stronger for reviewing the academic effect of enhanced services use in individual semesters rather than across semesters. Thus, a final set of analyses sought to determine whether students' levels of success differed significantly in the number of enhanced services appointments they attended in any given semester. Analyses of variance (ANOVAs) were conducted to compare successful, varied-success and unsuccessful students in terms of their total number of appointments with an LSC, assistive technologist or ALS for each of the first five semesters. The results of the ANOVAs indicated that there were significant differences in the number of enhanced services appointments based on level of success for the first semester ($F(1,146) = 3.78, p = .03, \eta^2_p = .05$) and fifth semester ($F(1,34) = 3.28, p = .05, \eta^2_p = .16$, see Figure 6.) Post-hoc analyses found that in the first semester, successful students ($M = 5.93$) had more enhanced services appointments than unsuccessful students ($M = 3.37, p = .04$). In the fifth semester, unsuccessful students ($M = 3.00$) had more appointments than students with varied success ($M = .60, p = .04$). A visual analysis of the pattern indicates that successful students had more appointments initially and fewer appointments in later semesters, while unsuccessful students seem to have had a consistent number of appointments across semesters.

Figure 6: Number of Enhanced Services Appointments by Semester for Successful, Varied-Success and Unsuccessful Students



Denotes a significant difference between groups, $p < .05$.

Qualitative Data Related to Use of Enhanced Services

The frequency of enhanced services use was explored mainly through the collection of quantitative data. However, the qualitative data analysis pertaining to enhanced services use focused on students' perceptions of the connections between services use and academic performance. The qualitative data show that most students who used enhanced services reported some type of academic benefit. This perceived connection between services use and academic benefit was found regardless of when, in a student's academic career, such use began.

Several academically successful students who used services described the benefits of such use and commented on services use more frequently than students in other groups. One successful student described enhanced services use and LSC support as follows:

Pretty much every other week starting the end of first semester into second semester.... I do [think it contributed to academic success] because it helped me organize myself and ... bounce ideas off someone, help to find research and people to talk to, helped me know that I was doing things okay (GM: College, NSTP).

A group of varied-services-use students who did not use services when they began school reported that the services were beneficial when they began to use them later in their programs. Students' comments reflect the process by which they chose not to use services initially, but later decided that accessing supports was necessary. For example, one student described the process by which she came to use supports as a result of struggling academically:

Yeah, exactly. Instead of [my] having to go through the struggle first and wondering, 'Okay. What can help me with this struggle?' It would be nice to see ahead of time, I do struggle with this and there is something that might be able to help me. Can I 'try it out' versus afterwards seeing it (MDB: College, NSTP).

After almost failing a course, the student sought supports:

I went to tutoring, I [saw] you for a few weeks, we organized my books. I was reading over my books daily, two hours a day. I was actually sitting back and listening ... (MDB: College, NSTP).

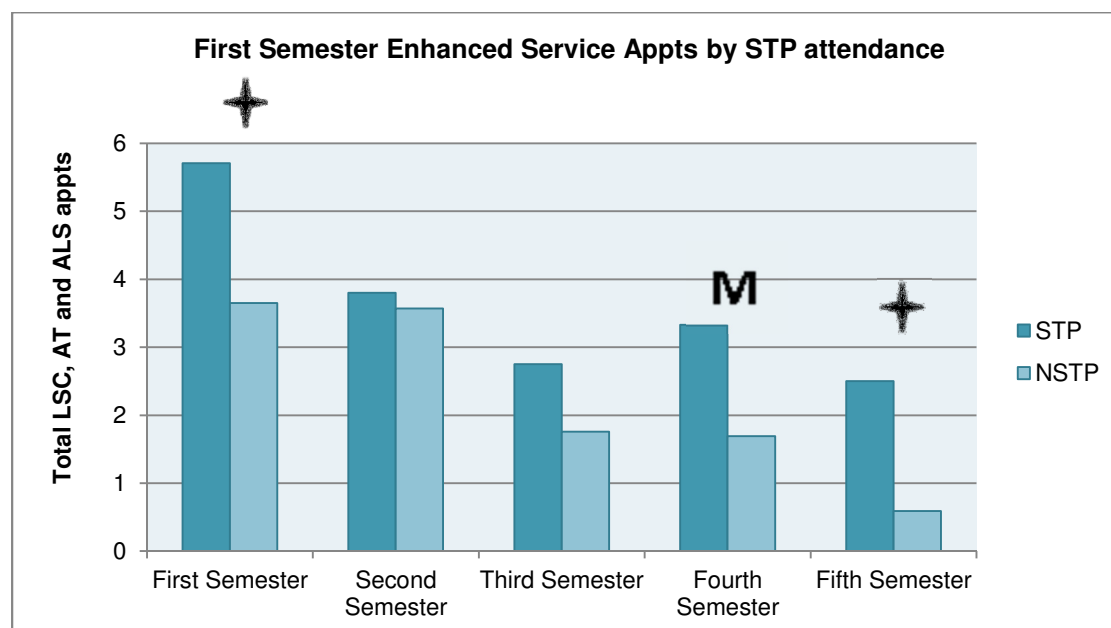
Some students resisted using disability supports. Some of these students who had varied success or were unsuccessful indicated that they had not used services as frequently or as soon as they should have and that this negatively affected their academic outcomes. When asked whether anything could have been done in the STP to encourage him to use services in first semester, one student replied:

I don't think so. For me it was just a matter of realizing that I needed the help. In high school I didn't really need [disability support services] because I was able to just get by and then when I started getting killed [in first semester] figuratively in my academics, I realized, yeah there's no way I can do this by myself (Warhammer: University, STP).

Comparing the STP and Enhanced Services Use

The relationship between STP status and use of overall enhanced services was examined. ANOVAs were conducted to determine whether the total number of enhanced services appointments (with an LSC, assistive technologist or ALS) differed between students who did and did not attend the STP for each of the first five semesters. The results (shown in Figure 7) indicated that students who attended the STP had significantly more enhanced services appointments in the first semester ($F(1,147) = 5.15, p = .03, n^2_p = .03$) and fifth semester ($F(1,35) = 4.66, p = .04, n^2_p = .12$) and only marginally significantly more than in the fourth semester ($F(1,45) = 3.30, p = .08, n^2_p = .06$). There were no group differences in the second or third semester.

Figure 7: Number of Enhanced Services Appointments for STP and NSTP Students



Denotes a significant difference between groups, $p < .05$.

The qualitative data confirm that the STP improved students' awareness of the Disability Centre and their willingness to seek assistance. One student stated, "It motivated me because again just knowing that someone's there to help you makes you want to work harder" (PG: College, STP).

Impact of the STP and Enhanced Services on Academic Performance

First-Semester Academic Performance

To determine whether academic standing was differentially associated with enhanced services use in STP and NSTP groups, participants were divided based on total number of appointments with an LSC, assistive technologist or ALS in their first semester. Students were classified as "consistent-high" users if they had attended five or more appointments and "low-moderate" users if they had attended zero to four appointments. A two (first-semester standing) by two (enhanced services use category) chi-square analysis was conducted with STP and NSTP participants separately to see whether the association differed based on STP status. Within the STP group, increased services use was significantly associated with being in good standing at the end of the first semester ($\chi^2 (1, N = 77) = 5.44, p = .02$). Significantly more students who used services on a "consistent-high" basis (80.0 per cent) were in good standing at the end of the first semester than students who used services on a "low-moderate" basis (54.8 per cent). Within the NSTP group, services use was not associated with being in good standing at the end of the first semester ($\chi^2 (1, N = 71) = .44, p = .50$). Students who used services on a

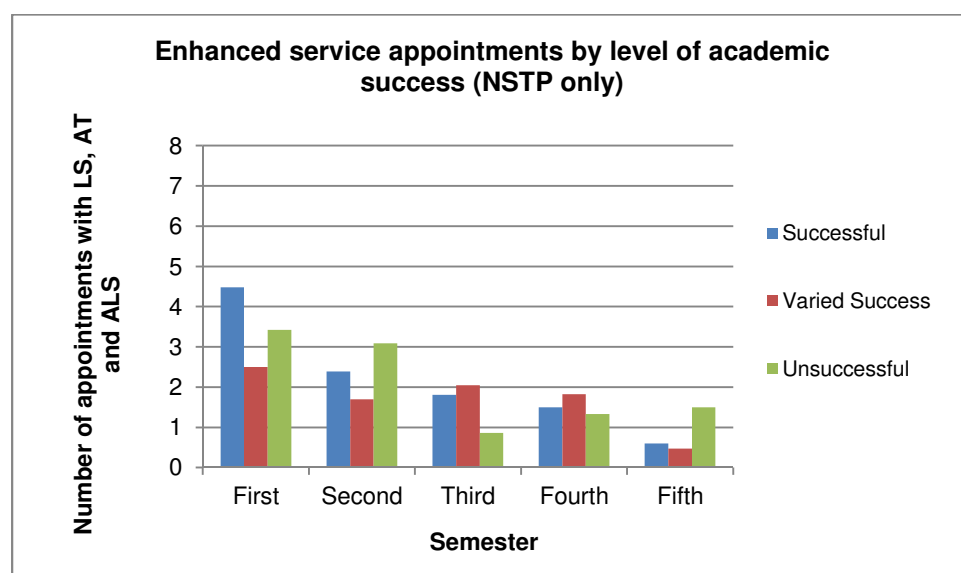
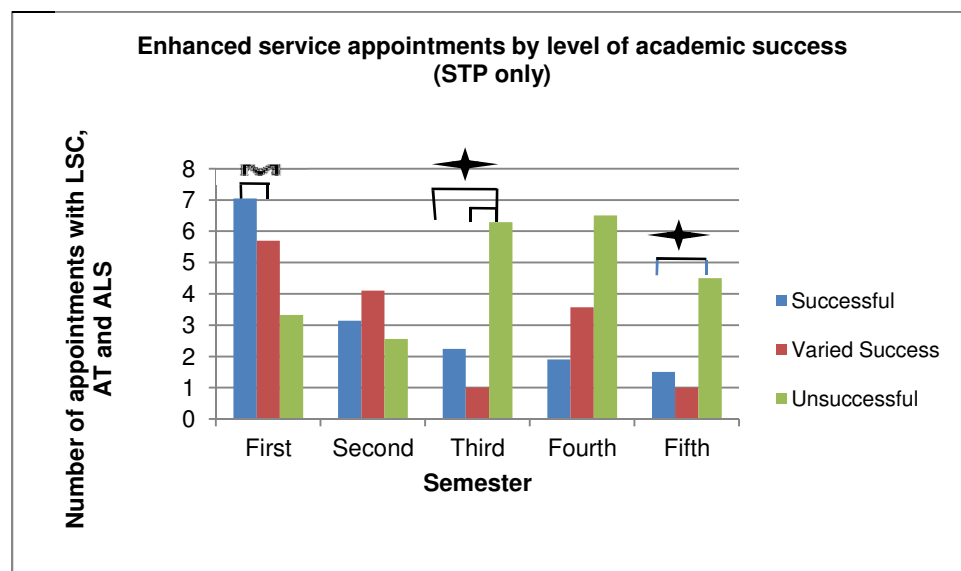
“consistent-high” basis (73.7 per cent) did not differ in their likelihood of being in good standing at the end of the semester compared to students who used services on a “low-moderate” basis (65.4 per cent).

Overall Academic Performance

Thus far, enhanced services use has been associated with positive academic outcomes in the STP group, but not in the NSTP group. This association was further explored by conducting analyses to determine whether STP attendance had an impact on the association between overall level of academic success and enhanced services use during different semesters of the students’ academic careers. ANOVAs were conducted to compare successful, varied-success and unsuccessful students in terms of total number of appointments with an LSC, assistive technologist or ALS for the first five semesters.

For the STP group, the ANOVAs indicated that there was a significant association between overall level of academic success and degree of enhanced services use in the third semester ($F(2,33) = 4.46, p = .02, n^2_p = .21$) and a marginally significant association in the first semester ($F(2,74) = 2.74, p = .07, n^2_p = .07$) and fourth semester ($F(2,18) = 2.99, p = .08, n^2_p = .25$). Post-hoc analyses indicated that in the first semester, successful students had marginally significantly more enhanced services appointments ($M = 7.05$) than unsuccessful students ($M = 3.33, p = .06$). In the third semester, unsuccessful students ($M = 6.29$) had significantly more appointments than successful students ($M = 2.24, p = .04$) and students with varied success ($M = 1.00, p = .02$). In the fourth semester, unsuccessful students ($M = 6.50$) had significantly more appointments than successful students ($M = 1.9, p = .06$). For the NSTP group, the ANOVAs indicated no significant associations between overall level of success and number of enhanced services appointments (see Figure 8).

Figure 8: Number of Enhanced Services Appointments per Semester for Successful, Varied-Success and Unsuccessful Students



A visual analysis of this pattern of results highlights important differences between STP and NSTP students in terms of the association between academic success and enhanced services use. For STP students who are academically successful, their enhanced services use decreases on average across semesters. Conversely, for STP students who are categorized as academically unsuccessful, their enhanced services use increases on average across semesters. This pattern is not seen among NSTP participants. As stated above, NSTP

participants use services less often than STP participants. Furthermore, successful and unsuccessful students both seem to decrease their services use across semesters.

STP and NSTP Qualitative Data: Trends in Services Use

Some students who attended the STP indicated that they continued to use enhanced services throughout the year. Once they had learned the necessary skills, their need to use consistent services declined. One college student described her evaluation and use of services as follows:

Yeah, every other Thursday I used to go see a Learning Strategies Counsellor because I had a problem with one of my classes with organization; I went in for organization. [Not so much this semester] because I'm organized now thanks to my counsellor (HD: College, STP).

Other students who attended the STP indicated that, in many cases, they knew where to get assistance when they determined that they required support.

Students Recommended: New students should attend the STP; greater marketing efforts should be made to promote the benefits of attending the STP.

The STP and Improved Engagement with Disability Centre Services

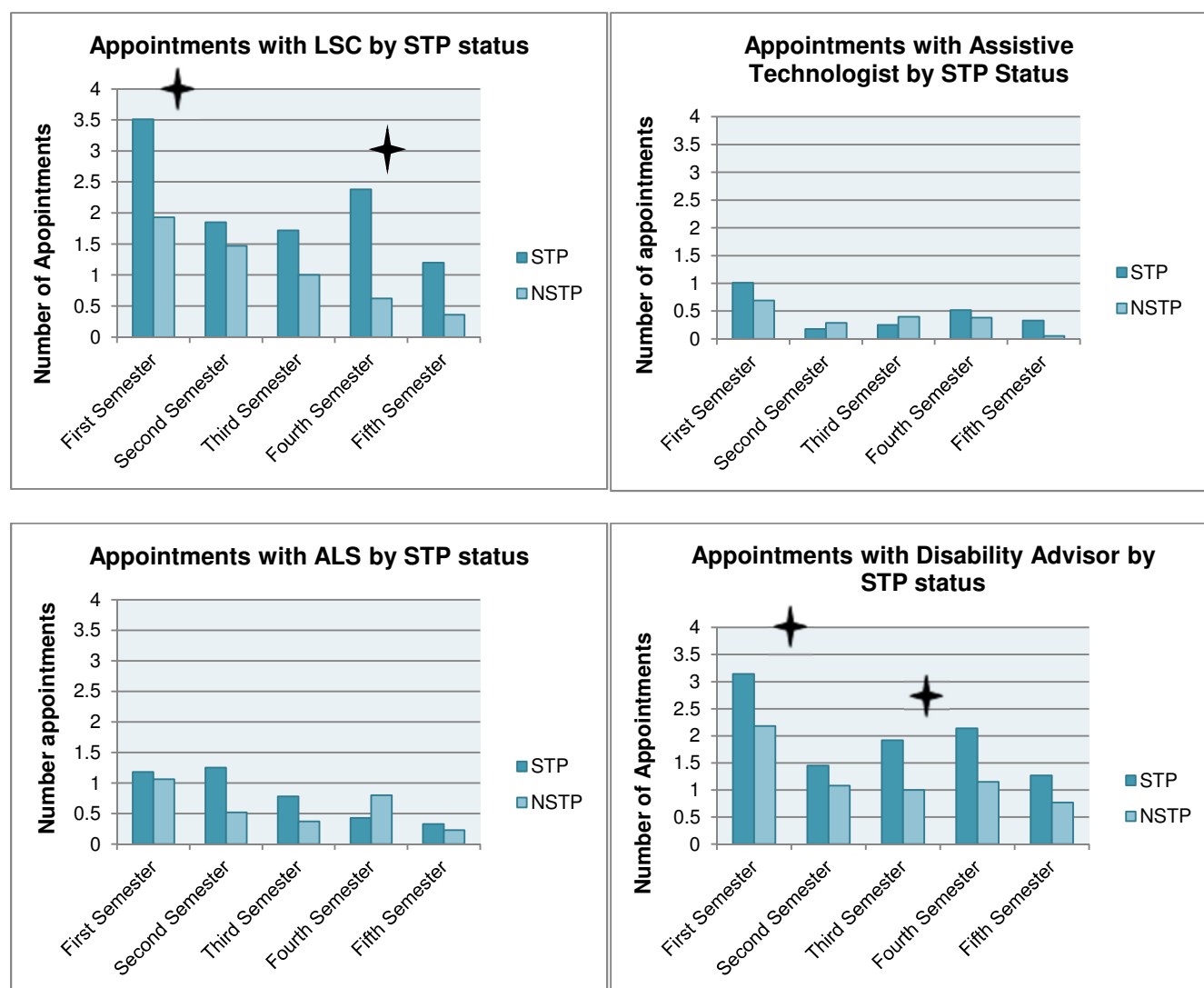
In general, the qualitative findings indicated that STP students were more familiar with the services available through the Disability Centre, and supports, than the NSTP group. For some students, referral to the STP was the starting point of engagement with general disability services. One student reported that if she had not attended the STP, she “would not have known that the [Disability Centre] actually existed” (Rio: College, STP).

