

Pathways from Seneca College's Liberal Arts Transfer program: From college entrance to university graduation

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Executive Summary

Studies on college to university transfer typically focus on a discrete aspect of the pathway, such as who aspires to transfer, who ultimately transfers and why, or outcomes after transfer to university. In contrast, this paper focuses on understanding the entire pathway, using the Liberal Arts Transfer (LAT) program at Seneca College as a case study.

Seneca's LAT program evolved from a two-year General Arts and Science (GAS) preparatory program launched in 1986,¹ into a joint university transfer program with York University in 1998. LAT is both innovative and academically intense. Students are required to take a full college course load, maintain an overall "B" average, and take college and university courses within the same academic year. LAT graduates can potentially receive as much as two full years of credit towards a Bachelor of Arts degree at York.

The analysis sample for this study included two populations: 1) 3,622 entrants who began the LAT program at Seneca in 2005–2012 and 2) 1,268 LAT students/graduates who transferred to York University between 2002 and 2012.

Research questions included the following:

- What are the characteristics of students entering the LAT program?
- What is the share of entrants who progress into second year and eventually graduate from LAT?
- What share of LAT entrants, including leavers and graduates, continue on to York?
- What are the sociodemographic and academic characteristics of those who transfer?
- What share of transfers graduate from York University? How do they perform at York academically?
- What are the sociodemographic and academic characteristics of those who are successful at York after transfer?

Method

Six datasets were linked to create a student-level dataset that includes the following variables: high school performance, neighbourhood income (using 2006 census data), aspirations for transfer, previous education, English-language proficiency, demographics, and Seneca and York academic outcomes including grades, completion, withdrawal, transfer, and graduation.

Regression models (OLS) were run to control for the independent effects of each variable, and multiple models were run with various subgroups.

Results

Progression to graduation from LAT

By the end of year two, 34% of all LAT entrants had switched to another Seneca program, 45% had left Seneca without graduating, 10% had graduated from LAT, and 11% were still enrolled in LAT. By the end of year four, 15.2% of the entering cohort had graduated from LAT.

¹ In 2008, the GAS program was re-named the Liberal Arts Transfer (LAT) diploma program to better reflect the program's content and role as a pathway to a degree in the humanities and liberal arts. Seneca entered into a joint agreement with University of Toronto in 2008. This study, however, focuses on the Seneca to York transfer pathway.

Higher grades in high school (particularly in university preparatory courses) and college-level English at entry were important influencers on whether a student stayed on track in first year and completed the LAT program on time.

Propensity to transfer to York University

Of the York stream entrants, 64% were under the age of 20, and 48% were male. Eighty-nine percent were Canadian citizens, with 73% reporting English as their first language. In terms of socioeconomic status, 71% did not have a parent with a university degree, and 24% came from lower income neighbourhoods, defined as the bottom tercile of the Ontario population. Over two-thirds of entrants took mostly university preparatory courses in high school, however 76% had averages under 70%.

Only 7% of the 2002–2010 York stream entrants had high school grades and courses required for university entrance in Ontario, yet 82% had plans for university after graduation from college. Many of these LAT cohorts continued to struggle academically at college. Over one-half left Seneca without a Seneca credential or without transferring to York.

Of those who graduated from LAT, 61% transferred to York. More than one-quarter (26%) of entrants transferred to York by 2012, but less than half (12%) graduated from LAT before transfer. Nearly one-quarter of LAT entrants (23%) graduated from Seneca, but did not transfer to York by 2012.

Academic performance in high school and at Seneca (LAT), English-language proficiency at college entry, and graduation before transfer were independent influencers on whether a student transferred to York. Students who took mostly college preparation courses in high school and obtained an average of less than 70% were particularly at risk for not transferring or graduating. Only 46% of those who did not both graduate from LAT and transfer to York were placed in college-level English compared with 69% of those who both graduated and transferred to York.

Graduation from LAT before transfer had a major influence on whether the student transferred, even when controlling for grades at Seneca. Obtaining a Seneca GPA of greater than 3.0 increased the likelihood of transfer to York by over 40 percentage points, the largest influence of all variables.

The influence of parental education, first language, and status in Canada differed little across pathways. Gender and age had little or no effect, nor did year of entry over the study duration. Previous university did not affect propensity to graduate or transfer, but aspiration for university upon entry had an effect. Aspiration for university was higher for both graduates and non-graduates who ultimately transferred to York, than for their non-transfer counterparts.

Post-transfer outcomes at York

Transfers who were LAT graduates, non-Canadian citizens, younger, and obtained good Seneca grades were more likely to achieve a York GPA of 5.0 or higher, the minimum required for graduation with an honours degree from York. The transfer's age did not influence their York GPA, but their neighbourhood income did. Higher-income students were more likely to transfer and to attain a GPA of 5.0, but not more likely to graduate.