Students who attended the STP, in many cases, better understood how to navigate Disability Centre services than NSTP students and were therefore more engaged. For example, an STP student reported:

Well, I didn't really use anything last semester.... I started this semester because I knew I needed to get back into it, and I figured the best way is for me to come here and figure out what I could do ... and then ... I started scheduling regular appointments with the Learning Strategist to figure out ... what I could do to improve certain skills and how I could go about getting a higher mark (Warhammer, University, STP).

To determine the association between attending the STP and use of specific services, a series of independent samples t-tests was conducted. The next objective for analyzing the data was to determine whether STP and NSTP students differed in their frequency of appointments with different category of service provider: LSC, assistive technologist, ALS and DA. The results of these analyses are presented in Appendix Q and are displayed here in Figure 9.

Figure 9: Comparison of Number of Appointments with LSC, Assistive Technologist, ALS and DA for STP and NSTP Participants



Denotes a significant difference between groups, $p < .05$.

The most significant differences emerge when analyzing findings related to services offered by the Disability Centre. Students who attended the STP had significantly more appointments with LSCs (enhanced services) (see Appendix Q) in their first and fourth semesters and DAs (general disability service providers) in the first and third semesters. None of the other comparisons were statistically significant, but the patterns of results indicate that students who attend the STP tend to have more appointments with LSCs and DAs than those who do not attend the STP. There were no statistically significant differences or trends in use of assistive technologist or ALS services between those who did and did not attend the STP.

Overall, the qualitative data reveal that most students who used all enhanced services reported positive feedback. The frequency with which students reported positive feedback about LSC, ALS and DA support were comparable in the STP and NSTP groups. Likewise, levels of less positive feedback were similar among cohorts, with a few students reporting that they found using LSC services boring, unnecessary or too time-consuming. A few students who did not use LSC or DA services reported that they believed it would have been helpful in hindsight.

For students who used the Disability Centre, the most beneficial services were the skills provided by the LSCs. In describing the skills gained from a combination of counselling and coaching from these professionals, one student reported:

[I gained] a better understanding of certain things I do and coaching [to help me get] through when things happen. Definitely [helped me deal with] the overwhelming, the anxiety, the stress and how to balance time better (BEO: University, STP).

While AT was not mentioned as often as LSC services, many of those individuals who used AT felt it was essential. These students often described themselves as technology-oriented. One student reported:

But the great thing with the laptop is that I've got all my textbooks on there. If I'm stuck here for three hours, you know, in between classes, then I can just study right from there, which is fantastic. The organization — I would not be able to hold on to paper and work (Ben: University, STP).

By showing students that they are not alone and that there is help available for them, the supportive, welcoming environment of the STP apparently provides increased comfort with the postsecondary community overall. The STP allowed participants to become more engaged with the campus, professors and other students. The strongest theme related to the benefits of attending the STP was the opportunity for students to connect with peers. Several STP participants reported having made friendships that built a foundation for new experiences and changes in how they view their disability. The positive effect on student disability acceptance will be discussed later with the instructional components section of the results. But important to note was the “connected to students” level of engagement with supports, and the willingness to disclose and access assistance.

The STP also had long-term effectiveness on engagement because students who were unsuccessful began using services in later semesters. In one interview, a student who attended an STP at another school described her change in willingness to seek support:

And then once I was tested, I was identified. My mom said, ‘You should really use disability services,’ and I fought it all the way. And really, [it was a previous transition experience at another university that] changed my mind about identifying myself with disability services. There it was only a three-day program when I started my first year there, and it just changed ... getting to know students, it was a mentorship program (WG: College, NSTP).

Research Question 2: Did successful students with LD and/or ADHD report enhanced institutional engagement, and more proactive behaviours in seeking supports, than non- successful students?

Student Engagement and Proactive Behaviour

When reviewing institutional engagement, the researchers analyzed students' feedback regarding their academic and social engagement and compared it with their level of academic success (i.e., successful, varied success or unsuccessful). As previously reported, the quantitative data in Figure 4 and Figure N indicate that successful students with LD and/or ADHD use enhanced services more often than unsuccessful students. Overall, students who were successful were more likely to attend five or more sessions in the first semester and decrease their use of support after having achieved an academic performance of 2.0 or greater GPA. The students interviewed about their PSE experience reflect the same trend. Many students who were successful describe accessing support on a regular basis. A successful student describes attending regular appointments:

Pretty much every other week starting the end of first semester into second semester.... I do [think it contributed to academic success] because it helped me organize myself and also whether it was part of her job or not to bounce ideas off someone (GM: College, Successful).

In contrast, many unsuccessful students describe their decision to use services later on, often in their second or third year of their programs or after they have received notification of poor academic outcomes or penalty. An example of a student who was unsuccessful who began to use enhanced services after poor academic outcomes was James. At the end of his second attempt at second year of university, James began to access enhanced services after he had appealed an academic suspension. James later withdrew from university, then enrolled in and graduated from Durham College. The student explained his experience of starting to use services and the role of the LCS in helping students engage with supports:

I[*t* was] working with a learning strategist that helped me develop a different sense of thinking ... and unlike the way I used to see it before. And it helped me challenge myself in a lot of ways, ...people are afraid of what they don't know, what they can't understand. And when I finally began to understand what all of it meant. I think that particular part really helped.... And being able to access even more resources ... (James: University, later in college, NSTP).

The qualitative findings confirmed that overall, successful students were more likely to report proactive behaviour in seeking support from student services providers or seeking assistance from professors than unsuccessful students. The proactive behaviours of successful students included using services as a precaution, taking initiative and self-advocating for the supports they needed. A college student stated, "So before I even start anything, I need to go and get help just so I have a backup plan." Another student described feeling proud of taking initiative;

she said, “I kind of feel like more of an adult, one thing that I am proud of ... is how I’ve taken initiative to go out there and get meetings” (Curly: University, STP).

Later, the same student described how she advocated for the support she needed with peer tutoring:

... I used the Academic Support Centre.... And I told them I had a learning disability because ... I could only have 15 sessions, and I thought about it, I need somewhere around once a week or twice a week, so I told them, and they said, ‘We’ll give you an extra five’ (Curly: University, Successful, STP).

Reporting his need for services, one college student stated, “You can’t do everything yourself; sometimes you actually do need to ask for help” (Mr. E: College, Successful, NSTP). In contrast, several students who were unsuccessful describe not using enhanced services or using them too little or too late. One student reports, “Some people just get off [track] from the start; they don’t take any warnings. Me, I had to learn the hard way, unfortunately (MF37: University, Unsuccessful). Many of the students who were unsuccessful expressed regret or described how, in hindsight, they should have used more help or support services. A university student explains:

At first, [I did not use support] because I wanted to see what I could do by myself, but that turned out to be a mistake, actually. I should have come here and got help from you guys, like the minute I got here (Warhammer: University, STP).

One group of successful students did not use ongoing disability supports or enhanced services and did not attend the STP. These students described how their self-evaluation led them to not use additional supports. For example, when asked what services a DA had provided, a university student who was on the Dean’s List responded, “Actually, for the most part, they don’t really ... do too much because I don’t require too much, I don’t think” (Triathalon: University, Successful, NSTP). Further quantitative analysis of this subgroup’s demographic data provided no helpful information to improve our understanding of disability category or cognitive ability. On the other hand, the same student described how he viewed engaging with professors and teaching assistants as a positive method for seeking support:

Yeah, I form relationships with professors; they know who I am so I’m always in for extra help, office hours.... And I find ... they reward that; they notice when you go in for help and you partake in class discussion ... (Triathalon: University, Successful).

Seeking Support from Professors and Teaching Assistants

The successful students were also proactive in their dedication to staying connected with their teachers and/or teaching assistants and keeping up with their workloads. When asked how often she connected with her teachers, a college student stated, “Every day.... If I have a problem with one of the lessons or something, I will [ask for help]” (Soccer Girl 2: College: Successful, NSTP). A university student described his intention to engage with professors:

Also talking to the profs or at least getting on speaking terms with them and being friends with them definitely makes going to class and talking to them way easier.... Yes, I do talk to them. I go to their office hours when I can, and I am on speaking terms with all of them (Jumpstart: University, Successful).

Another university student described staying connected with teaching assistants to obtain assistance with schoolwork as follows:

I relied a lot on teachers' help, going for extra help, using my TAs a lot.... I like to be pushed in the right direction where if I'm confused, I'll work through to the best of my ability, and if I'm at a roadblock, I have no problem asking for help at all (BEO: University, Successful, STP).

The proactive behaviour of successful students was reflected in their descriptions of situations in which they had requested accommodations from their professors. Students described sometimes facing resistance or taking action to reduce the possibility of professor resistance.

I did this semester because my marketing professor, I didn't have him before. I tried to ask him a question, and he didn't give me very much [information], so I asked a different professor, and that helped.... But this year, I made sure my teachers gave me certain materials beforehand, so I had the chance to read through it (BEO, University, Successful).

A second student described requesting notes from professors using a proactive and positive method:

Sometimes I go up to them and say, 'Is it possible if you could ... send me the notes, I'm not going to give them to anyone else.' Because I think that's what they're concerned about, the fact that I might give them to another student (Glee: College, Successful).

These accounts contrast with those of unsuccessful students, who reported that they were unaware of the support available from their professors or teaching assistants or from institutionally arranged peer tutoring. Sometimes they were unwilling to ask, did not ask or seek it out: "I never really thought of getting help" (XIII, University, Unsuccessful). Another unsuccessful university student put it this way: "No, I didn't generally go to office hours ... they have office hours, [but] I just never went to them" (ZB: University, Unsuccessful).

Unsuccessful students reported being unwilling to seek support. When asked about his plans, one unsuccessful student answered:

I kind of wanted to use my first semester as ... a test run to see what it was like, and what I struggled with.... Well, I have the option. I got my assessment finally done, and so I have all the paperwork saying, yes, I do have a disability, but there were some options that were made available to me ... but I figured, well, instead of just using everything right away, why not see what I'm able to do on my own and then work from there (MAZU: University, NSTP).

Students' Willingness to Access Supports

Many participants with LD and/or ADHD viewed the transition to a postsecondary environment as a developmental milestone and thus as an opportunity to disengage from using disability services and from being identified as a person with a disability. Students referred to this as a “fresh start.” A college student stated:

... [in the] college environment, with the amount of people here ... it's a fresh start from high school; you want to try to change yourself. You want to be that person that always fits in that you couldn't be in high school (ME: College, NSTP).

Many students see this transition as an opportunity to make the self-determined choice to not use disability supports. The desire to not use services was expressed even among those students who were successful and used supports. At the same time, many of the same students clearly stated that they would not have used supports and/or services if they did not believe that they were required to succeed. A predominant theme in our findings was that students desire to remain invisible and independent, and so they resist identifying themselves as persons with disabilities. The students' avoidance or resistance to the use of services was connected to a desire to explore and evaluate their disability-related needs for themselves as adults. Many students expressed the sentiment that they would value their academic achievement differently if they could achieve it without assistance. For example:

I wish I did have some extra time, yes, but overall, I'm very proud of the hard work I put in and the results I got, with the learning disability and with having no help. I like working hard; I'm not afraid of getting my hands dirty (Ernesto: University, Varied Success).

Some students inaccurately evaluated their need for support or the effort required to succeed. One unsuccessful university student stated:

I don't want help, but I want help in certain places. But ... at other times, I kind of want to be independent, and I want to be able to carry myself academically and, you know, not be able to feel like ... I'm getting help everywhere from everybody (XIII: University, STP).

There were students with unsuccessful and varied academic careers who reported not knowing they were having problems until they received their final grades. A university student stated, “Finding out how bad I did, like, the fall semester last year, I made sure I got the accommodations for winter” (Zerkonea, university, NSTP). Other students reported that the perceived barriers, transactional friction and internal struggle of disability acceptance influenced their use of services. These barriers can include financial costs, time management, organization and the effort required to put services in place. Some of the most significant factors leading to resistance to services use were social risk, fear of discrimination and isolation, and the process of disability acceptance.

For some students, transitioning to PSE was an opportunity to escape the social stigma of having a disability and avoid discrimination. One university student stated, “I guess there is in

my mind still a stigma attached to it, and a lot of people may not want to admit it or seek help” (Fiero: University, NSTP). A portion of these students indicated that elementary or high school experiences of bullying and social alienation influenced their choice. Conversely, an equal number of students expressed themes of perseverance and resistance in describing how they would not let past experiences influence their choice; instead, these experiences motivated them to use supports. Others stated that while they did not mind disclosing to professors, they did not want to be singled out, separated or perceived as different from their peers.

The general theme that was reflected regarding willingness to seek service was that students with LD and/or ADHD have a unique set of characteristics related to self-determination and circumstances to overcome. Key factors that students identified as the cost of using services and that influenced their choice included social risk, reduced pride or self-image, time commitment, additional effort and environmental barriers. An unsuccessful student described his internal struggle as follows:

I don’t know, I guess I have a problem with convincing myself I need help ... I guess it’s almost a pride sort of thing ... [thinking] I can combat my, you know, shortcomings just by sheer will or motivation. Sometimes that isn’t the case (Stewie: University, STP).

Students often described their fears of social risk or social stigmatization and how this deterred them from using services. A college student stated, “... none of my friends know that I go to this place.... I try to keep it under wraps” (Emily, College, STP). While fear of social stigmatization influenced students’ decisions, only a few students reported negative disability-related social experiences with peers. Overall, students reported experiencing limited social risk in either the college or the university setting. Their previous experience and current level of disability awareness and acceptance affect the accuracy of this decision, which can impact their academic success. They reported that their personal disability knowledge improved and their acceptance increased after having a current assessment and having it explained. This acceptance of disability is described below in a conceptual model that emerged from the present findings.

These student descriptions of their experiences demonstrated the ongoing, lifelong process of self-awareness and disability acceptance. Some students described this process as difficult, while others described it as a process of surrendering after excessive effort or repeated unsuccessful efforts. One student reported:

I was in denial for a long time ... I didn’t want to believe that I had a learning disability. I think it used to have a big impact because I didn’t want to believe that I have a learning disability. I didn’t want to believe that I was lesser than other kids; I always viewed myself as an equal.... I finally had no choice (Ernesto: University, NSTP).

Extracurricular Campus Engagement

In reviewing successful students’ descriptions of their campus life experiences, a theme of moderation emerged. Their descriptions demonstrated a respect for the need to manage their time but also an awareness of the need to be socially engaged on campus. Successful students

described this need for moderation differently than students of varied success and unsuccessful students. A university student stated, “I’ve always gone to pub events. I try to make occasional appearances [socially], more so in my first and second year, than my senior years.” (Triathlon: University, NSTP) A college student stated:

I’m not really one for huge extracurricular involvement because I do spend so much time on my schoolwork, but I have gone to participate with the Film Club on occasion because I love movies and I like talking to other people who like movies too (GM: College, NSTP).

Many successful students described an interesting solution for balancing the desire to be engaged both socially and academically: they created or joined extracurricular activities related to their academic studies. One successful student stated, “I formed my own little study group but nothing really outside of academics, like no sports teams ...” (Kiddo: College, STP). Another successful student said, “Yes, I am [engaged in extracurricular] through my program. I am the initiative leader for an initiative called BILD, it’s branding internet and logo design” (PG: College, STP).

Students with LD and/or ADHD generally reported that workload and disability-related academic demands precluded over-engagement in extracurricular and campus activities. However, some students indicated the desire to participate more often but were deterred after assessing the academic-related demands on their time. One varied-success student stated, “Because of the time requirement for school, I can’t afford to do extracurricular activities” (Ernesto: University, Varied Success). In contrast, some unsuccessful students took part in more social activities and expressed little concern about balancing their social and academic lives. One unsuccessful student reported being very involved in both clubs and campus events:

I was also part of the actual Student Association — helping out with the president and then the ambassador. I was kind of an unofficial member of SHARE thanks to my girlfriend, and we were doing a lot of stuff for Pangea — the big multicultural show that happened last Thursday. That was a lot of fun. I definitely enjoyed that. As far as I know, that was it, so far (Warhammer: University, STP).

Overall, the student data support the notion that successful students tend to exhibit balanced and consistent engagement, and they tend to develop creative solutions for combining social and academic activities.

Research Question 3: Did any specific intervention or instructional component correlate positively with students' experiences or outcomes?

Specific Instructional Components and Methods Positively Correlating with Student Success

When the data were reviewed regarding the theme of benefits of services, participants' accounts displayed substantial uniformity and reliability. The data were analyzed to compare the STP and use of enhanced services to determine which components were helpful and consistent across interventions. The key instructional components or counselling interventions that students associated with positive effects from the STP and use of enhanced services were improved executive function skills and self-management, AT, improved study skills and improved disability awareness and disability acceptance. These benefits were described by students from college and university alike. The next section provides the background data that explain, from the students' perspective, why a skill or content was helpful, as well as, the data that describe the benefits of each component.

Content-Related Components Found Beneficial

Background Data Related to Increased Workload and Time

Participants clearly described the difficulties they faced as students with LD and/or ADHD. They generally reported spending additional time and effort as a direct result of their disability. When one college student was asked how much additional time she had to spend on her schoolwork because of her disability, she stated:

I would probably say about half because the majority of times I'm constantly looking back in the textbook ... or having to highlight things just because I need to know exactly how to spell it; I have to constantly look back ... (Deedee: College, NSTP).

When comparing themselves to peers without disabilities, participants indicated that they spent more time and effort but achieved poorer results. Most participants described how some element of their disability affected their academic production and necessitated increased time and effort to compensate. Many participants who associated PSE with an increased workload specifically mentioned the higher amount of reading required. One student indicated how surprised he was at the amount of reading:

I mean in high school, I studied a lot, but ... it was different.... In high school I never read my textbook.... But now I actually ... used it. I read the chapters before and typed up my own little notes. And that's something else I learned — how to make notes — because I didn't know how, out of a textbook, just because that's something that you really don't learn (Natique: College, STP).

Another student indicated that his disability-related reading difficulties were time-consuming: “The biggest point would probably be my reading.... I spend probably 90 per cent of my time trying to keep up with readings” (Triathalon, University, NSTP). Many students in the study repeatedly mentioned that they were not prepared for the increase in workload. Most students reported that their plan of action was to improve their time management skills, independently or with the assistance of enhanced services. A university student stated, “If I could work on one thing, it would be being time-efficient” (PB: University, NSTP).

An accommodation that can alleviate this disability-related demand on a student's time is reducing course load. However, this prolongs the time spent in school, thus increasing the overall cost of education, even with the new college tuition-reduction option (Effective September 2007, students with disabilities who attended Ontario Colleges and require the accommodation of a reduced course load due to the impact of a documented disability may be eligible to have tuition fees reduced for the final courses needed to complete their program. This policy covers only courses that you completed successfully and for which you paid. It does not cover courses that you need to take again due to late withdrawal or unsuccessful completion). All of these financial challenges require changes to students' educational planning and reduces their time in the workforce during summer terms and after graduation. Students reported some reluctance to use this accommodation unless required to improve their academic performance.

Executive Functioning Skills and Time Management

As previously reported, this study's findings revealed that students with LD and/or ADHD struggle with issues related to time management and self-management, cope with disability-related increases in academic workload and adapt to the higher level of independence required in PSE. Students who attended the STP and/or used enhanced services described the positive effects on their academic experience of learning time management, organizational and executive functioning skills.

Skills and Strategies Learned Through the STP

Many students indicated that organizational skills were among the most important skills learned through the STP; they had contributed the most to their success. Asked what was the most important skill acquired through the STP, a college student stated, “They taught us to be organized” (Sumi, College, STP). The curriculum for organization, delivered on Day Six of the STP (Appendix G), is designed to introduce students to the basics of organization and time management. One student stated, “The STP was helpful due to the instruction on organization, of course, and focusing on one thing and not jumping around to everything. Time management” (HD: College, STP). In describing these strategies, a college student stated:

[The STP] was useful, all the tips [learning strategies] and suggestions for getting organized and for studying, and I still have all the notes.... I'm writing in my agenda every day, and I'm labelling stuff.... I found it important, just the organization tips, keeping a calendar ... and then the tips for studying with all the breaks. Just all the tips because I find [it] difficult to sit and actually study (Sasha: College, STP).

The goal of the STP is not to fully prepare students for PSE in two weeks but to begin the process. The primary intention is to recruit students to continue using services and supports. One drawback to this approach is that a few students reported thinking that the content was too basic; such comments were often made by mature students, students with previous postsecondary experience and students with good basic skills.

Enhanced Services and Executive Functioning

Through a combination of counselling and coaching, the LSCs in the Disability Centre provided support to students throughout the year with aspects related to executive functioning. Of those students who used services, many attributed their improved executive functioning skills to interventions provided by the LSC as part of the enhanced services offered by the Disability Centre. One student reported:

I was seeing [an] LS counsellor for a while there, a couple of years — for those two years, at the time that was really helpful. It helped me just kind of organize my thoughts and actually establish an ability for me to do it myself (Raiden: University: NSTP).

A college student stated:

We met up every couple of weeks; she [the LSC] would help me organize — I'm pretty organized, but she was helping me to make sure that I was organized on a timeline to get things done. And she would also help me balance — she was also good at helping me with ideas ... find out how to get things done (GM: College, NSTP).

Seeking out similar time management and organizational strategies from academic learning supports proved helpful, as one university student stated:

When I came back in the summer to redo calculus and linear algebra, I went back to the resource centre, the Student Learning Centre. And I said, you know, 'Listen, guys, last year I didn't do well. I need more education in terms of studying.' And they put together a great timetable for me, and it filled almost every space between classes with study time, which I did (Ernesto: University, NSTP).

After all of the data was reviewed, the findings clearly indicated that when students used the services available at the Academic Learning Centre, these services had a positive effect. NSTP students tended to report that they used academic learning supports and, when necessary, referred to the Disability Centre for additional support.

Computer Technology and Software Found Beneficial

The STP and Technology

Many students stated that technology was an imperative aspect of the STP. Developing their homepages was the primary task to be completed by the end of the program, but many other technology skills were integrated into the program's learning outcomes. The STP familiarizes students with technologies generally used in PSE (e.g., Microsoft OneNote, WebCT) as well as AT specifically designed to benefit students with disabilities (e.g., Text Help Read & Write, Kurzweil, Inspiration). Students reported that the STP's technology aspects aided them in their PSE and provided them with essential skills. A college student stated, "[The technologist] teaches us all the tools that we would need for school" (John D: College, STP). Furthermore, students enjoyed learning new programs and reported that it was a fun aspect of the STP. A college student stated, "Yeah, learning those new programs and how to write websites and stuff — that was really neat" (Spincycle: College, STP). The technology aspects of the STP allowed students to feel more comfortable with technology in the postsecondary setting. A university student stated:

Really good. Really, really, really good. I guess in the beginning of high school, I wasn't really good at computers, but transitioning and even coming here [to enhanced services], it just gave me that comfort and the information how to do it (Curly: University, STP).

Moreover, many university students emphasized the importance of the OneNote program in relation to their academic studies. OneNote is not considered an AT, but it is thought to help students with LD and ADHD compensate for deficits with note taking. A university student stated, "I would say Microsoft OneNote. That was really, really useful" (Awesomo: University, STP). Another university student said, "I don't know if Microsoft OneNote is an assistive technology, but it is definitely the program that I use most for note taking ... it was very handy" (Jumpstart: University, STP).

The STP and AT

Students who used AT stated that, without AT and associated accommodations, they would not have been as successful or they would have had academic problems that impaired their success. When asked what contributed to her success, a college student replied:

Basically the software for my laptop and all the stuff I learned during the Summer Transition Program ... it was similar to high school, but there [were] more ways [to help] students with disabilities succeed in college (Kiddo: College, STP).

Many students who attended the STP reported that they had not used AT because they had no disability related need for AT use. However, they report being glad to have had AT demonstrations and were now aware of what was available. The majority of the non-AT users did not highlight AT as an overall benefit of attending the STP. A few students with limited

exposure to these technologies perceived drawbacks to using AT, including the effort required to learn the programs and technology limitations (e.g., robotic voices). However, as discussed below, AT users clearly recognized the benefits they had received from ongoing AT support.

Ongoing AT

AT aids students in their schoolwork, allowing them to be more time-efficient and helping them to compensate for the processing deficits that are part of their learning disabilities. When reviewing the benefits of disability services, students identified AT as being beneficial just as often as they did learning strategies counselling, enhanced services, or disability support. This result was not reflected in the use-of-services tabulation of appointments within a term. However, the qualitative data strongly indicated that students valued the use of AT software and services and support provided by assistive technologists. As one university student stated, “I really like Dragon; it’s a real time-saver when it comes to assignments” (Bob: University, STP). When describing an AT program, a college student stated:

It’s easier for me because the typing, I can’t get down what I want to say, but if I say it, I can say it, and it will come out perfectly — exactly how I want to say it with grammar (HD: College, STP).

Some students report ongoing AT support as being beneficial throughout their postsecondary careers, while others highlights the benefits of ongoing use of AT software:

Whenever I have any new kinds of AT, when I need new kinds of technology, I go and talk to the assistive technician because she definitely knows everything there is to know about the certain technologies that are useful.... She helped me get used to all the different technology I had — like different programs and the voice recorder that I have, also how to use the PDA. We had a little bit of fun exploring that (Warhammer: University, STP).

A second student stated:

I met with an assistive technologist a little bit ... early in the semester I met with them and talked with them. They were the ones who suggested Dragon.... And I went out and bought it myself (XIII: University, STP).

Background Data Related to Disability Acceptance and Awareness

The summary of the student historical experience that begins this section represents a body of collected data that was believed to provide a deeper understanding from the students’ voice. This section summarizes themes that may help increase the understanding of the intricacies of providing services to students with invisible disabilities like LD and/or ADHD, a heterogeneous group who enter PSE with different capacities, histories and experiences. The theme that resonated throughout the focus groups and interviews with the students was that having a disability had affected their lives in profound ways — academically, socially and personally.

Most of our student participants reported some form of negative experience in their previous educational settings or life; by contrast, a few had outstanding support networks that acted as an important resistance factor. Some students reported previously experiencing minor instances of discrimination resulting in social isolation — for example, being told they lacked the potential for academic studies and streamed into less challenging study options. Others had struggled in school and failed or dropped out for a period of time. Students reported that these experiences affected their self-esteem, their life choices and, for some, their emotional well-being. A few revealed or had documentation to show that they currently suffer from post-traumatic stress disorder as a result of bullying or disability-related abuse from peers, teachers and parents, including physical violence and emotional or verbal abuse. The effects of negative self-appraisal can be offset by self-awareness and a good understanding of the positive information in students' psychoeducational assessments for example highlighting their strengths or average or above cognitive abilities. Many of these students have internalized the external comments, believing that they are stupid. Assessment Information can help to negate that belief.

However, only a few students reported that the specific features of their disability or their strengths had been explained to them so that they could learn ways to compensate or improve their learning skills to meet their individual needs. To compound the complexity of the effects of these negative environmental experiences, more than half of the students in this study had an assessment older than five years, many had never had a copy or read the document, and many did not believe that they had the capacity to comprehend the psychoeducational assessment or medical document. The students placed a high value on having their assessments explained to them as an instructional and interventional component. As described by students, the results included improved self-awareness and improved capacity for self-evaluation and development of individual strategies to improve academic outcomes. One student stated:

She [my LSC] helped me kind of self-evaluate when I wouldn't otherwise, realize what I'm, I guess, doing wrong.... I think one of the main things is that I sometimes make up excuses, and she ... says, well, why? She ... helps me avoid making excuses for myself (Neil: University, STP).

The STP, Disability Awareness and the Acceptance Process

Some students found the STP's disability curriculum, which provides direct instruction about learning disabilities and ADHD, to be helpful — for example, the specific instruction of the language associated with different processing deficits². Several students reported that learning about their disability during the STP and learning to read and understand the assessment was beneficial. Reviewing disability-related language that is commonly used to describe specific processing deficits gave students a better understanding of their disabilities, and the information contained in their psychoeducational assessments gave them their individual profile of strengths and weaknesses. One student said:

² An example of a processing deficit is phonological awareness, which has been associated with the ability to read; weakness in this area is attributed to impairment — i.e., dyslexia. Other sources of reading difficulty include auditory processing and language processing deficits.

Once I got the assessment kind of broken down into layman's terms ... just once it was broken down into something simpler that I could read and not choke on, then I was all right. I understood, 'This is how I need to learn, and this is how things are going to work.' And I think that might be why my grades have been higher, just because ... I know what I should be doing versus what I shouldn't be doing (Natique: College, STP).

Student Homepages

An instructional component and learning activity during the STP, and one that was central to the disability acceptance process and understanding, was the development of student homepages. A student homepage is an electronic version of disability information; it provides links to resources and websites, such as that of the LDAO. Students created personal homepages during the STP to help them understand their individual disabilities and the strengths that they could bring to bear to compensate for deficits (Tsagris, 2010). Students described the importance of writing about their disabilities and reframing them in their own words. For example, one student stated:

[The student homepage] does help you understand your own disability and what's going on ... because when you [do] it, you actually write stuff about ... your disability, and so you do research on it, so it does help [you] understand yourself more (Kara: University, STP).

Another student said:

I liked the homepage. It was good; it was a fun activity, and it made me really put something hard down on what I have, like all the information I learned (Ruby: College, STP).

The STP and How Peer Interaction Promoted Disability Acceptance

Peer interaction during the STP allowed students to not only build new social relationships but also deepen their understanding of their own disabilities. Students were able to build connections with other students with similar disabilities, often for the first time. Two students stated:

At first I was a little iffy because of course being in a new environment, I didn't know anyone, but with the amount of students who actually showed up for the Summer Transition Program, I realized that there are other students like me (Kiddo: College, STP).

I think I was glad I went because I got to meet so many nice people ... and you don't have to be worried about people finding out you have a learning disability (Tori: College, STP).

Students' feedback indicated that peer interaction during the STP played a significant role in furthering their acceptance of their disabilities. One student recounted, "My disabilities weren't different.... I didn't know people with them, but then with the Transition, I met people who had the same thing. 'Oh, okay. I'm not that weird'" (Kara, University, STP). Another student said:

If you were to line those guys and girls up and were to say, 'Who has a learning disorder?' I would have no idea, so it was good to meet people that are similar to me and ... different like me (Spincycle: College, STP).

Another student described the connection of peer interaction and increased understanding:

Because I know other people with [a disability] as well; I talk about it with them. They have it too, so I think, 'Oh, yeah, that makes sense. I might have that too,' and so we bond over it.... I think it has helped me understand it more (Kara: University, STP).

The opportunity for peers with LD and/or ADHD to connect was not available to the NSTP students. The positive feedback suggests that it would be worthwhile to further explore the value of ongoing support for students with disabilities.

Enhanced Services and Disability Awareness

The findings regarding students' impressions about the benefits of learning strategies counselling revealed that the majority of students described the LSCs as primary service providers who directly helped them improve their disability awareness or acceptance. One student stated:

Learning strategist — yeah, pretty much I see the learning strategist at least once a week just to keep base and see what progress is and get suggestions on how I can deal with a problem I may be getting frustrated with trying to explain and figure out. So it's kind of helpful that way because sometimes I find that as much as I think it's simple and black and white ... it's because I've lived with it my whole life (Rangler: College, NSTP).

Disability awareness improves disability acceptance, and help from an LSC advanced this process. Further, this support increased students' overall use of disability supports by helping them understand themselves and their environment. One student stated, "It helped me with understanding different concepts about the learning disabilities centre and what they can help me with" (Gibbonzal: College, STP). Another college student elaborated on this:

Just the fact that talking over, like having the meetings with LSC, so she actually sits down and, you know, she tries to understand and she tries — and she makes you try to understand, like she doesn't go, 'Okay. So this is black,' and you're like, 'Well, no, it's not, I don't understand why it's black.' She goes, 'No, seriously, it's black,' and then she goes through the steps on why it's black, you know? (Dream: College, NSTP).

On the other hand, some students were supported in accepting their disability by all enhanced services providers, disability team members, professors and peers. One student stated:

Like even ... some days when I just walk by and just say hi, ... if there's something, like when I failed my class, like it really bothered me.... But when I had a conversation with my DA about [it,] it wasn't like — you know, she was the one that ... pointed certain things out, 'Well, maybe if we try ... this type of thing', so I guess that gives you ... a positive feeling (Deedee: College, NSTP).

This acceptance and understanding from all members of the PSE clearly influenced students' self-acceptance and willingness to self-advocate. When students were asked, "If you had an opportunity to speak with the president of the college or a person in a position to influence government, what would you tell them?" most described a desire to have other people understand and appreciate their struggle and to be accepted and respected as capable people who can succeed at PSE and who want to be successful.

The STP and Enhanced Services: A Summary

This study revealed that when students participated in the STP, it sped up the process of accessing their assessments, and it helped student understand these documents as well as their overall disability awareness and acceptance. The instructional components of the STP related to creating student homepages and interacting with peers were found to significantly enhance the learning outcome goal of disability acceptance. While the STP was found to have qualitative benefits, it was the combination of STP and enhanced services that produced measurable positive outcomes on students' grades.

The key to disability awareness and acceptance was revealed to be the combination of STP-specific instruction, student services collaboration, referral efficiency and ongoing interventional practices by the LSCs. For example, one student stated, "I have not accepted my disability yet, I'm still accepting — we've [student and LSC] been actually working on that" (Curly: University, STP). The qualitative data revealed, in fact, that disability awareness begins the acceptance process.