Compared to LAT students who transferred without graduating from the program, those who graduated before transfer were more successful at York—they had more transfer credit and were stronger academically.

There was a clear relationship between grades at Seneca and performance at York, irrespective of graduation or articulation status at Seneca. Only half of transfers to York who had a Seneca GPA of below 3.0 (70%) graduated, compared with the 70% of transfers with a GPA of 3.0 and above. Graduates

of the articulated LAT stream were the most likely to graduate from York (76%). They had the highest graduation rates and grades, took less time to complete, and were more likely to complete a four-year than a three-year degree program.

Graduates of the articulated stream who withdrew had a higher York average, at 66%, compared with 53% and 56% for LAT non-graduates and LAT non-articulated stream graduates respectively. More than half of those who transferred without completing LAT ultimately withdrew from York.

No clear relationship between high school grades and success after transfer could be established. Likewise, a student's first language and English-language placement at college entry were unrelated to their academic success at York.

Conclusions & recommendations

Students need comprehensive academic supports to ensure success in LAT, from college entry through to university graduation. Only about 16% of LAT entrants ultimately graduated from York. Seneca and York need to inform prospective students of LAT's intense academic requirements for completion, transfer, and graduation from York. Current admission standards for LAT are minimal, requiring only an OSSD and Grade 12 English. More than three-quarters of LAT entrants had a high school average of less than 70% and nearly half did not place in college-level English. Over half of transfers had a Seneca GPA of less than 3.0, and half of those ultimately withdrew from York.

The results of this study, however, also showed that some students performed well academically despite weak high school backgrounds. Once they transferred, their high school performance was no longer a good indicator of how well they would perform at university, whereas their college grades were. The regression models showed an independent effect on graduating even when controlling for academic or sociodemographic factors, which likely related to a high level of student resilience or determination to finish a credential despite struggling academically. Any review of admission standards will need to provide open access, allowing students who struggled in high school or performed poorly in a previous post-secondary program, to pursue a viable pathway to university.

About half (51%) of the entering class did not graduate from Seneca with any credential, and did not transfer to York. Of those who did transfer, 20% did not graduate from LAT or from York within the timeframe of the study. Students need to have other credential options, such as an alternate diploma or degree pathway at Seneca or other colleges.

Introduction

Although programming in Ontario's colleges² is considered primarily occupational in nature, colleges have offered preparatory programs for at least 30 years.³ Preparatory programs are geared toward students who are looking for career clarity, are lacking specialized skills, or are expressly using college as a vehicle to transfer to university, either due to a lack of requirements for admission or through personal choice.⁴ These programs prepare students for further studies at both a degree (college, university or collaborative college-university) or non-degree level (college diploma). Preparatory programs are also sometimes geared to specialized skill development, such as for English language learners, or for specific areas of study, such as health, or the arts. The numbers in these programs are significant, with Seneca producing over 3,000 graduates of preparatory programs between 2007 and 2014, for a total of 6.5% of all graduates.

Using a university transfer program at Seneca College (Liberal Arts Transfer, LAT⁵) as a case study, this report traces its evolution from a general preparatory program to a joint university transfer program with York University in 1998, and subsequent expansion to the University of Toronto (UofT) in 2008. Studies on transfer typically focus on discrete stages of the transfer process, such as who aspires to transfer, who ultimately transfers and why, or success after transfer to university. This paper, in contrast, focuses on understanding the entire pathway from college entry to graduation from university, and identifying the factors that influenced student success at each stage.

History and description

Seneca began its two-year General Arts and Science (GAS) preparatory program in 1986. As described in the College's proposal to the Ministry of Advanced Education and Skills Development (MAEDS),⁶ the program's goals were extensive: to address career uncertainty, re-awaken interest in science, refurbish learning skills and problem-solving skills, enable those not destined for university to acquire a liberal arts education, and offer young people choice and opportunity in their educational objectives, to name a few. The proposal distinguished Seneca for its direction on career fulfillment and science education, emphasizing that the skills acquired would "very definitely be used by those graduates who decide to pursue post-secondary education even beyond Seneca."

Genesis of a joint agreement with York University

In the early years, GAS operated as a transition program, from which many students moved on to other programs within Seneca College (Green & Decock, 1998). As the program became increasingly academic, York offered more and more transfer credit. Subsequently, students began to enrol in GAS as a stepping stone to university, particularly those without the high school credentials required for direct entry.