The qualitative and quantitative findings reflected the positive effects of ongoing, consistent learning strategies counselling services. The LSCs explained the students' assessments and helped them understand their disabilities and develop learning strategies that use their strengths to compensate for weaknesses. A college student who attended the STP stated that the benefit of using an LSC was related to:

how to deal with your disability.... [The LSC] helped me read [my psychoeducational assessment] ... it [was written] a little above the average person's head.... I didn't know what was going on in it.... It was all Greek to me (Natique, College, STP).

This student went on to say how she just wanted to know how to deal with her ADHD. A few students reported that they needed to have their assessments explained to them several times. These student descriptions were more commonly reported by NSTP students. One NSTP college student described how she may have gone over her assessment with the LSC seven times because she "did not really understand" what her assessment was saying:

Every week I would come here, and I would be, like, 'What's my assessment saying right here?' And we would go over it ... several times before I was finding, like, 'Okay. So that's what it says?' And now I kind of understand it a little bit better, which is nice (MDB: College, NSTP).

Research Question 4: Did students who created a web page (student homepage) for college and university faculty report experiencing any differences in their engagement with professors?

Students' Homepages and Interaction with Faculty

Students with LD and/or ADHD are required to disclose to professors before they can be granted accommodations. In the PSE community, it is the students' responsibility because under the *Charter*, and according to recent court rulings, accommodations must be requested. This is facilitated by means of an accommodation letter (provided by disability office staff based on a template), which indicates the types of accommodations needed to support a student's disability. Currently at DC and UOIT, students are required to hand these letters to professors in person. Many student participants expressed their initial fears and concerns about disclosing their disabilities to their professors. Some feared experiencing discrimination. For some, their apprehension was eased by their interaction with professors; for other students with LD and/or ADHD, their negative experiences required Disability Centre staff intervention, accommodation negotiation and student counselling/coaching support.

Students from both college and university explained how their disabilities were compounded by environmental barriers, professors' reactions, their own internal processes of self-acceptance and self-disclosure. Environmental barriers included the availability of lecture notes, consistency in presentation of online course material (e.g., on WebCT), professors' awareness of the Disability Centre and of the challenges facing students with LD and/or ADHD and professors' responsiveness to students' disability-related requests and needs. The homepage was designed to give students a way to share information about themselves and their disabilities with their professors; it also attempts to assist professors by giving them a greater understanding of their student's needs in their course. Student homepages are a component of the STP and are shared with professors in person and online on the last day of the transition, before the start of the first semester. One student reported,

I provided them with the web site and how to get into it and Yeah, yeah, I think it would be excellent for other students to make their own home page because it can be kind of embarrassing having to say it in person, especially when there's people around, you don't really feel comfortable and you don't say the stuff that needs to be said. (Kiddo, College STP).

Students who created homepages and shared them with faculty appeared to have greater interaction with professors compared with students who did not create homepages. A college student stated that:

... my one teacher came up to me today because she saw my web site ... and we had a test today. And she always asks me how the test was, because she knows that I'm supposed to be in the Student Centre — the Test Centre — but I like being in the classroom because the teacher is there (HD: College, STP).

On the other hand, some students who provided their professors with homepages received no feedback. For a few, this lack of response was discouraging; others expressed an understanding that professors are busy professionals.

Students who did not create homepages were more likely to receive a neutral or no response from faculty when disclosing their disability. A college student stated, "To be honest with you, they don't really say anything" (TLC: College, NSTP). Similarly, on the topic of disclosing and providing accommodation letters, a university student said, "They pretty much just took it from me" (Sprite: University, NSTP). Although students reported finding that the homepages promoted positive outcomes after the first semester, very few students used the homepages again to communicate with professors. Only a few students used homepages in the second semester or later to give professors disability information.

Overall, both STP and NSTP students reported a neutral or cooperative response from professors. One student described how a university professor's various responses helped her arrange accommodations; this demonstrates how students interpret a neutral response more negatively:

Most of the professors were ... 'Oh, okay, talk to me if you need the extra time, talk to me if you need more time for the assignments.' Most of them were good about it. I had one or two that were kind of like ice, and they were, 'Okay, thanks for the sheet' and 'Okay, finals for the extra time,' but that was about it. But most of them were alright (PB: University, NSTP).

Several students in this study reported requesting accommodation and experiencing some level of resistance from their professors to provide or agree to provide it. For example, one university student who attended the STP stated that one professor said that he "didn't offer lecture notes and will not offer lecture notes" (BEO: University, STP). A second student said, "Notes are a big problem. Like I take good notes, but I think it takes away from my learning in the class" (Curly: University, STP). Other students reported that professors' teaching styles exacerbated the disability-related deficits associated with LD and ADHD. The speed of presentation, tone of voice and presentation materials (slides, other visual components) affected some students' ability to concentrate and gain information from lectures. One university student stated, "[One professor's] method of teaching doesn't work well with me" (Triathalon: University, NSTP). A college student elaborated on instructional preferences:

A lot of people asked [the professor] to slow down. She'll do ten seconds per slide, and you don't learn anything in class.... You can't follow her; she's way too fast (Aqua: College, NSTP).

Many of the students' requests could be accommodated through the use of the principles of Universal Instructional Design (UID), which are adapted from the concept of Universal Design to ensure accessibility for all. A description of the principles of UID is included in the template that students use to create their personalized homepages, and this is important to students' educational access in that it provides basic information to improve professor awareness. A strong theme from students' feedback related to the need to improve professor training or education about LD and/or ADHD. Homepages offered this opportunity in an online format. Many of the accommodations that students described having issues arranging with professors could be delivered using UID and included in the course materials that are available to all students. This could also help other students without disabilities but who have difficulties. For example, students whose second language is English may have difficulty taking notes; professors could (and many do) post their notes before class to lower the barriers associated with note-taking.

Student Recommendation: Professors should be given training and education about LD and/or ADHD. The training should include an orientation to the Disability Centre's process and methods to improve accessibility for students during PSE.

Research Question 5: Were there differences reported between college and university students who participated in the programs?

College and University Differences

This study's findings show that college and university students with LD and/or ADHD experience more similarities than differences as they transition to postsecondary institutions and access disability services. The findings supported the premise that most college and university students with LD and/or ADHD experienced some difficulties as a result of their disabilities, experience an increased workload due to disability and needed to develop skill sets to compensate. These included learning strategies for time management and improved self-advocacy and disability awareness. The impact of their disabilities is lessened by using accommodations, using services and engaging with their professors. The STP was reported to have benefits that promoted engagement with ongoing enhanced service supports. Some of the differences found are presented in this section.

Institutional Comparison of Academic Outcomes

In the present study, academic performance was analyzed using three benchmarks:

- GPA
- Academic standing per semester
- Overall level of academic success

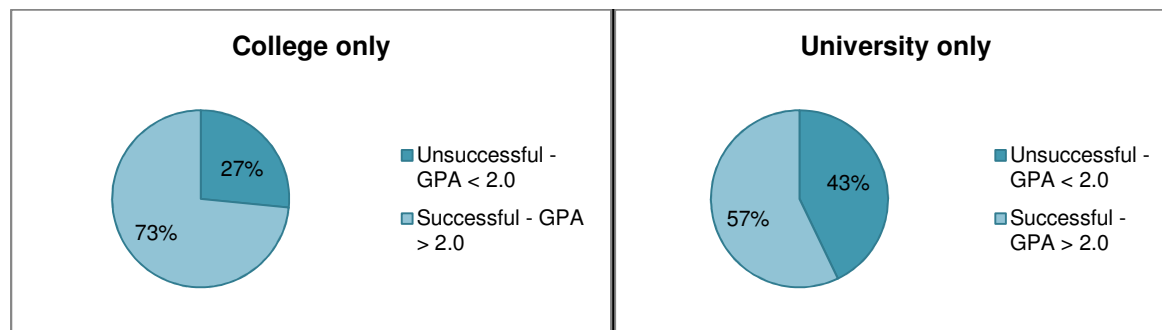
Regarding GPA, analyses were conducted for each institution separately because of institutional differences in grading scales. GPAs for college students are based on a 5.0 scale, while for university students, they are based on a 4.3 scale. GPAs are reported for a given semester and do not reflect cumulative academic performance.

For analyses that address academic standing, students were categorized based on whether or not they had a GPA above 2.0 (good standing) or below 2.0 (not good standing) for a given semester. Since this benchmark was consistent across institutions, these analyses could be conducted in the overall sample. A 2.0 GPA corresponds to a grade of 60–64 per cent at DC and 60–66 per cent at UOIT.

Finally, comparing overall level of academic success, students were divided into three categories based on the percentage of time they achieved good academic standing during their enrolment in their programs. Students were categorized as “successful” if they had a GPA above 2.0 in all semesters, as having “varied success” if they had a GPA above 2.0 for more than half but less than all of their semesters (50–99 per cent) and “unsuccessful” if they had a GPA above 2.0 in less than half of their semesters (<50 per cent).

A two (college vs. university) by two (academic standing) chi-square analysis was conducted to determine whether the likelihood of academic success in the first semester differed between the college and university populations. College students were significantly more likely to be successful (GPA >2.0) than university students ($X^2(1, N = 150) = 4.22, p = .04$). As seen in Figure 10, 73 per cent of college students and 57 per cent of university students were successful at the end of their first semester.

Figure 10: Academic Standing at End of First Semester



First-Semester GPA

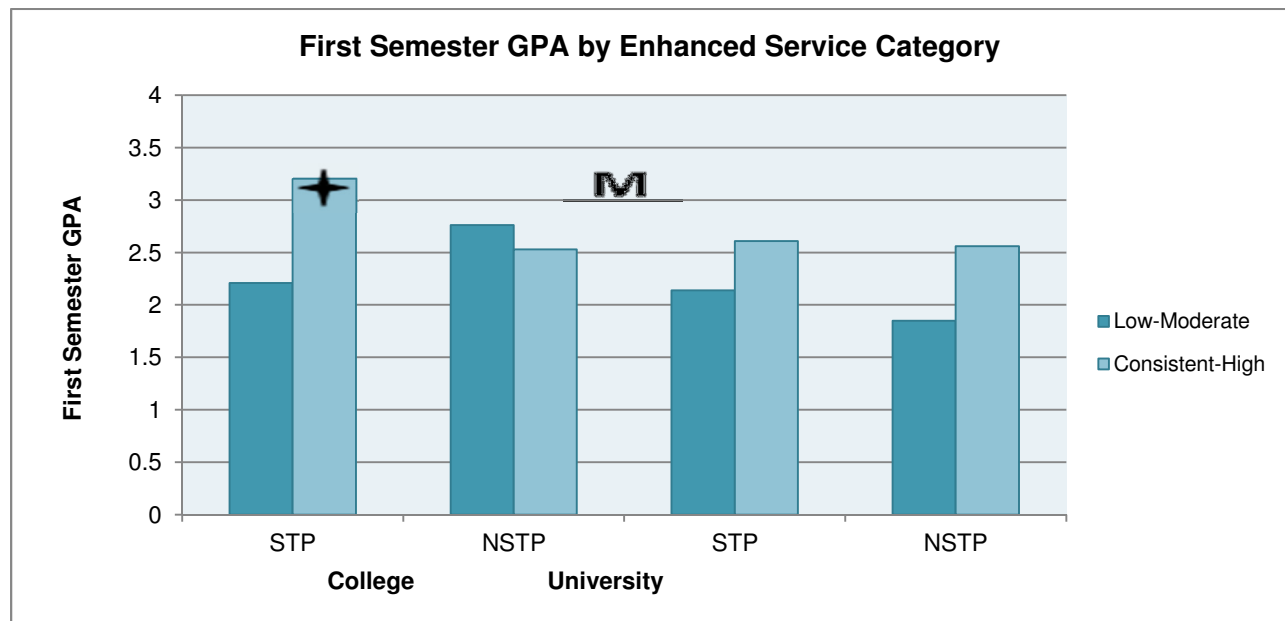
ANOVAs were conducted to determine whether there were group differences in GPA based on the category of enhanced services use in the first semester. Students were classified as “consistent-high” users if they had attended five or more appointments and “low-moderate” users if they had attended zero to four appointments, in a given semester. For comparisons in which GPA is the outcome variable, analyses were conducted separately for college and

university populations because of differences in the grading scales. As a result, sample sizes in these analyses were reduced, and statistical power was lower.

For college students who attended the STP, there was a significant relationship between enhanced services use and GPA in the first semester ($F(1,42) = 10.60, p < .01, n^2_p = .20$). Students who attended five or more appointments had significantly higher GPAs ($M = 3.20$) than those who attended zero to four appointments ($M = 2.20$). For college students who did not attend the STP, there was no significant relationship based on enhanced services category ($F(1,47) = .45, p = .51, n^2_p = .01$, see Figure 11.)

For university students who attended the STP, there was a marginally significant relationship between enhanced services use and GPA in the first semester ($F(1,31) = 3.34, p < .08, n^2_p = .10$). Students who attended five or more appointments tended to have higher GPAs ($M = 3.20$) than those who attended zero to four appointments ($M = 2.20$). For university students who did not attend the STP, there was no significant relationship based on enhanced services category ($F(1,20) = .45, p = .51, n^2_p = .01$). However, caution should be exercised when interpreting the comparison in the university NSTP group as there was only one participant in the “consistent-high” category. (See Figure 11)

Figure 11: First-Semester GPA Based on Enhanced Services Use Category for STP and NSTP Students Among College and University Populations



Reduced Course Load Accommodation

Although college students commonly reported being overloaded, carrying seven and eight courses per semester, few reported considering reducing their course load (a recommended accommodation); rather, many described meeting with an LSC for assistance with time management. College students were more likely to seek assistance in this way; university students reported that they developed similar strategies on their own.

In addition to differences in workload management, institutional differences emerged in the number of students who had made previous attempts at PSE. In a chi-square analysis to determine whether college and university populations differed in the likelihood of having made a previous PSE attempt, the results indicated that college students were significantly more likely to have made a previous attempt (42.4 per cent) than university students (23.1 per cent), $\chi^2(1, N = 144) = 5.42, p = .02$. These findings were reflected in the descriptive data, in which a greater number of students in college, as compared with those in university, reported multiple attempts.

Multiple Attempts

College and university students described and explained their multiple attempts differently. College students more often described not selecting the right program and changing programs to achieve a better match. For example, one college student reported, “I tried other programs before, and I didn’t like that program, but now since I’m in there — it’s kind of fun” (Shorty: College, NSTP). College students also reported enrolling in general programs to gain access to more competitive programs, post-diploma programs or university. As one college student put it, “I’ll do a two-year bridging program, two years at Durham College, then two years at UOIT for criminology” (PG: College, STP).

A substantial portion of our college cohort stated that they planned to complete college and then attend university. This approach, which helped compensate for their disability, was sometimes a formally arranged bridge program, sometimes a student’s own plan. This “stepping stone” approach was a popular option for many participants wishing to attend a program for which they did not qualify because their grades were too low. It was also a method used by participants to ensure success by pursuing their education in increments.

In comparison, university students more often described liking their program but having to change as a result of poor academic outcomes. When asked whether he thought he was in the right program, a university student stated:

It was [the right program]. I hadn’t done well in engineering, so I had a choice of either leaving or switching programs, so I switched to IT security, and it seems like a pretty good program (Sprite: University, NSTP).

Professor-Student Interaction

University students reported a higher frequency of apprehension than college students regarding their professors' attitudes and willingness to accommodate or provide assistance. University students interviewed for this study gave an unenthusiastic impression of their professors compared to the college students' positive views. However, the larger group of both college and university students reported a mix of responses from their faculty.

Student Recommendation: Professors should be required to have training and develop an understanding of students with LD and/or ADHD and their struggles in the PSE environment.

Section 5: Discussion and Recommendations

This study found that the majority of students with LD and/or ADHD, when transitioning to and pursuing PSE, face challenges and increased demands because of their disability. These findings confirm the findings of Trainin and Swanson (2005); Newman et al. (2009) and Denhart (2008). The present finding — that these challenges and demands can be mediated through the use of accommodations and development of learning strategies skills, use of AT, disability awareness and self-advocacy — is consistent with the existing literature (Brinckerhoff et al., 2002; Rath & Royer, 2002; Dowrick, Anderson, Heyer & Acosta, 2005). The findings from this study demonstrate that the summer transition and enhanced services programs advance postsecondary educational quality for students with LD and/or ADHD, and this evidence concurs with the postsecondary disability literature (Troiano et al., 2010; Tsagris, 2010; Denhart, 2008; Dalke & Schmitt, 1987; DuPaul, 2007).

It also agrees with specific Ontario-based findings from the LOTF, which developed the enhanced services model for LD interventions (Nichols et al., 2002), and the follow-up study conducted between 2004 and 2011 (McCloskey, Figura, Narraway & Vukovic, 2011). The *Transitions Longitudinal Study* was a follow-up study to the LOTF. It recruited the LOTF participants from pilot projects and collected qualitative and quantitative data over seven years. Its findings substantiated the positive effect of LD-specific services. In that study, some students attended an STP at one of the pilot institutions, but STP attendance was not specified.

McCloskey et al. found that specific LD supports used in the LOTF pilots — including enhanced services and the STP — provided an interventional approach that enabled students with LD and/or ADHD to achieve educational parity with non-disabled students' academic attainment and provided the “gold standard of success” (McCloskey et al., 2011: Executive Summary). The authors concluded that much of the success of students with LD and/or ADHD was “based on the counselling/mentoring/coaching rapport that has yielded tangible, academic dividends” (McCloskey et al., 2011: 108). The present study's findings are consistent with those of the longitudinal study: students with LD and/or ADHD reported that the use of enhanced services, specifically Learning Strategies Counsellor (LSC) support, was directly linked to improved academic outcomes and positive PSE experiences.

However, McCloskey et al. acknowledged that the criteria set out for the pilot projects under the LOTF was a best practices model, and it contributed to students' positive academic attainment, including the requirement for current, full psychoeducational assessments and an explanation of students' strengths and weaknesses. Our research findings confirmed that students had a similar experience regarding the importance of their psychoeducational assessments and their explanation by service providers.

This study's most hopeful finding was the positive connection between attendance at the STP and use of enhanced services. These findings were consistent with Dalke and Schmitt (1987), who found that students who chose to follow up after the STP with year-long support had higher first-semester GPAs than those students who had only attended the STP. This study offers administrators, service providers and decision-makers an evidence-based appraisal of

enhanced services and the STP; it also outlines the barriers still requiring action or change — in particular, the need to improve students' and professors' awareness of services and professors' understanding of LD and ADHD. This discussion comes from quantitative analysis of the data, and the qualitative data focuses on the students' voice. The next section summarizes our findings, relates them to the relevant literature and highlights future directions and recommendations that can be derived from these and other research findings.

Positive Effect on Academic Performance

The STP

The findings from this study demonstrate that the STP improves students' orientation to campus, orientation to services, disability awareness and willingness to self-advocate, and promotes their use of student services. These findings are consistent with Dalke & Schmitt (1987) and Rothman et al. (2008). Similarly, these studies concurred that students placed a high value on the social connection made with peers with LD and/or ADHD and that this interaction during STP improves disability acceptance and willingness to self-advocate.

The STP's influence on improved awareness and engagement was found to have an immediate and long-term positive effect, apparently serving as a method of improving students' engagement throughout their academic careers. More detailed findings of this effect are discussed later when reviewing the connection between the combination of STP and enhanced services.

On the other hand, when examining the impact of STP alone, there were no differences between STP and NSTP students in their likelihood of having a GPA above 2.0 for any of the first five semesters. The sample groups were self-selected or parentally selected. This sample selection could not be controlled for, for ethical reasons and limited sample size. This study found that the STP group was more likely to be attending PSE for the first time, whereas in the NSTP group, more students were likely to have made a previous attempt at PSE. Comparison of academic performance of these two groups showed no statistically significant relationship.

Nevertheless, previous PSE attempts were believed to be a factor that increased students' familiarity with the college and/or university environment, their expectations and disability supports, all of which may counterbalance the advantage of the STP in the first semester. Wagner and Arnold (2011) reviewed student success interventions and reported that several factors contribute to a *sampling bias, including program-based interventions that target high-risk students*.

The expectation that a two-week or one-week intervention would have a measurable effect on academic outcome is perhaps optimistic when considering how short the program actually is. Wiggers and Arnold (2011) describe impact of student success as follows:

When attempting to assess student service or course-based interventions, recent experience in HEQCO-funded projects suggests that it is generally best not to expect clear or significant improvements in student performance in areas such as

overall grades, retention, etc. Because most interventions consist of only several hours of workshops, mentoring sessions, or other contact time with faculty, mentors, etc., any impacts that might result are likely to be marginal or indirect at best, if they can be measured at all (p. 10).

This study highlights the fact that the STP helps to connect students to services sooner and increases the likelihood that they will use these services throughout their careers compared to the NSTP group; this is discussed in more detail below. This fact also allows us to begin to understand the association between attending the STP and a good academic outcome.

Enhanced Services

The quantitative and qualitative data confirmed the positive association of high use of enhanced services on academic performance. These findings are consistent with those reported by Troiano et al. (2010), McCloskey et al. (2011) and Nichols et al. (2002). Troiano et al. (2010) investigated the relationship of 262 students with LD in their use of an academic support centre and student achievement. Their results showed that "... students who consistently attended academic support center appointments had higher rates of success than those who did not attend or who did not attend consistently." (p. 40) The results of our study indicated a similar trend: students attending eight or more appointments in the first semester had a higher semester average than those who did not attend eight or more appointments or did not attend at all.

The STP and Enhanced Services

This study's findings indicated that students who attended the STP and made extensive use of enhanced services had statistically higher academic performance than NSTP students. These results are consistent with the findings of Dalke and Schmitt (1987) and with the review of student service programs by Wiggers and Arnold (2011), who suggested that improvements are most likely due to a combination of the intervention and other support received.

When STP and NSTP groups' patterns of use of services were compared they were found to be different. STP/NSTP group differences in the association between service of enhanced use and academic performance across semesters were found. For STP students who are academically successful (in good standing for all semesters), their enhanced services use decreases on average across semesters. Conversely, for STP students who are categorized as academically unsuccessful (in good standing for fewer than half of their semesters), their enhanced services use increases on average across semesters, possibly demonstrating a re-engagement in response to receiving feedback that indicated poor academic performance. This pattern is not seen among NSTP participants. NSTP participants use services less often than STP participants. Furthermore, in the NSTP group, successful and unsuccessful students both seem to decrease their services use across semesters. That is, the unsuccessful students in the NSTP group did not increase their use of services when the need for services was indicated.

Students' avoidance or resistance to the use of services was associated with disability awareness, a desire to explore and evaluate their disability-related needs for themselves as

adults and caution regarding social implications. A predominant theme in our findings was that students desired to remain unidentified and independent. Some portions of students were unwilling to seeking supports. In a US national student with disabilities survey, Newman et al. (2009) reported that 47 per cent of students with disabilities who use supports in high school do not identify in PSE. In the current study, students described how they had not used services in their first or even second PSE attempt, but ultimately had to use accommodations to be successful. Almost all students who used accommodations, services and supports reported believing that they could not have achieved the same level of academic success without reducing their disability-related difficulties. Trainin and Swanson (2005) reported that “help seeking was not associated with increased achievement for the NLD students but was highly associated for students with LD” (p. 268).

The positive aspect that is believed to contribute to the association of the two programs — STP and enhanced services — is students’ familiarity with service providers and disability services. STP students reported a greater awareness of student service centres and the various supports offered by each. On the other hand, a common phrase expressed by NSTP students was, “I wasn’t aware of that service.” Students’ awareness and willingness was an important factor that affected their use of services as well as their academic outcomes.

Recommendations for Improving Academic Performance

Our research finding, including feedback from the students who took part in our study, leads to the following recommendations for improving the academic performance of students with LD and/or ADHD:

1. Continue to promote summer transition and other programs. Transition programs, such as the one evaluated in the present research, give students the opportunity to enhance their understanding of their own disabilities, develop methods of compensating for weaknesses and build relationships with service providers.
2. Develop transition services and outreach for students who take alternative paths to PSE (e.g., mature students, second careers, multiple attempts). Design additional outreach measures specifically for mature students who are transitioning from a work setting or unemployment rather than high school. Lack of awareness of available services was found to be a barrier for individuals who have been disconnected from the education system because they are not transitioning directly from high school, where most outreach is focused.
3. Continue outreach programs to inform students in high school about how they can access services and accommodations in postsecondary institutions. Include information from these findings that college and university students report experiencing reduced social risk and stigma from peers. Complete an Ontario-wide survey in each institution to verify this finding.

Effect on Student Awareness and Engagement

The overarching theme emerging from our findings was that persons with disabilities are resilient individuals who persevere through hardship and challenges to achieve success. Most students with LD and/or ADHD interviewed want to achieve postsecondary success, and they are willing to take the actions necessary to achieve their goals once they understand and accept their disability-related needs. On the other hand, students' awareness of services and understanding of how to access services can impede their access. For example, Wagner and Arnold (2011) found a common issue among student services and intervention was that students who might benefit from using services were inadequately informed. Similarly, this study found the lack of awareness was evident even when disability centre staff had developed and taken steps to promote their programs.

Several students found the intake process to be challenging and difficult to navigate; this is consistent with other disability research (Denhart, 2008; Foley, 2006; Smith, English & Vasek, 2002). The STP was found to reduce the difficulty of the disability intake process, which in turn reduced students' resistance to accessing supports. The STP curriculum, which includes services orientation and disability awareness/acceptance, is designed to improve awareness of oneself and one's environment, with the intention of increasing students' willingness to use services. The data also revealed that students' support networks were a key factor in their engagement with enhanced services and the LD team members, and the STP was found to promote this too.

Recommendations for Promoting Awareness and Engagement

This study makes the following recommendations to promote student awareness and engagement:

1. Develop initiatives that focus on improving student awareness and opportunities for students to informally connect with service providers.
2. Develop and fund public awareness champions to reduce the stigma of having LD and/or ADHD in the community at large.

Academic Success Through Proactive Behaviour and Engagement

Students with LD and/or ADHD who were academically successful reported greater academic institutional engagement and more proactive behaviour in seeking needed supports than unsuccessful students. Successful students seek supports from enhanced service, other student service supports, professors and teaching assistants.

The results demonstrated that successful students proactively sought assistance; they did so with greater frequency, earlier rather than later and as a preventive action. Unsuccessful and varied-success students delayed seeking assistance, were unaware of the assistance that was available or chose to not seek assistance at all. These findings are consistent with Goldberg,

Higgins, Raskind & Herman (2003), who describe successful people who exhibit proactivity as follows:

The successfulls believed that they had the power to control their own destiny and affect the outcomes of their lives. This clearly differentiated them from their unsuccessful peers.... In contrast, unsuccessfuls were passive and tended to merely respond to events (p. 227).

Proactivity was one of the attributes that promoted success for persons with LD across a lifetime (Goldberg et al., 2003: 227).

The willingness of students with LD and/or ADHD to seek support and exhibit proactive behaviour was influenced by their willingness to self-advocate. In a related finding, environmental barriers increased students' resistance to using service. This is consistent with literature regarding students with LD, which found that wariness of experiencing discrimination, social alienation or personal discomfort with disclosure of their disability were some of the reasons provided by students to explain their delay or refusal to seek disability services (Skinner, 2004). In our study, other students reported that while they were comfortable with their disability, they did not believe that they required assistance due to past academic success or they wanted to be independent of disability supports.

Students' desire to be independent of disability supports was explained as an internalized belief that places higher value on academic success achieved without assistance and accommodations. This resulted in students wanting to first try to achieve academic success on their own. These beliefs and attitudes affect students' willingness/proactivity with disability supports and were found to be compounded by institutional barriers in student service and in accessing support from professors. Students who were successful and used supports expressed the outlook that they would not use accommodations and/or supports if they did not believe that they were necessary for success.

An interview theme commonly expressed by academically unsuccessful students was that they regretted not using enhanced services and/or planned to use them in the future. Students who had previously attended PSE described how they had not used services in their first or even second attempts, and that change in willingness to self-advocate, use accommodations and engagement with supports, services and professors was vital to their current PSE success. Professors were found to be important for students' level of institutional engagement, and positive interaction with them improved students' comfort in seeking assistance and self-advocating. Consistent with the literature, students reported that professors' willingness to accommodate and assist them increased or decreased their academic success (Greenbaum, Graham & Scales, 1995; Skinner, 2004). Students' willingness to seek assistance and their level of engagement with service providers and professors was associated with their ability to evaluate their need for support. This, in turn, was linked to students' level of self-determination, which includes their disability awareness/acceptance and comfort in self-advocating (Foley, 2006; Skinner, 2004, 2007).

Overall, successful students were actively engaged in their learning process, were connected with faculty and teaching assistants, and had self-developed creative methods of including some element of social engagement, such as peer study groups. On the other hand, students who were unsuccessful academically reported the highest level of engagement in social and extracurricular activities, demonstrating their need for time management to balance these commitments with academics. Other researchers have also found that successful students reported not having time for extracurricular activities due to the demands of their disabilities, and when they did participate in extracurricular activities, it was at a lower level (Greenbaum et al., 1995).

Recommendations for Promoting Proactive Behaviour and Engagement

The following recommendations are aimed at promoting proactive behaviour and engagement on the part of students:

1. Reduce intake barriers and improve opportunities for students to have access to professors before beginning their programs — that is, similar to the celebration day on the last day of the STP.
2. Develop programs and design initiatives to improve students' willingness to use disability services and enhanced services at PSE — for example, peer mentorship and secondary school awareness programs that address bullying and negative stereotypes.
3. Continue arrangements that permit students to carry reduced course loads, and explore ways to improve their access to funding so that students can choose to use more service or support and without the additional financial restraints. For example, college students often reported not wanting to reduce their course load because their program had a cohort structure and the students wanted to stay in the same academic year as their peers: they had formed relationships with them and benefited from study support. Students also tended to maintain part-time employment.
4. Design programs that give students paid opportunities to take advantage of peer-positive engagement — for example, programs that include peer mentorship (a program like this is currently being run at Nipissing, but on a volunteer basis).

Common Instructional Mechanisms and Methods

One aim of this study was to explore whether specific instructional components, mechanisms or interventions correlated positively with students' experience in using the summer transition and enhanced services programs. Feedback from interviews and focus groups with 116 students confirmed that specific components of the STP and enhanced services contributed to the students' overall academic success. These components include time management, self-management, executive functioning skills, learning strategies/skills, use of AT and disability awareness/acceptance and self-advocacy. These are instructional components originally developed by the LOTF from evidence-based research, and they continue to be refined using evidence-based research (Nichols et al., 2002; Trainin & Swanson, 2005; Rath & Royer, 2002).

Our findings confirmed that students with LD and/or ADHD have additional needs for academic success and spend more time on their studies compared with their non-disabled peers. These findings are consistent with Trainin and Swanson (2005), who reported that students with LD spend longer hours than their non-disabled peers and benefit more from high strategy use. Our participants confirm that they require enhanced time management and organizational skills, and need to attend more appointments, to gain learning strategies. Students need to find ways to manage these additional demands. Therefore, it is not surprising that the current study found that students place a high value on using ongoing counselling and coaching support to learn these specific skills. Moreover, this study confirms that students can learn these skills through direct instruction, ongoing counselling and/or use of collaborative enhanced services.

Participants' feedback emphasized the high value of STP and enhanced services counselling regarding their improved understanding and acceptance of their disability, which changed their comfort and willingness to self-advocate and use support. This is consistent with other transition and enhanced service research. (Tsagris, 2010; Dalke & Schmitt, 1987; Rothman et al., 2008; Nichols et al., 2002).

Results from this study and previous study confirmed that one of the most important instructional components that intervention outcomes contribute to positive outcomes was self-determination (Konrad, Fowler, Walker, Test & Wood, 2007). Self-determination is a complex concept and has many instructional components, which were enhanced by the interventions under investigation, including disability knowledge and self-awareness, self-management and self-advocacy skills, which are listed in Component Elements of Self-Determined Behavior (Wehmeyer & Field, 2007) (reproduced in Appendix I). In regards to self-determination, Field and Hoffman (2007) stated the following:

[Self-determined people apply] a combination of skills, knowledge and beliefs that enable them to engage in goal-directed, self-regulated, autonomous behaviour. An understanding of one's strengths and limitations together with a belief in oneself as capable and effective are essential in self-determination. When acting on the basis of these skills and attitudes, individuals have greater ability to take control of their lives and assume the role of successful adults in our society (p. 182).

Our findings concur with those of Konrad et al. (2007).

The STP and counselling were found to specifically mediate the unwillingness to self-advocate through improved self-awareness and disability awareness. The STP curriculum at DC and UOIT, and the creation of student homepages, were intended to be an instructional activity that would increase students' willingness to disclose to professors and improve their self-advocacy skills and self-determination. The studies found a positive association between STP and enhanced services in improving students' willingness to seek support and in turn learn self-determination skills (Tsagris, 2010).

The beneficial instructional methods that were used during the STP and enhanced services included peer interaction, direct instruction of content promoting awareness of disability knowledge and strengths, culminating portfolio (student homepages), ongoing interventions to

develop executive functioning skills (coaching) and one-on-one counselling in self- and disability acceptance. Some students reported enjoying the task of making a homepage and using or learning the technology to do so; they found the process of creating a homepage more useful than sharing the result with faculty.

Recommendations for Improving Instructional Components

1. Institutions should consider offering a skills development course that would provide instruction on learning strategies, self-awareness and stress management, time management, organization and coping strategies. These skills can be offered either as a general course credit or as an elective. Some consultation or direct instruction from disability staff would be an asset. If such a course were part of a student's regular program, students would gain effective and thorough access to these strategies without additional demands. While the course would be particularly helpful to individuals with disabilities, it would benefit all students who have difficulty in these areas. Furthermore, offering the course as an open one would reduce the feelings of segregation that some students associate with accessing services.
2. This study found that students face transition-related challenges. To improve transition, students should be given a concrete evaluation of their learning challenges and needs through psychoeducational assessments and additional testing to evaluate risks in PSE. This evaluation would include assessing their executive functioning (e.g., time management, organization), emotional intelligence (e.g., interpersonal awareness), self-determination (e.g., self-advocacy) and disability awareness and acceptance. Armed with a concrete understanding of their level of preparedness and an intervention plan tailored to their individual profile, students may be more likely to effectively engage in the use of services earlier in their academic careers.
3. Given the findings related to the benefits of meeting peers with disabilities, it will be important to explore whether improving disability acceptance by fostering peer interaction in group formats can extend beyond the STP. The use of social networking and email may enhance the development of such a program.