² In this report, "college" refers to Ontario's Colleges of Applied Arts and Technology (CAAT), a publicly funded post-secondary system that provides credentials ranging from one-year certificates to four-year degrees.

³ Resource Document. APS-MTCU table, <http://www.tcu.gov.on.ca/pepg/audiences/colleges/>

⁴ A review of types of preparatory programs can be found in the report by Durham College, *Assessing the Effectiveness of Ontario College Preparatory Programs Offered at Durham College*, http://www.oncat.ca/files_docs/content/pdf/en/oncat_research_reports/2013-08-Durham-Assessing-the-Effectiveness-of-Ontario-College-Preparatory-Programs-Offered-at-Durham-College.pdf

⁵ The two-year General Arts and Science (GAS) diploma program was renamed the Liberal Arts Transfer (LAT) diploma program in 2008. Throughout this report it will be simply referred to as LAT.

⁶ To create a new program that qualifies as an Ontario College Credential and receives government funding, Ontario's colleges are required to submit proposals to Ontario's MAESD.

Seneca College received provincial funding in 1996 to help build a new campus, Seneca@York, on the site of York University's Keele campus. Discussions to establish joint programming led to an articulation agreement between Seneca's GAS program and York's Faculty of Arts. The agreement was not signed until January 1998, but students who had begun the program in the fall of 1997 were considered eligible.

Seneca's GAS program was selected because of its pre-existing high academic content. The initial program concept entailed three specializations: Arts, Business, and Science. However, the science stream was never operationalized⁷ and the business stream had its final graduate in 2009.

Under the 1998 agreement, students could enrol in a course at York University between years one and two of the GAS program provided they maintained the required minimum grade point average (GPA) of 3.0 (Table 1). Students also took a York university course in the second year of the GAS program, taught at Seneca by a York University professor. This latter provision was included to help ensure student quality: successful completion was considered additional evidence of a student's future success at York.⁸

Built into the articulation agreement were two jointly approved courses, developed by Seneca faculty and their counterparts at York, that were modelled on similar courses developed by Humber College in conjunction with York. The courses were Critical Thinking (logic and phenomenology) and World Literature, taught by Seneca faculty in the first and second years of the program respectively. To remain qualified and receive full transfer credit, students were required to complete these and the two York courses (year one in summer and year two) with a minimum "C" grade.

The amount of transfer credit exceeded typical arrangements, and the ability to augment the college program with university courses was unprecedented. The transfer credits were a combination of block credit⁹ and individual course credit. Upon successful completion, students received 30 advanced-standing credits towards York's Bachelor of Arts program and 12 advanced-standing credits for the jointly approved courses. Thus graduates received 42 advanced-standing credits¹⁰ from the GAS program and 18 credits from York, a total of 60 credits (or the equivalent of two years) towards a 90-credit general bachelor of arts degree, or if qualified, towards a 120-credit honours degree.

In 2008, the GAS program was re-named the Liberal Arts Transfer (LAT) diploma program. The intent of this change was to better reflect the program's content and role as a pathway to a degree in the humanities and liberal arts, and to distinguish LAT within the post-secondary system.

⁷ In 2015, Seneca created the two- year Arts and Science University Transfer program, with agreements with University of Toronto Scarborough and Trent University, which are similar to the LAT agreement.

⁸ The program has evolved and students no longer complete a summer course after year one and now complete a 9.0 credit course of their choosing at the York campus in the second year of the program.

⁹ York University defines block transfer credit as "a specific amount of credit granted based on a completed certificate, diploma or degree and is accepted for transfer credit into a degree program." See <https://futurestudents.yorku.ca/definitions>

¹⁰ An updated agreement negotiated in 2015 increased the total number of advanced-standing credits to 48.

Table 1. Evolution of Seneca-York General Arts and Science/ Liberal Arts Transfer program¹¹

	Semester ¹²	1997–2008 (Newnham campus)	2008–2014 (S@Y campus)	post-2014
YEAR 1	Fall	Full Seneca course load including one York-approved Seneca course with minimum “C” grade	Full Seneca course load including York-approved Seneca course with minimum “C” grade	Full Seneca course load including York-approved Seneca course with minimum “C” grade
	Winter	Full Seneca course load including a York-approved Seneca course with minimum “C” grade	Full Seneca course load including York-approved Seneca course with minimum “C” grade	Full Seneca course load including York-approved Seneca course with minimum “C” grade
	Summer	Take 6-credit summer course at York with minimum “C” grade to continue “articulated” program	Take 6-credit summer course at York	
YEAR 2	Fall	Full Seneca course load including York-approved Seneca course with minimum “C” grade plus 3-credit York course taught at Seneca by York faculty	Take 9-credit course at York plus full Seneca course load including one York- approved Seneca course each semester, now taught by Seneca faculty ¹³ (minimum “C” grade)	Take 9-credit course at York plus full Seneca course load including one York-approved Seneca course each semester (minimum “C” grade)
	Winter	Full Seneca course load including York-approved Seneca course with minimum “C” grade plus 3-credit York course taught at Seneca by York faculty		
Post-graduation LAT/GAS	Summer	Take 6-credit summer course at York	Take 3-credit summer course at York	Take 3-credit summer course at York
Seneca block credit, overall GPA 3.0		30	30	36
York-approved Seneca courses with minimum “C” grade in each		12	12	12
Maximum York credits		18	18	12
Total maximum credits		60	60	60