Students' Engagement With Professors Using Homepages

The findings from the current study indicated that STP students who shared their student homepages and received feedback from professors reported improved engagement and positive interaction with their professors — a finding consistent with Tsagris (2010). STP students reported that professors made positive comments regarding their homepages and expressed a willingness to accommodate and provide additional assistance in the future. In contrast, NSTP students without homepages depicted their professors' responses as neutral when they requested accommodation. When handing them the accommodation letters, professors simply took the letters and said thank you.

All the same, a predominant theme of this study was that when participants with LD and/or ADHD were self-advocating and making an attempt to initiate interaction with their professors

(and thereby disclose personal information, for which they felt vulnerable), they most often received a neutral response. For students who shared their homepages, this occurrence of neutral response was reduced. Some STP students who shared their homepages did, however, report that one or all of their professors provided no response to their e-mail request to share their disability information using a student homepage. The results of this study are consistent with Skinner (2007) in that most professors were willing to accommodate and that the most frequent response to student self-advocating attempts was a neutral response. Skinner (2007) described how for students already apprehensive about disclosing, a neutral response cannot be interpreted without some concern regarding the effect on students' future willingness to access support. This study found that students interpreted professors' neutral responses as an indication of them not caring or as a lack of willingness to make an effort. This accessibility issue could be addressed by giving professors professional training.

The overall impression from these findings was that students' interactions with professors were important to their positive or negative evaluation of their experience of PSE in relation to their disability. Some students with LD and/or ADHD indicated that they felt psychologically vulnerable when self-disclosing; and as noted, this process may require additional care or openness from professors to ease students' fears. While students from both groups (STP and NSTP) identified experiencing occasional difficulties with professors when arranging an accommodation, they purposely stressed that any difficulty they experienced was an isolated situation and that they received assistance from the Disability Centre to mediate the conflict. College students more frequently described positive direct interaction with professors regarding their disability compared with university students. The difference in professors' openness could relate to differences in class size and/or institutional structures; for example, the university professor is traditionally viewed as less accessible and as a researcher and lecturer rather than as a teacher. The teaching assistant generally has more interaction with students than the professor.

Use of electronic methods of communication, such as the student homepage, was found to help improve professor–student interaction because online communication can lessen the discomfort for both students and professors when discussing personal information after class in a less than ideal environment. As reported earlier, student homepages were found to improve communication and/or professors' in-person responses. A website like the student homepage may not be the only format that improves communication; improved communication can likely also be achieved using alternative formats, such as e-mail messages, e-portfolios and printed student developed pamphlets.

Students attributed most of the challenges they experienced to professors' lack of information and recommended that they receive additional training. From the students' perspective, some professors need to develop a better understanding of how having LD and/or ADHD affects the students' learning process. Vogel, Holt, Sligar and Leake (2008) indicated that faculty themselves confirmed a lack of knowledge regarding disabilities and the services available from a disability office. Importantly, the authors investigated an intervention approach whereby professional training involved using a website and on-campus live events to enhance professors' knowledge of disabilities. Vogel et al. (2008) found that the changes that occurred

as a result of the training were significant, including a change in the climate on campus for persons with disabilities.

Recommendations for Promoting Student Engagement with Professors

The following recommendations may give faculty more information about individual students and promote better student/professor interaction:

1. Disability service providers continue to explore more effective use of the Internet and other alternative formats for communicating with professors about disability information, needs and accommodations.
2. Disability service providers continue to use and expand on the practice of student homepages or equivalent formats that use the new technology and social media.
3. Continue to provide professional development for professors to give them a better understanding of the challenges faced by students with LD and/or ADHD, the policies and practices of the Disability Centre and their role in improving accessibility and removing barriers in PSE. Include information about their ability to positively contribute to students' willingness to self-advocate and the valuable role they play.

Institutional Differences and Similarities

The research site offered a unique opportunity to compare the experiences of college and university students who used similar student services (the enhanced services program) and were offered similar transition programs. Findings from the quantitative and qualitative data revealed few differences in the students' experiences. Students reported that they had experienced similar difficulties with the transition to PSE because of the requirements for increased self-management, time management and other disability-related deficits; they had also experienced increased demands in workload directly related to their disability. When accessing disability supports and accommodations, both college and university students reported experiencing similar institutional barriers at the point of intake and in the academic environment. As mentioned earlier, students occasionally experienced barriers when requesting accommodations from their professors. College students reported a high frequency of positive interaction.

To improve their access to PSE, students made similar recommendations for change, including improved access to psychoeducational assessments, professional development for professors regarding both LD and teaching practices to improve accessibility in the classroom, more consistency across learning platforms and technological formats, increased accessibility to learning materials/alternative formats, use of UID principles and 24-hour access to an AT computer lab or software. The LOTF report also addressed both college and university institutions. This study concurs with that report's conclusion that limited differences were noted between college and university students. (Nichols et al., 2002) In fact, the LOTF consultants concluded that "... the needs of students with learning disabilities are essentially the same in both types of institutions" (p. 5).

This study also found a greater number of students with multiple attempts in our college cohort. These findings are consistent with those reported by Foley (2006): "... more than 75% of the students with LD attended two or even three different colleges or universities before graduating (p. 641). As well, McCloskey et al. (2011) found that 42 students of the 125 students they studied had attended two or more institutions. Colleges tend to be designed to improve postsecondary access for all members of the community. Therefore, more students use college as an entry point to higher education and as a form of upgrading or retraining after employment shortages or occupational injury in their fields. A substantial portion of students participating in this study already had one or more previous postsecondary experiences. The postsecondary journey for some persons with disabilities appears to be longer than it is for the non-disabled population, and the multiple attempts may reflect system barriers and/or opportunities for improving accessibility for this population.

Recommendations Related to Institutional Similarities

1. Colleges and universities should continue to improve their articulation agreements and lower barriers to the transfer of credits. They should also continue to create bridge programs that take the experience of students with LD and/or ADHD into consideration. The College Committee on Disability Issues and the Inter-University Disability Issues Association should continue to collaborate on disability issues and share knowledge to advance the accessibility agenda across Ontario. Joint action may be required to advocate for students regarding the numerous systemic barriers they face in areas such as articulation and accessible alternative formats.
2. To make it easier for students with LD and/or ADHD to access services in postsecondary institutions, barriers to transitioning from the secondary to the postsecondary setting need to be addressed. Specific attention needs to be focused on a solution to the "documentation disconnection" (see the next section).
3. Colleges and universities must acknowledge and support LD and/or ADHD students who make multiple attempts at postsecondary education — for example, by providing students with learning strategies and assistance in navigating technology-based learning.

Documentation Disconnection

Many factors influence the successful transition of students with LD and/or ADHD to college and university. The current structure of PSE, and the gap between secondary and postsecondary education regarding documentation of disabilities, have been found to impede students with LD and/or ADHD transition from high school or the workforce to PSE. This study contributes to the body of literature that expresses this concern and names the system as a major factor affecting students' postsecondary preparedness and accessibility; this issue remains functionally unresolved (NJCLD, 2007, 2010; Nichols et al., 2002; Harrison et al., 2007; Gregg, 2007).

Attending the STP improved access to a psychoeducational assessment, which students confirmed had a positive effect on their transition to PSE. Having a psychoeducational

assessment completed before beginning PSE was also found to be positive because it was a key source of disability-related information and individual recommendations. This situation may have contributed to the positive reports by STP students compared to NSTP students and to their reports of feeling that they had a head start.

Two issues affect transition for students with LD and/or ADHD: limited access to a current psychoeducational assessment and an out-of-date identification system. For example, in Ontario, individuals with LD are identified as “exceptional learners,” and they may or may not have a current psychoeducational assessment. Harrison et al. (2007) found that when the LOTF pilot projects had completed the intakes for 1,242 students, most students had never been diagnosed as having LD. The authors indicated that “half had received limited or no special education in primary or secondary school ...” (Harrison et al., 2007: Abstract). Many students with LD and/or ADHD reported having no high school supports, having never accessed accommodations, services or learning strategies, and being unaware of their disability-specific needs or the enhanced supports available in PSE.

Recommendations for Improving This Disconnection

The following recommendations are offered to improve the documentation disconnection:

1. The MTCU is encouraged to persuade the Ontario Ministry of Education to review and revise the current identification process and categories. MTCU already supports CCDI and IDIA in their ongoing discussions with secondary school stakeholder groups.
2. Secondary school systems should ensure that supports are in place to provide up-to-date assessments and services to all students who require them. Alternatively, a separate organization should be established to fund and provide assessments to students before they begin PSE. These services are currently available, in part, through the *Regional Assessment and Resources Centre (RARC)* and the *Northern Ontario Assessment and Resource Centre*. The RARC provides appropriate, accurate, comprehensive and effective assessment and follow-up services to students at Queen's University in Kingston and to persons with specific learning disabilities in southern Ontario, with funding provided by the MTCU.
3. Bursaries for assessing students with disabilities should be available before the students attend PSE or transition from the workplace or unemployment, particularly those students older than 18 years of age, because after age 18, these assessments are valid for life.
4. Departments that service students with disabilities in postsecondary institutions should engage students as early as possible to help them through the process of accessing services and receiving an assessment if they have not already done so. Secondary school outreach, intake meetings well before the students' programs begin, and transition programs are all effective methods for ensuring early engagement.

Policy Implications: Intersystem Accessibility

The findings of the present study indicate that a large number of students with LD and/or ADHD have made multiple PSE attempts or have completed academic upgrading or qualifications (e.g., extra years in high school, upgrading marks) before arriving at PSE institutions. Greenbaum et al.(1995) also indicated that:

... people with LD are likely to change colleges while pursuing an undergraduate degree. Most of the participants (76%) attended more than one college or university, with almost 20% attending three different institutions. Vogel and her colleagues (Adelman & Vogel, 1990; Vogel et al., 1993) also found that people with LD, graduating from a small private college, frequently attended more than one institution (Greenbaum et al, 1995).

Additionally, a certain proportion of students indicated that they planned to change programs or enrol in additional programs in the future. This was found to be a method of compensating for their disability. Several college students with LD and/or ADHD indicated that they had plans to attend university after graduating from their programs; this was intended to reduce the cost of their education and improve overall accessibility.

For students who make multiple attempts, better arrangements need to be designed to eliminate unnecessary duplication of expenses and human resources. In addition, groups involved in PSE access — funding and scholarship agencies as well as college and university admissions committees — need to recognize that students with LD and/or ADHD may need to make multiple successful and unsuccessful attempts to reach their academic goals and may need to take alternative educational pathways to achieve success.

Recommendations for Facilitating Length of Study

1. PSE institutions should consider ways to support the transfer of completed credits and increase the ease of transferring programs. For institutions that share articulation agreements, improve the arrangement whereby students transfer and receive credits.
2. Disability services on the same campus should be collaborative and/or shared to ensure effective service delivery and consistent engagement.
3. Develop policies and arrangements that improve access from a financial perspective. Funding and scholarship agencies should develop policies and arrangements that improve students' access to PSE. College and university admissions committees need to improve access to all programs.
4. Students with LD and/or ADHD have a unique experience in postsecondary institutions. To enhance these students' academic success and maximize retention, these institutions need to develop an effective method of data collection to track these individuals in and across institutions, and they need to develop programs that promote a better understanding of this student population.

Recommendations for Improving Accessibility in PSE

Students interviewed made the following recommendations to improve the overall accessibility of postsecondary education to them:

1. Continue to support research and targeted initiatives to improve accessibility to PSE for under-represented populations. Develop a generic public and educational training campaign that would give students transitioning from the community and workforce, as well as postsecondary faculty, improved knowledge of persons with LD and/or ADHD and the methods they can employ to improve access to classroom instruction and content design.
2. Postsecondary institutions, and individual academic programs, are encouraged to support the development of consistent, accessible course materials and course outlines.
3. Postsecondary institutions should provide better access to computer laboratories and greater funding to facilitate access to alternative formats.

Section 6: Conclusion, Limitations and Further Research

Conclusion

In Ontario, ensuring access to higher education to the under-represented population of students with disabilities is a priority that is supported by targeted funding and legislation. This study's findings demonstrate that targeted funding of enhanced services and summer transition programs improves PSE experiences for college and university students with LD and/or ADHD. The aim of this study was to evaluate this targeted funding, and these programs were found to improve the educational quality for this under-represented and at-risk target population. The findings indicate that programs and interventions can mediate and mitigate these students' issues and improve the skills they need to ensure access to PSE.

Overall, students who used enhanced services had better academic achievement than students who did not use services. Furthermore, students who attended the STP and used enhanced services were more likely to be academically engaged with the campus community and with their professors, and have higher academic achievement, than NSTP students.

Limitations

The first limitation of the present study arose from the differences between STP and NSTP students. While the STP is offered to all transitioning students, participation is voluntary, and differences were detected between the STP and NSTP groups (e.g., in age, number of previous PSE attempts). These differences may affect whether the students attend the STP, how willing they are to use services and how well they perform academically. Thus, these differences limit the extent to which conclusions can be drawn about the effect of attending the STP. However, from a practitioner perspective, this lack of random assignment enhances the validity of the present study and more accurately reflects the populations found in college and university settings.

While this study was a two-and-a-half-year longitudinal design, the staggered entry of participants meant that varying amounts of data were collected for different participants. For a few students who began their program before the beginning of the research, data were available for their academic progress and use of services for semesters up to December 31, 2010. However, for the 2010–2011 cohorts, quantitative data, including academic achievement and use of services, were available for only a single semester: fall 2010.

The length of this study also limited our ability to investigate graduation rates, as many programs of study were expected to continue past the completion of data collection. Thus, the longer-term academic outcomes of many participants is unknown. This limitation lessened the strength of the quantitative data. Conducting follow-up assessments of the present sample would provide useful information about the long-term academic outcomes of these programs for more of these students. On the other hand, it is believed that the qualitative data had reached a “point of saturation” in which the interview data or researchers' observations were not revealing any new themes, concepts or further understanding of a situation or topic.

The collection of data was also limited by issues with institutional and departmental databases. For example, some departments began collecting centralized data only in the last few years. Other departments have changed the procedures and databases they use to collect information, making comparisons and data-tracking across multiple years problematic. Finally, some departments collected data in a manner that was not consistent with the research objectives of the current project. For example, a student's cumulative grade point average (CGPA) is an average of his or her academic performance across all courses taken at the college or university. Therefore, a student's CGPA in his or her current program is affected by academic performance in previous programs at the institution. As a result, we elected not to use CGPA as a measure even though, in some instances, it may have been helpful.

Recommendations for Further Research

This study makes the following recommendations for further research:

1. Conduct further research to confirm this study's findings and explore the experiences of students who have made multiple postsecondary attempts.
2. Conduct large scale survey of Students with LD and or ADHD PSE retention rates. As well as further investigation of multiple attempts at PSE. Qualitative and qualitative data collection could facilitate our understanding of the academic pathways and the academic/or advising interventions that might assist them.
3. Conduct further research into professional development programs geared toward PSE faculty to ensure that the curriculum is accessible to students with disabilities. This recommendation is timely given the release of new standards under the *Accessibility for Ontarians with Disabilities Act*.
4. Investigate the effectiveness of targeted marketing/communications strategies produced by disability offices and postsecondary campuses in lowering barriers to service access, such as social risk, stigma, time commitment and the process of receiving psychoeducational assessments.
5. Develop comparative information to characterize the transition to PSE among students with LD and/or ADHD who receive psychoeducational assessments and early diagnosis.
6. Explore the factors that influence the decision of students with LD and/or ADHD to leave PSE.

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Appendix A: Student Services and Accommodations

Enhanced Services Personnel

Disability Centre

The enhanced services personnel that students have access to at the Centre for Students with Disabilities at the research site include Learning Strategies Counsellor (described in Appendix E) and assistive technologist (described in Appendix F). Students access these enhanced services through the Disability Centre.

Academic Learning Centre

The enhanced services providers to whom students have access at the research site in SALS at DC and ALS at UOIT include learning strategies advisor and writing specialist.

General Disability Services Personnel

Students may also seek what we have referred to in this study as general disability services, which include disability advisor, alternative format technician and access to a test centre.

Accommodations and Supports

There are a variety of accommodations available at the postsecondary level which can include a variety of test, faculty and Disability Centre accommodations. Disability Centre accommodations can include writing support, peer tutoring, alternative print material, adaptive technology, reduced course load, computerized note-taking, sign language interpreter and classroom assistant. As well, as there are specific accommodations for tests/exams that fall into the category of test accommodations; these can include memory aids, computer, dictionary, alternate format and software accommodations as well as extra time and writing in a distraction-reduced area. There are also faculty accommodations: recorded lectures, PowerPoint slides and enlargements, alternative formats (electronic) as well as preferential seating.