The agreement was unique in Ontario, structured to address many of the historic concerns associated with college-to-university pathways:

Administrative/curricular integrity of joint program: The agreement established a joint committee, with representation from each partner institution, to oversee the administration and curricular integrity of the joint program. It provided assurance that Seneca faculty would have continuous

¹¹The suggested sequence is shown. In reality, eligible students (3.0 GPA in first year, “C” in York-approved Seneca courses) could take courses at York (up to 12 credits) any time after second semester, until graduation from Seneca. Students could then continue part time in the semester after graduation (generally summer) before enrolling in York full time.

¹² There is now an enrolment start in the winter semester.

¹³ The exact date for when York faculty stopped teaching at Seneca’s Newnham campus is unknown, but it was likely in 2008 when the program was moved to Seneca@York.

autonomy in the delivery of courses, and that York's content and academic standards would not be compromised.

Academic preparedness of students: The requirement that each student successfully complete a York course before commencing full-time enrolment at York University helped alleviate some concerns about the academic preparedness of the student. The York-approved courses and the joint committee helped to ensure that the college faculty met the academic criteria required to teach university-level courses. In addition, the demanding time commitment (constantly enrolled) and additional courses meant that only keen, motivated and talented students would successfully complete the program.¹⁴

Equitable program costs for institutions: While the student was dually enrolled at both York and Seneca, each institution could include the student in their enrolment for government funding and collect students' separately paid tuition fees so that there was no loss in revenue for either institution. A recent report (Trick, 2013) showed that the total program cost for direct entry to York is similar to that of the LAT pathway, provided a student completes in four years. The report also showed that the student transfer route was more costly for the government in the form of operating grants, but less costly for the student in the form of tuition.

The agreement contained a number of features that at the time were novel in Ontario:

- Entrance into the program continued to be an Ontario Secondary School Diploma (OSSD) with a Grade 12 English course, and no university minimum entrance requirements.
- Students could transfer based on their performance in the GAS program.
- The amount of transfer credit for a two-year program was unprecedented: 42 credits (47%) of a 90-credit degree, or one-third of a 120-credit degree.
- There was no cap on the number of eligible transfer students admitted to York. All students who met the eligibility criteria received the full 42 credits and were admitted into York's Bachelor of Arts degree program.
- Students could start a college program and be concurrently enrolled in university. Previously, students could only be concurrently enrolled if they started in university, and even then, had to be in their final two years of their degree before enrolling in college.
- Students were not required to pay the university application fee to enrol at York upon transfer.

Subsequent agreement with the University of Toronto

Based on the success of Seneca's transfer agreement with York, the College began a three-year LAT pilot study in March 2008 with the University of Toronto (Faculty of Arts, Woodsworth College, St. George Campus), which evolved into a formal articulation agreement that was finalized in May 2011.

Although the program curriculum and overall structure were unchanged, the agreement with University of Toronto differed from the Seneca-York agreement in three ways: i) the transfer credit was based on course-for-course, not on block credit; ii) eligible LAT students were enrolled in University of Toronto courses as non-degree visiting students; and iii) it introduced a facilitated transfer process which

¹⁴ At the official signing of the agreement, York's Dean of Arts, George Fallis, commented on the challenging nature of the program: "The program is intensive and certainly not for every student." Cited in York University's archive of the *Gazette*, <http://www.yorku.ca/yul/gazette/past/archive/012198.htm>

supported students before, during and after transfer. Successful LAT graduates (minimum GPA of 3.0) received six transfer credits (assigned to specific courses) towards their Bachelor of Arts degree and were required to complete a University of Toronto course in the summer as a visiting student and obtain a grade of 60%.

The University of Toronto found that students in the facilitated transfer program had a similar withdrawal rate as direct entry students, but a lower rate than other college transfer students. Based on this success, University of Toronto has expanded the LAT-facilitated transfer model to Humber College and George Brown College.