Appendix B: Learning Disabilities

Definition adopted by the Learning Disabilities Association of Canada:

“Learning disabilities” refer to a number of disorders which may affect the acquisition, organization, retention, understanding or use of verbal or nonverbal information. These disorders affect learning in individuals who otherwise demonstrate at least average abilities essential for thinking and/or reasoning. As such, learning disabilities are distinct from global intellectual deficiency.

Learning disabilities result from impairments in one or more processes related to perceiving, thinking, remembering or learning. These include, but are not limited to: language processing; phonological processing; visual spatial processing; processing speed; memory and attention; and executive functions (e.g., planning and decision-making).

Learning disabilities range in severity and may interfere with the acquisition and use of one or more of the following:

- oral language (e.g., listening, speaking, understanding);
- reading (e.g., decoding, phonetic knowledge, word recognition, comprehension);
- written language (e.g., spelling and written expression); and
- mathematics (e.g., computation, problem solving).

Learning disabilities may also involve difficulties with organizational skills, social perception, social interaction and perspective taking.

Learning disabilities are lifelong. The way in which they are expressed may vary over an individual's lifetime, depending on the interaction between the demands of the environment and the individual's strengths and needs. Learning disabilities are suggested by unexpected academic under-achievement or achievement which is maintained only by unusually high levels of effort and support.

Learning disabilities are due to genetic and/or neurobiological factors or injury that alters brain functioning in a manner which affects one or more processes related to learning. These disorders are not due primarily to hearing and/or vision problems, socio-economic factors, cultural or linguistic differences, lack of motivation or ineffective teaching, although these factors may further complicate the challenges faced by individuals with learning disabilities. Learning disabilities may co-exist with various conditions including attentional, behavioural and emotional disorders, sensory impairments or other medical conditions. For success, individuals with learning disabilities require early identification and timely specialized assessments and interventions involving home, school, community and workplace settings. The interventions need to be appropriate for each individual's learning disability subtype and, at a minimum, include the provision of: specific skill instruction; accommodations; compensatory strategies; and self-advocacy skills.

Appendix C: Attention Deficit Hyperactivity Disorder

The diagnosis of ADHD must be made by a Licensed Medical Health Practitioner using the criteria in the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision (DSM-IV-TR). The Ontario Ministry of Health (2003) released a news media brief, “Attention Deficit Disorder: Not just a child’s ailment,” which highlights key facts.

“One of the most common Learning Disorders affecting both children and adults is Attention Deficit Hyperactivity Disorder (ADHD). ADHD is a condition where an individual (child or adult) displays consistent characteristic behaviours over a period of time. These characteristics include poor sustained attention to tasks, impaired impulse control, and hyperactivity (excessive activity and physical restlessness).

The causes of this frustrating and disruptive disorder appear to be largely genetic, with approximately 4 per cent of the general population believed to have ADHD on some level. Many parents of children with ADHD blame themselves, and experience guilt related to their child's disorder. This is not the case. However it is a parent or guardian's responsibility to ensure that the disorder is properly treated.

ADHD often appears before seven years of age and can go on to significantly interfere with school, work, family, social life, and even sexual relationships in adulthood. Children with ADHD often experience the following symptoms: excessive fidgeting, difficulty waiting for their turn while playing games, blurting out responses in a classroom setting, shifting from one activity to the next very quickly, talking excessively, engage in dangerous activities, and often loses things.

There are no official symptoms for adults, however adults tend to move from job to job, form few stable relationships, and often abuse alcohol, tobacco, and other drugs. Some of the consequences of allowing this disorder to go untreated include a high divorce rate, poor results in school, and a general boredom with life.

Treatment for ADHD is most often a low, steady dose of a psychostimulant drug. These drugs help to filter out unnecessary distractions in the brain.... All drugs should be accompanied by supportive counselling. ADHD can be managed. When treated properly, individuals go on to live happy and normal lives. Take back control!” (Ontario Ministry of Health, 2003)

Distribution of Diagnostic Categories in College and University Samples

Variable	AD/HD only N (%)	LD only N (%)	AD/HD and LD N (%)
College	18 (18.9%)	57 (60.0%)	20 (21.1%)
University	15 (26.8%)	30 (53.6%)	11 (19.6%)