The Liberal Arts Transfer program is taught at two of Seneca's campuses: the main and original campus, Newnham, and the Seneca@York campus situated on York University's Keele campus. The latter serves those intending to transfer to York University, while the former teaches those vying to attend the University of Toronto (St. George campus or the Scarborough campus).

Student outcomes in LAT program

From the university partner perspective, the agreement assured that transfer students were qualified and motivated to attend university. From a student and college perspective, however, this "filtering" approach came at a cost. A report on the first year of the program, 1997, showed that only 19 of the 160 entrants were eligible to take the summer course at York. Seventeen students attempted it, three dropped it, and only seven obtained the "C" grade required to continue in the joint program.

Additional evidence from the provincial key performance indicators have shown that, overall, the program has weaker outcomes than other Seneca programs. Between the reporting years of 2001 and 2015, the Ontario student loan¹⁵ default rate for Seneca's LAT program averaged 23%, more than double the overall Seneca average¹⁶ and the graduation rate averaged 29%, approximately half of Seneca's overall rate. However, the reported graduation rate did not account for students who may have transferred to a university before completing the program at Seneca, or to another college.

However, some evidence suggests that once a student has qualified to enrol in university courses, or has transferred to university within the agreement, they do well. Seneca's archives for the fall 1999 entrants show that 22 of the 28 students who enrolled in their first York summer course obtained a "C" grade or higher, and 15 obtained "B" or higher. For the university of Toronto LAT transfers, a tracking study by Shook, Guyatt and Norman (2016) showed that LAT students at the university had a retention rate of 84% and GPAs higher than the overall faculty average.

Research questions

The current study bridges the knowledge gaps described above by tracking LAT students from college entry to graduation from university, using the following research questions:

- What are the characteristics of students entering the LAT program?
- What share of entrants' progress into second year and eventually graduate from LAT?
- What share of LAT entrants, including leavers and graduates, continue on to York?
- What are the sociodemographic and academic characteristics of those who transfer?

¹⁵ Students apply to the Ontario Student Assistance Program (OSAP) for loans.

¹⁶ Seneca College, "Ontario Student Assistance Program (OSAP) Performance Indicators"

http://www.senecacollege.ca/stats/osap_pi.html. Note that students who withdraw without graduating are also more likely to default on OSAP. The KPI graduation rate has improved somewhat in recent years, at 43% in 2014, and 35% in 2015.

- What share or transfers graduate from York University? How do they perform at York academically?
- What are the sociodemographic and academic characteristics of those who are successful at York after transfer?

Research design

Analysis Sample

Three populations of students from Seneca's LAT program were analysed to demonstrate the following:

- Progression to graduation from LAT (Seneca-only dataset, for students who entered LAT from 2005 to 2012)
- Propensity to transfer (all Seneca LAT entrants in York stream from 2002 to 2012, and those who transferred to York)
- Post-transfer outcomes (all Seneca LAT entrants from 2002 to 2012 who transferred to York, regardless of entering stream)

Progression to graduation from LAT

The analysis sample comprised students who started at Seneca in LAT between 2005 and 2012; it excludes those who transferred into LAT from another Seneca program. Of the 4,692 LAT entrants, 22.5% were transfers from another program, and a further 1.6% withdrew between day 10 and the last two months of the semester, for a final analysis sample of 3,622 entrants.

Students were classified as leavers, switchers, continuers or graduates based on their status one and two years after entering LAT. Graduates were categorized according to program stream: i) non-articulated, ii) York articulated and iii) University of Toronto articulated.

Propensity to transfer to York University

For this study we were provided with student-level data on those who had ever enrolled in Seneca's LAT program and also enrolled at York University. To study the rate of transfer to York and the factors that affect the propensity to transfer, only students who entered the York stream were included in the sample. Students in the University of Toronto stream were excluded because we did not have access to these students' data after transfer. Seneca's student information system does not label the York and University of Toronto stream programs until a student is further along in the program, and therefore the campus of entry can be used to identify the stream. All LAT entrants who were enrolled at the Newnham campus from the fall of 2008 (the first year of the University of Toronto stream) onward were labelled University of Toronto stream and removed from this section of the transfer analysis. To provide a lag time for transfer to York, only LAT entrants between winter of 2002 and 2010 were included, for a sample of 4,339 LAT (York stream) entrants.