Appendix D: Sample Student Homepage

Simba DURHAM COLLEGE



Introduction About Me My Disability Faculty Info Links

My Disability



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graph TD; Simba((Simba)) --> Strengths((my strengths)); Simba --> Disabilities((my disabilities)); Strengths --> Reading[reading]; Strengths --> Understanding[understanding]; Strengths --> EasyGoing[easy going]; Strengths --> Writing[writing]; Disabilities --> WorkingMemory[Working memory]; Disabilities --> VisualSpatial[Visual spatial processing]; Disabilities --> Phonological[Phonological processing];
```

Summary

I have a learning disability and average cognitive ability. I'm optimistic and dedicated. I have good attention and concentration skills, however my auditory processing deficit causes me to look like a person with ADHD. I have trouble keeping visual and auditory information in my short term memory long enough to process it, so sometimes I get confused or bored in class. This means I might miss information so I will have to do extra work preparing before class. I am very dedicated to my studies and I have to work harder than other people to attain similar results.

My Accommodations

I will need extra time for tests and exams. I'll use alternative note taking and assistive technology. I will also work with a learning strategist on my organization and learning strategies.

My Academic Strengths

Receptive and expressive language processing relates to the semantics of a language. I communicate well in practical ways, using both verbal and non-verbal channels.

Receptive language processing refers to an individual's understanding of oral and written language. I find it easy to understand meaning conveyed by vocabulary, including multiple meanings and figurative language.

Appendix E: Learning Strategies Counsellor

At Durham College and UOIT, the title Enhanced Learning Strategist was changed to Learning Strategies Counsellor.

The LOTF report (Nichols et al., 2002: 48–49) described the role of learning strategist as follows:

The value of learning strategy instruction and coaching has been well established within the LOTF pilot projects. The role of learning strategist is pivotal in helping students to understand their learning disabilities, to assess their capacity to use learning strategies and to apply such strategies to better actualize their academic abilities. A learning strategist who works with students with specific learning disabilities should be able to demonstrate skills and knowledge in the following areas:

- **Knowledge and understanding** of learning disabilities and their impact on how students can learn to function effectively and efficiently in the post-secondary educational sector.
- The ability to **interpret** and **explain** LD assessments to the students.
- **Communication** with students and with a variety of internal contacts including other student services staff and faculty members.
- **Coaching** and giving feedback: being able to influence students to consider, learn, apply and evaluate learning strategies.
- **Innovative** thinking: developing specific variations on broad strategies to respond to unique student strengths and needs and varying classroom demands.
- **Problem-solving**: being able to respond flexibly to difficulties that students encounter in applying learning strategies.
- **LD specific counseling** to deal with students' reactions to negative learning experiences, feelings such as helplessness, defensiveness, anxiety, low self-esteem and an initial lack of self advocacy skills.
- **Results**: keeping the outcome in mind, i.e., increased efficiency in learning for students with learning disabilities.
- **Sensitivity**: recognizing student strengths and limitations and responding to those with empathy and adaptability.

Appendix F: Assistive Technologist

The LOTF report (Nichols et al., 2002: 49–50) described the role of assistive technologist as follows:

The increasing availability and successful use of **assistive technology** suitable to individuals studying in the post-secondary sector makes this one of the more productive and requested academic accommodations for those with LD. LOTF's research has shown that the benefit of such services without the support of a knowledgeable technologist is minimal.

Such a professional will be able to demonstrate the following skills and knowledge:

- **Technical expertise** with a variety of software and hardware, competence to demonstrate these to students with LD in user-friendly ways and a commitment to maintaining that expertise as the technology changes.
- A **network** of contacts within the vendor industry, in order to remain current with trends in the assistive technology field, including new computer applications and new ways to apply assistive technology in educational settings.
- **Communication:** the ability to convey directions, concepts and applications to students, colleagues and faculty members.
- **Problem-solving:** being able to adapt to individual student strengths, limitations and aptitude in using assistive technology.
- **Adaptability:** being able to respond to differing demands in the academic setting and integrating the technology into and with the material taught.
- **Coaching** and giving feedback: being able to influence and encourage students in learning to use assistive technology with success and to give constructive feedback in the learning process.

Appendix G: DC Summer Transition Program Calendar

Week 1					
	Day 1	Day 2	Day 3	Day 4	Day 5
Theme	Introduction & Self-Advocacy	Self-Awareness Process: How are you smart?	Self-Assessment: Own Learning Disability / ADHD	Understanding and Influencing Your Own and Others Emotions	Stress Management
Time	9:30– 12:00	Learning Strengths:	Learning Disabilities/ADHD:	Emotional Intelligence:	Strategies for Staying Healthy & Happy:
Lunch	<p>Rights & responsibilities</p> <ul style="list-style-type: none"> • Creating safety • Ground rules • Sociometry • Positive vs. negative self-advocacy • What is self-determination • Review differences from high school <p>Concepts & Skills for Leadership</p>	<p>What are your strengths</p> <ul style="list-style-type: none"> • What they mean for postsecondary education • Goal-setting and career choices • Using online self-evaluation tools to create personal profiles 	<ul style="list-style-type: none"> • Review differences from high school • What learning disabilities & ADHD really are • Information processing • Different pathways, what happens when it doesn't work well • Assessing own processing pathways & deficits 	<ol style="list-style-type: none"> 1. Assess emotional intelligence. 2. Awareness of own emotions, coping mechanisms, and emotions of others 3. Development of problem-solving skills for real situations at postsecondary 	<ul style="list-style-type: none"> • Discussion of types, causes, effects & signs of stress • Connection of procrastination to stress • Procrastination prevention • Stress reduction life skills & techniques (eating well, sleeping, exercise, etc.)
Computer Lab 1:00–3:00	<p>Daily Campus Tour: ID Cards & Tim Horton's</p> <p>GPS College Survival Skills:</p> <p>Orientation</p>	<p>Daily Campus Tour:</p> <p>Learner Support Centre</p> <p>Assistive Technology:</p> <ul style="list-style-type: none"> • Print book lists, course outlines & timetables • Interview session • Introduce TextHelp • Create "About Me" document using these program 	<p>Daily Campus Tour: Financial Student Services/Accounting</p> <p>Assistive Technology:</p> <ul style="list-style-type: none"> • Create "Strengths & Disability" document using screen reader • Demonstrate Naturally Speaking 	<p>Daily Campus Tour:</p> <p>Simcoe Building & Bookstore</p> <p>Assistive Technology:</p> <ul style="list-style-type: none"> • Introduction to Inspiration • Integration of Day 2 and 3 to create graphic of strengths & disabilities 	<p>Daily Campus Tour:</p> <p>Student Health Centre & Athletic Complex</p> <p>Homepage Development:</p> <ul style="list-style-type: none"> • Introduce Dreamweaver • Apply week 1 documents • Tech. Survey & focus group discussion

WEEK 2					
	Day 6	Day 7	Day 8	Day 9	Day 10
Theme	Organization/ Time Management	Getting the Information	Reduction & Writing	Test / Exam Skills	Celebrating Success
Time	Staying in Control of Your Time: <ul style="list-style-type: none"> Active Vs Passive Learner Stating the problem Organizing binders and notes Planning ahead for assignments & exams Effective scheduling methods Daily Campus Tour: Mobile Computing / Learning Commons & IT Support	Process of Studying: <ul style="list-style-type: none"> Learning, Reducing, Retaining Using the library Getting to know your textbook Using Learning Strategies SQ5R Steps for Reading and Studying Daily Campus Tour: Peer Assisted Locating Classes	Study Skills/Learning Strategies: <ul style="list-style-type: none"> Strategies for note taking Using cue cards as a study strategy Summarizing, & organizing information The revision process How to break down an assignment Knowing when and where to seek help with assignments Daily Campus Tour: Library	Test & Exam Success Skills: <ul style="list-style-type: none"> Making study notes Memory strategies Using Flash Cards as a memory strategy Strategies for effective reading and answering questions on tests Accommodations & specific related self-advocacy skills Personal strategies Daily Campus Tour: Test Centre	Looking Ahead: <ul style="list-style-type: none"> Discussion of "where to go from here" Importance of using resources & strategies on an ongoing basis Culminating Activity Daily Campus Tour: Outdoor areas of campus
Lunch					
Time: 1:00- 3:30 Computer Lab	Assistive Technology: <ul style="list-style-type: none"> Introduction to Outlook & PDAs Revisit Homepage Development Banner Harvesting 	Homepage Development: <ul style="list-style-type: none"> Introduce Photoshop and make banners & icons 	Assistive Technology: <ul style="list-style-type: none"> Use Inspiration & Text Help to complete personal accommodations Homepage Development: Dreamweaver to add to "My Accommodations"	Homepage Development: <ul style="list-style-type: none"> Use all assistive technology software to complete Homepage content and art design Invite profs to view Homepages 	<ul style="list-style-type: none"> Share Homepages in gallery format Give out prizes Focus group discussion

Appendix H: UOIT Summer Transition Program Calendar

WEEK 1					
	Day 1: Self-Advocacy	Day 2: Self-Awareness: Strengths	Day 3: Disability Awareness: Documentation Review	Day 4: Academic Awareness: Success Strategies	Day 5: Consolidation/ Personal Plans
9:30–12:00	Introductions & Services Offered; Self Advocacy; Rights & responsibilities <ul style="list-style-type: none"> • Creating safety • Ground rules • Sociometry • Positive vs. negative self-advocacy • What is self-determination • Review differences from high school Concepts & Skills for Leadership Daily Campus Tour: ID Cards	Learning Strengths / Emotional Intelligences <ul style="list-style-type: none"> • Emotional Intelligence (EI) • EI building exercise “Empty Your Wallet” • Group activities “School Scenarios” • Multiple Intelligence (MI) • How are you smart? • MI exercise in Learner’s Support Centre Daily Campus Tour: Learner Support Centre	Learning Disabilities/ADHD: <ul style="list-style-type: none"> • LD/ADHD/Information Processing • Review terminology • overview of LD and ADHD • Look at own assessment and copy of processing information • Highlight strengths and weaknesses Daily Campus Tour: Financial Student Services/ Accounting	Academic Strategies <ul style="list-style-type: none"> • Review learning strategies • Time management, active listening, memorizing • Note taking using Microsoft OneNote; organizing files • Test and exam skills • Library research strategies • Studying for Math and Science students Daily Campus Tour: Simcoe Building & Bookstore	Strategies for Staying Healthy & Happy: <ul style="list-style-type: none"> • Discussion of types, causes, effects & signs of stress • Connection of procrastination to stress • Evaluation of own stressors and coping strategies • Procrastination prevention • Stress reduction life skills & techniques (eating well, sleeping, exercise, etc.) Daily Campus Tour: Student Health Centre & Athletic Complex
1:00–3:00 Laptop Instruction	College Survival Skills: <ul style="list-style-type: none"> • WebCT, MyCampus, REACH website • Alt Format • OneNote session 	Assistive Technology: <ul style="list-style-type: none"> • Introduce TextHelp • Create "About Me" document using these programs Demonstrate Kurzweil 3000	Assistive Technology: <ul style="list-style-type: none"> • Create “Strengths & Disability” document using screen reader • Demonstrate Naturally Speaking • Demonstrate Inspiration 	Assistive Technology: <ul style="list-style-type: none"> • Intro to Dreamweaver • Make banners & icons • Use Inspiration & Text Help to complete Personal Accommodations 	Homepage Development: <ul style="list-style-type: none"> • Homepage Showcase • Share homepages with faculty and staff

Appendix I: Component Elements of Self-Determined Behaviour

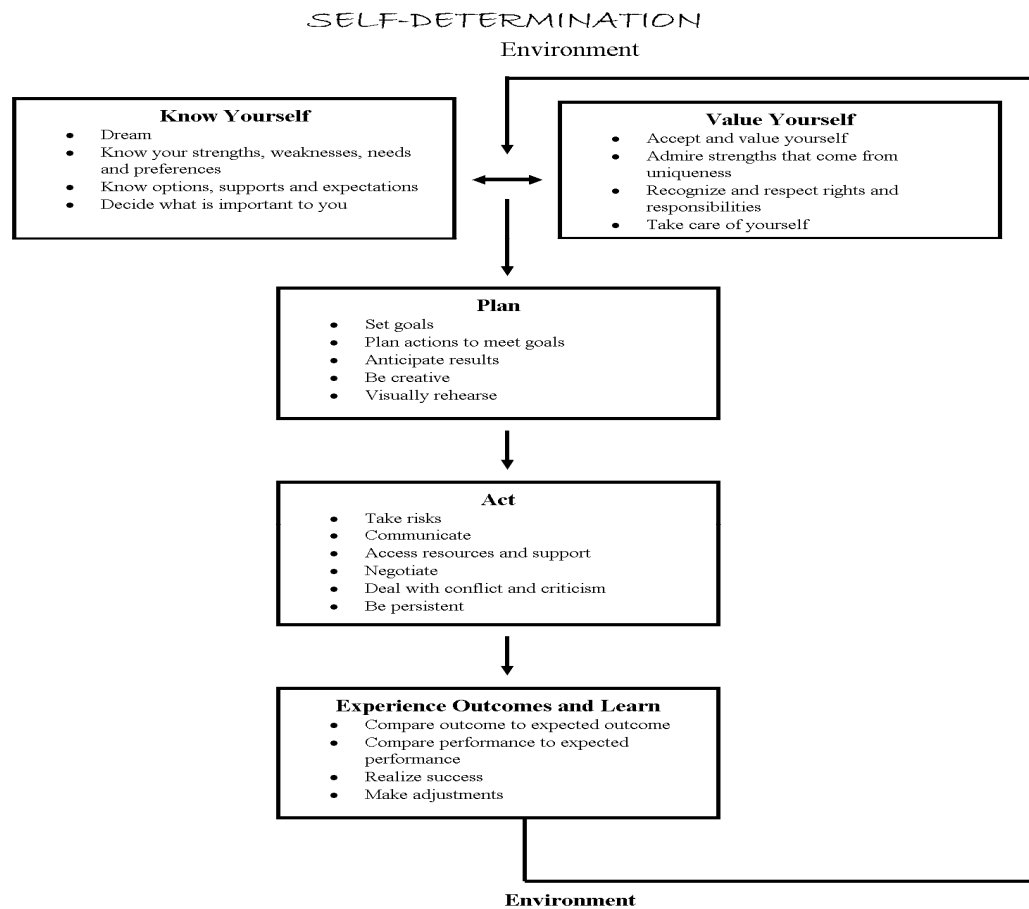
As set out by Wehmeyer & Field. (2007: 6)

Choice-Making Skills
Decision-Making Skills
Problem-Solving Skills
Goal-Setting and Attainment Skills
Self-Regulation/Self-Management Skills
Self-Advocacy and Leadership Skills
Positive Perceptions of Control, Efficacy, and Outcome Expectations

Appendix J: Self-determination Definition and Model

Field and Hoffman (2007) stated:

[Self-determined people apply] a combination of skills, knowledge and beliefs that enable them to engage in goal-directed, self-regulated, autonomous behaviour. An understanding of one's strengths and limitations together with a belief in oneself as capable and effective are essential in self-determination. When acting on the basis of these skills and attitudes, individuals have greater ability to take control of their lives and assume the role of successful adults in our society. (p. 182)



Model of Self-determination. From "Development of a Model for Self-Determination," by S. Field and A. Hoffman, 1994, *Career Development for Exceptional Individuals*, 17(2), p. 165.

Appendix K: Non-Verbal Learning Disorder

Byron Rourke (1995) characterized the primary neuropsychological deficits of developmental right-hemisphere brain syndrome, or non-verbal learning disabilities, as a lack of tactile perception, visual spatial perception, psychomotor coordination and attention to novel stimuli. Rourke also noted secondary and tertiary deficits in visual attention, physical functioning, memory for nonverbal material, ability to internalize feedback and problem solving strategies. NVLD children speak loudly and/or inappropriately during class time or in the library. Individuals with these characteristics tend to rely on verbal language as the primary means of communication. Children with NVLD have difficulty understanding body language, facial expressions as well as norms involving personal space, touch and tone of voice.

Signs and Symptoms

- This child is clumsy, awkward and uncoordinated.
- These children have difficulty learning to ride a bike or catch a ball.
- Fine motor skills are poor, activities such as buttoning a shirt, cutting with scissors, tying shoelaces and printing can be problematic.
- He/she is disorganized and seems to be confused although s/he is very verbal.
- He/she don't understand when "enough is enough" and are "in your-face" kind of people who don't understand the unwritten rules of personal space.
- These children cope by using their good memories for rote material and depend on their memories of past experiences rather than on social cues from other people.
- Resistance to transitions and changing environments is common due to their difficulty processing information effectively.

The overall pattern of NVLD individuals tends to involve most or all of the following major areas of functioning: interpretation, integration, intuition, insight and initiative.

Appendix L: Interview Questions

Question would be selected from this list and adjusted to meet the format for student focus groups. Changes will be made as the interview is in progress to adapt to individual student. Adjustments will be made as required. For example, if students do not understand a question then wording will be adjusted.

This questions are semi-structured and to be used as a guideline

Academic Performance

- 1) Did you like your program? Do you think you chose the right program?
- 2) What are your thoughts about how you did academically last semester?
- 3) What were your grades for last semester? Can I print a copy?
- 4) Do you feel you did better academically than you expected, the same as you expected, or worse than you expected last semester? Are you satisfied with your performance?
- 5) Did you have a specific course that you struggled or you failed? What did you do? Did you seek help, and if so, from who?
- 6) Part two: If yes to question 6, why did you think you struggled?
- 7) What could you have done differently? What could others have done differently?
- 8) Even if your marks were not better, or as good as you had hoped, what did you do well last semester?
- 9) What do you feel you still need to improve on in order to do better academically?
- 10) What changes are you making or plan to do in the future?
- 11) Did you seek support or help from your instructor? Did you follow up with extra help?

Student Services Used

- 12) What strategies or supports did you use this semester?
- 13) Which strategies or supports seemed to help, and which strategies or supports did not seem to help?
- 14) What support or strategies do you feel you need in order to do better academically?
- 15) What are your academic goals if any for next semester?
- 16) What is your plan for attaining your goals next semester?

Student Engagement (Social)

- 1) What groups or activities did you become involved with last semester?
- 2) Did you attend any campus-sponsored events last semester, and if so, what were they?
- 3) If you live in residence, did you participate in any residence-sponsored activities last semester, and if so, what were they?
- 4) Tell me about your social experiences last semester. What did you do for fun? Did you make new friends? Did you go to the gym? Etc.
- 5) Did your involvement with the Centre for Students with Disabilities help to foster any new social relationships? If so, how?
- 6) Did your involvement in the Summer Transition Program help to foster any new social relationships? If so, how?

For Students who have been selected and no longer in school, complete the next section in combination with question two interview questions.

Centre for Student with Disabilities

- 1) Did you want to use CSD service when you started school? Did the level of willingness to seek supports change at any time in the year?
- 2) Please describe your disability and the ways it impacts you in your studies. What are your processing deficits?
- 3) Has your understanding of your disability changed since you started postsecondary education? If so, how?
- 4) What did you do differently from high school?
- 5) What CSD supports did you use the most last semester, last year? Has that changed when you compare it to previous year?
- 6) Did you disclose your disability to your instructors?
- 7) If yes, how did you do that and what did he /she say?
- 8) If no, why not, what stood in your way?
- 9) Which CSD supports were the most helpful last semester?
- 10) Which CSD supports most likely contributed to your success last semester?
- 11) Were there any supports that you think might have helped but were not available? If so, what?
- 12) If you met with your Disability Advisor, what support did he/she provide?
- 13) If you met with your Learning Strategist, what support did he/she provide?
- 14) If you met with the Assistive Technologist, what support did he/she provide?
- 15) If you met with the Alternative Format Technologist, what support did he/she provide?
- 16) What assistive software did you use? Which software was most helpful?
- 17) What assistive hardware did you use? Which hardware was most helpful?

Learning Support Questions

- 1) Do you know where the LCS is located?
- 2) Do you know you can use their services?
- 3) Did you use the services at the Learning Support Centre?
- 4) If so, which services did you use?
- 5) Did you attend workshops sessions?
- 6) Did you meet individually with an LSC staff member? If so, did you meet with a Learning Skills Advisor — Brett, John, Catherine or the Writing Specialist?
- 7) How often did you meet with someone from the centre?
- 8) Did you use Peer tutoring services?
- 9) If so, how did you find this helpful?
- 10) How was it not helpful?
- 11) What could the LSC do differently?

Counselling

- 1) Do you know where the Health Centre is located?
- 2) Do you know you can use the internal Counselling services on campus?
- 3) Did you use counselling services at the Health Centre?
- 4) Which services did you use? How many sessions did you attend?
- 5) Did you meet individually with a counsellor?
- 6) How did you find this helpful?
- 7) How often do you meet with someone from the Health Centre?
- 8) Did you use the alternative health services? If so, which ones?
- 9) Did you meet someone for counselling outside of the campus?
- 10) How was it not helpful? What could Counselling services do differently?

Appendix M: Focus Group Questions

Tell me your research name, age, institution and your program
Did you like your program?

Transition to post-secondary

How have you found your experiences at college/university compared to high school?
Has anything been difficult in terms of the adjustment to college/university?
How would you compare the workload between high school and college/university?
Is there more time management?
Is the reading different? The amount?

Campus engagement

Have you participated in any campus activities/events/clubs?
Have you connected with anyone here at the campus?

Experience of disability at post-secondary

How would you describe your learning disability/ADHD and how it affects you?
How does your learning disability/ADHD affect you here at college/university?
What kinds of services do you or people with learning disabilities and ADHD need to overcome their difficulties and to succeed here?

Experience with CSD

All of you are with CSD, and have a learning disability or ADHD — the next questions are sort of around that - What influenced your decision to register with us? Who influenced you?
What was your first impression about CSD? Has it changed?
What about connecting with people at the Centre for Students with Disabilities?
How do you find our service in terms of getting appointments?
What kind of help or services are you getting from the CSD? How often?
How has using these supports impacted your academic experience?
Did you use supports in high school? How has your experience with the CSD been different than services in high school?

Interaction with profs

Have you shared with your professors about your disability? Why or why not?
Were you comfortable sharing with your professors?
When you talk to Profs what did they say? When you gave them accommodation letters?
During STP you guys made homepages and sent out websites — Did you send them to professors? Did your professor make comments?
Has there been difficulties with profs?
Do you think sometimes you are teaching your Profs something?

Other services on campus

Do you know about LSC services and counseling? Do you know where it is and what services are available?

Do you know where the other services are available? Health Centre? Learning Support Centre?

Anything that we could improve on campus? Accessibility on campus (e.g. interacting with profs)?

Advice for CSD and Ministry

We want you to help us evaluate our CSD service, we want to know what works and what doesn't, is there anything that we've missed? Anything that we could improve at the CSD? Anything we do really well?

If you had the chance to give advice to the Minister of College and Universities, what advice would you give them? Is there anything you want them to know about you or that would benefit the college?

Appendix N: Summer Transition Program Questions

Summer transition

- 1) Did you attend our Summer Transition Program? If not, skip questions 80-89.
- 2) What is your overall impression of the Summer Transition Program?
- 3) How did your attendance in the Summer Transition Program affect your academic success last semester?
- 4) What is the most important academic thing you learned by attending the Summer Transition Program?
- 5) What is the most important personal thing you learned by attending the Summer Transition Program?
- 6) Did the Summer Transition Program affect your knowledge of CSD services and supports that are available? If so, how?
- 7) Did your involvement in the Summer Transition Program help to foster any new social relationships? If so, how?
- 8) What instructional aspects did you feel were the most useful in the Summer Transition Program? Choose all that apply.
 - i. hands-on activities
 - ii. questionnaires
 - iii. group work
 - iv. group discussions
 - v. power point presentations
 - vi. question and answer
 - vii. case studies
 - viii. computer-based training
 - ix. peer group presentations
- 9) What could be changed or added to make the Summer Transition Program better?
- 10) Would you recommend the Summer Transition Program to other first-year students based upon your experiences?
If so, why?
If not, why not?

Student Homepage

- 11) Did you make a Student Homepage?
- 12) Did you provide your professor(s) with the link to your Student Homepage?
- 13) Did your professor(s) read your Student Homepage?
If not, why not?
If so, what feedback did you get from your professor(s) on the Student Homepage?
- 14) How did the Student Homepage affect your relationship with your professor(s)?

- 15) How did the Student Homepage affect your academic success last semester?
- 16) How did the Student Homepage affect your willingness to seek CSD service?
- 17) Will you be providing your new professors this semester with the link to your Student Homepage?
- 18) Would you recommend Student Homepages to other first-year students based upon your experiences?

Appendix O: Table A1 — GPA Comparisons by STP Status

Variable	STP			NSTP			df	t
	n	M	SD	n	M	SD		
College								
First Semester	44	2.66	1.11	49	2.68	1.31	91	.09
Second Semester	21	2.53	1.42	30	2.47	1.26	49	-.15
Third Semester	18	2.90	.96	26	2.81	1.21	42	-.25
Fourth Semester	9	2.69	1.25	12	2.78	1.12	19	.18
Fifth Semester	6	3.26	.53	8	2.82	.79	12	-1.19
University								
First Semester	33	2.17	1.16	22	2.50	.95	53	1.11
Second Semester	19	2.19	1.14	20	2.54	.69	29.18	1.14
Third Semester	18	2.37	1.10	18	1.99	1.26	34	-.958
Fourth Semester	11	2.33	1.15	16	2.40	.86	25	.17
Fifth Semester	5	2.72	.46	15	2.47	.79	18	-.65

** p <.01, *p <.05, ^Mp <.08

Appendix P: Table A2 — Academic Standing Comparisons by STP Status

Variable	STP		NSTP		df,N	χ^2
	Successful n (%)	Unsuccessful n (%)	Successful n (%)	Unsuccessful n (%)		
First Semester	51 (66.2%)	26 (33.8%)	50 (68.5%)	23 (31.5%)	1,150	.09
Second Semester	27 (67.5%)	13 (32.5%)	38 (76.0%)	12 (24.0%)	1,90	.80
Third Semester	28 (77.8%)	8 (22.2%)	29 (65.9%)	15 (34.1%)	1,80	1.36
Fourth Semester	13 (65.0%)	7 (35.0%)	22 (78.6%)	6 (21.4%)	1,48	1.09
Fifth Semester	11 (100%)	0 (0)	19 (79.2%)	5 (20.8%)	1,35	2.67 ^a

^a Interpret with caution, 2 calls have expected cell count less than 5.

** p < .01, *p < .05, ^Mp < .08

Appendix Q: Table A3 — Differences in Use by STP and NSTP Participants of LSC, Assistive Technologist, DA and ALS Services for First Five Semesters

Variable	STP			NSTP			df	t
	n	M	SD	n	M	SD		
Learning Strategies Counsellor Appts								
First Semester	77	3.51	3.95	72	1.93	2.64	133.44	-2.88**
Second Semester	40	1.85	2.69	49	1.47	2.41	87	-.70
Third Semester	36	1.72	3.05	42	1.00	2.00	58.76	-1.22
Fourth Semester	21	2.38	2.85	26	.62	.90	23.21	-2.73*
Fifth Semester	15	1.20	1.82	22	.36	.66	16.52	-1.71
Assistive Technology Appts								
First Semester	77	1.01	1.36	72	.69	1.86	147	-1.20
Second Semester	40	.18	.50	49	.29	.87	87	.72
Third Semester	36	.25	.65	42	.40	.94	76	.83
Fourth Semester	21	.52	1.54	26	.38	.85	45	-.39
Fifth Semester	15	.33	.72	22	.05	.21	15.67	-1.50
Academic Learning Services Appts								
First Semester	77	1.18	2.52	70	1.06	1.79	145	-.34
Second Semester	40	1.25	2.31	48	.52	1.41	62.19	-1.75
Third Semester	36	.78	1.66	41	.37	1.11	59.95	-1.26
Fourth Semester	21	.43	1.08	25	.80	1.78	44	.84
Fifth Semester	15	.33	.82	22	.23	.75	35	-.41
Disability Advisor Appts								
First Semester	77	3.1	2.53	72	2.18	2.52	147	-2.32*
Second Semester	40	1.45	1.47	49	1.08	1.75	87	-1.06
Third Semester	36	1.92	2.68	42	1.00	1.31	76	-1.97*
Fourth Semester	21	2.14	2.48	26	1.15	1.19	27.39	-1.68
Fifth Semester	15	1.27	.70	22	.77	.81	35	-1.91 ^M

** p <.01, *p <.05, ^Mp <.08

Appendix R: Table A4 — Institutional Differences in Use by NSTP Participants of LSC, Assistive Technologist, DA and ALS Services for First Four Semesters

Variable	College			University			df	t
	n	M	SD	n	M	SD		
Learning Strategies Counsellor Appts								
First Semester	51	2.37	2.96	21	.86	1.06	69.23	3.19**
Second Semester	30	1.90	2.55	19	.79	2.04	44.29	1.68
Third Semester	26	.85	1.74	16	1.25	2.41	40	-.63
Fourth Semester	12	.92	1.08	14	.36	.63	17.14	1.57
Assistive Technology Appts								
First Semester	51	.94	2.16	21	.10	.30	54.52	2.74**
Second Semester	30	.40	1.04	19	.11	.46	43.07	1.36
Third Semester	26	.62	1.13	16	.06	.25	28.80	2.39*
Fourth Semester	12	.67	1.16	14	.14	.36	12.86	1.51
Academic Learning Services Appts								
First Semester	49	1.41	1.93	21	.24	1.09	62.56	3.22**
Second Semester	29	.66	1.71	19	.32	.75	46	.81
Third Semester	25	.60	1.38	16	0	0	24.00	2.17*
Fourth Semester	12	1.08	2.11	13	.54	1.45	23	.76
Disability Advisor Appts								
First Semester	51	2.69	2.73	21	.95	1.32	70	2.77**
Second Semester	30	1.40	2.04	19	.58	1.02	45.05	1.87 ^M
Third Semester	26	1.19	1.44	16	.69	1.01	40	1.22
Fourth Semester	12	1.92	1.00	14	.50	.94	24	3.73**

** p <.01, *p <.05, ^Mp <.08