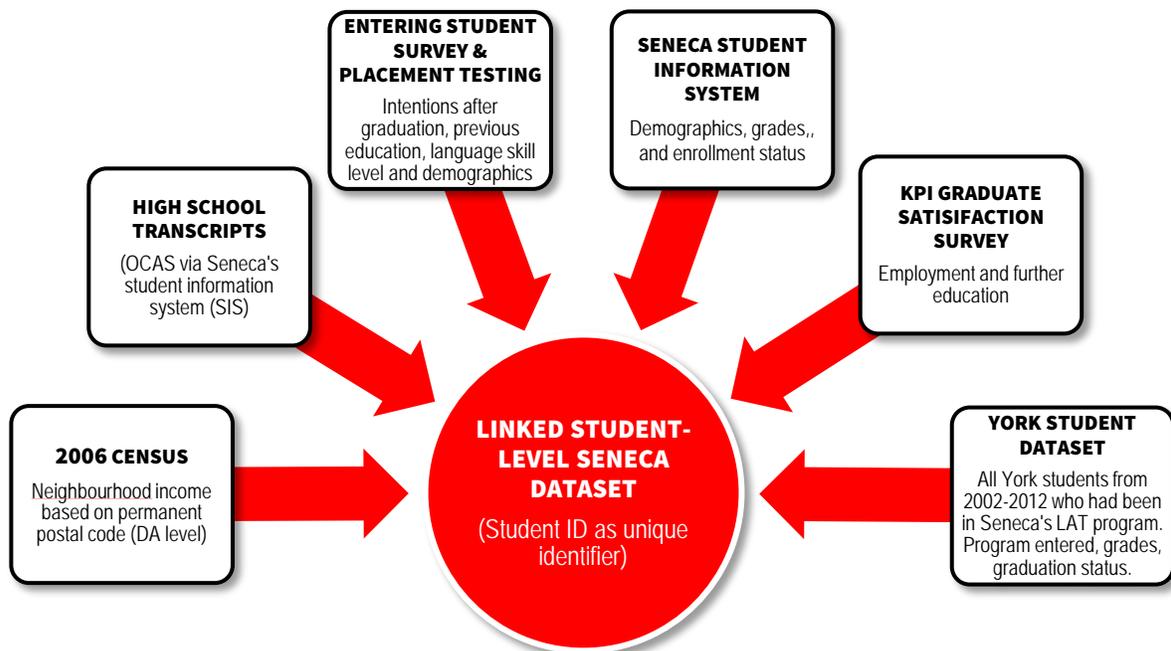
Post-transfer outcomes at York University

The York-Seneca sample comprised all LAT York transfer students regardless of their entering stream (York or University of Toronto). In total, between the winter of 2002 and the fall of 2012, 1,343 LAT students enrolled at York University. Of these, 75 students had attended York before enrolling in LAT, resulting in a sample of 1,268 transfer students.

Datasets

Six datasets and their associated variables were linked to create a student-level dataset (Figure 1). A master student ID was assigned to match as many records from the datasets as possible and to remove duplicates. A student's identity was verified by using a combination of first name, last name, date of birth, and postal code, as well as the alternate IDs already identified within the College's system.

Figure 1. Linked student-level dataset, Seneca College and York University



High school records: For each Seneca student who attended an Ontario high school, the College's student information system contains one record for every high school course the student took in Grade 9 through to Grade 12/OAC.¹⁷ The subset used for this analysis included only those students who had a minimum of six courses from Grade 11 and 12/OAC. The overall senior high school average was calculated from all Grade 11 and 12/OAC course grades.

To get a sense of whether the student struggled in high school, the total number of failed Grade 11 and 12/OAC courses was also calculated. To indicate whether a student took mostly university preparatory courses or college preparatory courses, two variables were created, defined as "mostly U" or "mostly C" respectively. The variable "mostly U" was defined as having a minimum of half of Grade 11 and 12 courses as university (U) or university/college (M) preparatory type, whereas "mostly C" was defined as having a minimum of half of Grade 11 and 12 courses that were of the college or workplace preparatory type (C/W). For high school transcripts pre-dating the double cohort, courses from the previous "Advanced" stream were considered university preparatory, whereas those from the "General" stream were considered college preparatory.

¹⁷The former Ontario high school curriculum, Ontario Schools: Intermediate and Senior (OS:IS), contained a fifth year, Ontario Academic Courses (OAC), which was phased out in 2002. The graduating class of the final phase-out year was labelled the "double cohort" because it comprised both four- and five-year graduates.

An additional variable, “eligible for admission to an Ontario university,” was created. For university admission, Ontario high school students are required to have at least six Grade 12 U or M courses or OAC courses; the minimum high school average required for university admission is at the discretion of the institution. A review of entrance high school averages reported by Ontario universities in the Common University Data Ontario (CUDO)¹⁸ indicates that the minimum reported secondary school average was approximately 70%. Students were considered to be eligible for university entrance if they had a minimum of 70% in their top six Grade 12 U/M or OAC courses.

Neighbourhood income: To create a proxy for student household income, the permanent postal code for students from Ontario only was matched with household income data from the 2006 census. International students and students from outside Ontario, therefore, were excluded from this analysis. (Even if an international student did have an Ontario “permanent” address on record, it would not reflect the income level of the neighbourhood in which the student was raised.) Using the six-digit permanent postal code in the College’s student information system, students from Ontario were assigned to a 2006 Dissemination Area (DA) using the Statistics Canada postal code conversion file (PCCF). If a student’s permanent postal code was missing or invalid, the Ontario high school postal code was used. A student’s neighbourhood income group was derived by splitting the DAs¹⁹ into terciles—low, medium and high income—based on the average pre-tax household income for Ontario households, weighted by total population.

English-language placement testing: Most entering students at Seneca, depending on the program, are required to complete an English-language placement test (comprising a 300-word essay) to assess writing proficiency. Students are also required to complete a computerized placement test (Accuplacer) to assess reading comprehension (120 point scale), though it is rarely used for course placement decisions. Based on the test results, students are placed in one of several levels of English-language courses:

1. ELL-1. Non-credit English for English Language Learners, at three levels of proficiency below college-level English;
2. ELL-2. Non-credit English for English Language Learners (ELL), at two levels of proficiency below college-level English;
3. Below college English/ELL-3. Non-credit English for both native-English speakers and for ELL learners at the more proficient end of the ELL scale;
4. College-level English (credit). Required for all certificate/diploma programs;
5. Degree-level English (credit). Applicable to some degree programs; and
6. Exempt from college-level English. At high end of proficiency scale.

For the purposes of this study, three categories of English-language proficiency were created:

1. Below college-level English – ELL (levels 1 and 2 above);
2. Below college-level English – ELL/non-ELL (level 3 above); and
3. At/above college-level English (level 4, 5, and 6 above).

Entering-student survey: During the mandatory placement testing, all Seneca entrants must complete a background survey related to the following variables:

¹⁸See the Common University Data Ontario website at <http://cudo.cou.on.ca/>

¹⁹In Ontario, the average DA comprises 236 economic families. Economic family refers to a group of two or more persons who live in the same dwelling and are related to each other by blood, marriage, common-law or adoption.

- University aspirations upon entry to the College: “After graduation from my program, I plan to...”
 - Previous university: “The last school I attended was...”
 - First language: “The language I learned first was...”
- Whether either parent has a university degree: “The highest level of education completed by my father/guardian is...” (includes a separate question about maternal education level)

The parental education question was initiated in 2006, and therefore was not used in the regression analysis, however descriptive results are provided. The “previous university” variable is limited because entering students are only asked about the last school they attended and not whether they have ever attended university or have completed a credential. In cases where two or more complete surveys existed, the earliest record was used to reflect a student’s true entering status.

College performance: Full transcripts of all Seneca students were extracted from the College’s student information system. Overall GPA was calculated from the average of all courses which had a credit value. Courses which were initially passed, but repeated, were averaged. For the descriptive analysis, GPAs were grouped into four categories: i) 0 to 1.99, ii) 2.00 to 2.99, iii) 3.00 to 3.49, and iv) 3.50 to 4.00. In the regression models, the two lowest GPA categories were combined (below 3.00). As the focus of this study is on transfer to university, any courses that were taken prior to LAT entry were included in the overall GPA because they remained a part of the student’s transcript when applying. Seneca courses that were completed after graduation from LAT were not included in the overall GPA calculation.

York-Seneca database: York University collaborated with Seneca on a project to link all students who attended both institutions between 2000 and 2012.²⁰ This dataset was used for the current project, specifically for LAT students who attended York and Seneca between the winter semester of 2002 and 2012. Measures obtained include status at York as of 2012 (graduated, in-progress, withdrew), number of transfer credits provided by York, timing of transfer, type of degree granted, years spent at York, program of entry, and York GPA (converted to percentage). In total, the dataset comprises 1,343 Seneca LAT entrants who attended York and Seneca between 2002 and 2012.

Analytic methods

Descriptive results are presented for the key variables in the analysis, including sociodemographic and academic characteristics for each population of interest. To control for the independent effects of each variable, regression models (OLS) were run to determine the following: i) whether the graduate transferred to York, ii) whether the transfer student graduated from York, and iii) whether the transfer student attained York’s minimum GPA of 5.0. Multiple models were run with various subgroups.

Results

Progression to graduation from LAT

This section of the analysis shows the pathways of students whose first program at Seneca was the two-year LAT program, for the entering years of 2005 to 2012. Results include whether students completed first year, which stream they were eligible to enter, and whether they graduated on time.

Only 37% of LAT entrants continued on to year 2, but a large share (27%) switched to another Seneca program (Table 2). Overall, only 10% of entrants graduated within the standard program duration of two

²⁰ Details on the creation of the dataset and derived variables are available in the final report (Smith et al., 2016).

years, with 7% graduating from one of the articulated streams (York or University of Toronto). By the end of year two, 34% of all LAT entrants had switched to another Seneca program, 45% had left Seneca without graduating and 11% were still enrolled in LAT. However, by four years after entry, at total 15.2% of the entering cohort had graduated from LAT.

A regression model was run to determine the factors related to continuing in and graduating from the program.²¹ Higher grades in high school (particularly in university preparatory courses) and college-level English at entry were important influencers on whether a student stayed on track in first year and completed the LAT program on time. However, this section of the analysis does include students who left Seneca without graduating, and transferred to York or elsewhere.

Table 2. Pathways of Liberal Arts Transfer entering cohorts (2005–2012)

Sequence	Status	Number of Students	% of entering class	
Entrants (2005–2012)		3,622	100%	
Year 1 end	Left program before start of year 2	Enrolled in another Seneca program in 2nd year	989	27.3%
		Not enrolled in Seneca program in 2nd year	1,291	35.6%
	Continued in LAT in year 2	1,342	37.1%	
Continued into Year 2	Completed in year 2	Completed LAT on time (non-articulated)	104	2.9%
		Completed on time (York stream)	204	5.6%
		Completed on time (UofT stream)	56	1.5%
	Did not complete on time (by end of year 2)	Still enrolled in LAT	400	11.0%
		Enrolled in another Seneca program in 3rd year	243	6.7%
		Not enrolled	336	9.3%

Note: An additional 203 students graduated from LAT, but after the time periods described above.

Propensity to transfer to York University

Seneca's information system alone is unable to determine whether or not a leaver has transferred to further education outside of the college. The present study, therefore, used a dataset, created for a previous project with York University, which linked all students who moved between Seneca and York between 2000 and 2012, and the Seneca database which contains data from the winter of 2002 to the fall of 2014. As previously described, the LAT program began offering two articulation streams in 2008: students with plans for transfer to York enrolled at the Seneca@York campus, and those who planned to continue on to University of Toronto enrolled at Seneca's main campus, Newnham. Prior to 2008, all students were considered to be in the York transfer stream and enrolled at either campus.

²¹ These regression models and associated descriptive tables can be requested from the authors.

Table 3 shows the number of students who entered the LAT program by stream and how many transferred to York.²² The program grew significantly between the academic years of 2002 and 2004, possibly because of high demand by the double cohort, when seats in Ontario universities were restricted. Enrolment peaked in 2004–05, but by 2013–14 dropped to 351, less than half its peak number. The launch of the University of Toronto stream in 2008 served to split the class between the two institutions. As a result, the number of entrants (228) to the York stream has declined to less than one-third of its peak enrollment in 2004–05.

In total, 1,343 LAT students also enrolled in York. Of these, 1,268 students enrolled in York after LAT and 75 students enrolled in LAT after attending York. Students who went from York to LAT are not included in the remainder of the analysis, but are shown in Table 3 to present a complete picture of mobility.

Although students were not restricted by their entering stream, only 14% of the 1,268 LAT students who transferred to York originated in the University of Toronto stream.

Table 3. Number of LAT entrants and transfers to and from York, by program stream, 2002–2012

Year of Entry	Total Entrants	Entering Stream		Number of Transfers to York		Number of Transfers from York	
		UofT Stream	York Stream	UofT Stream	York Stream	UofT Stream	York Stream
2002*	110		110		21		1
2002-03	391		391		98		2
2003-04	584		584		160		6
2004-05	696		696		197		7
2005-06	651		651		188		7
2006-07	659		659		186		4
2007-08	586		586		131		6
2008-09	514	157	357	13	96	3	3
2009-10	454	149	305	14	68	3	3
2010-11	488	162	326	10	50	3	6
2011-12	501	148	353	2	34	2	12
2012-13	451	138	313			2	5
2013-14	351	123	228				

*Fall semester of 2001 is not included. Latter years are not comparable because entrants have less time to transfer to York.

More than one-quarter (26%) of students who entered the York LAT stream²³ between 2002 and 2010²⁴ transferred to York by 2012 (Figure 2). Less than half (46%) had graduated from LAT before transferring (12% of total entrants); however an additional 4% of entrants had obtained a non-LAT credential from Seneca before transferring. Nearly one-quarter of entrants (23%) graduated from Seneca, but did not transfer to York by 2012. Of those who graduated from LAT, 61% transferred to York. Over half of

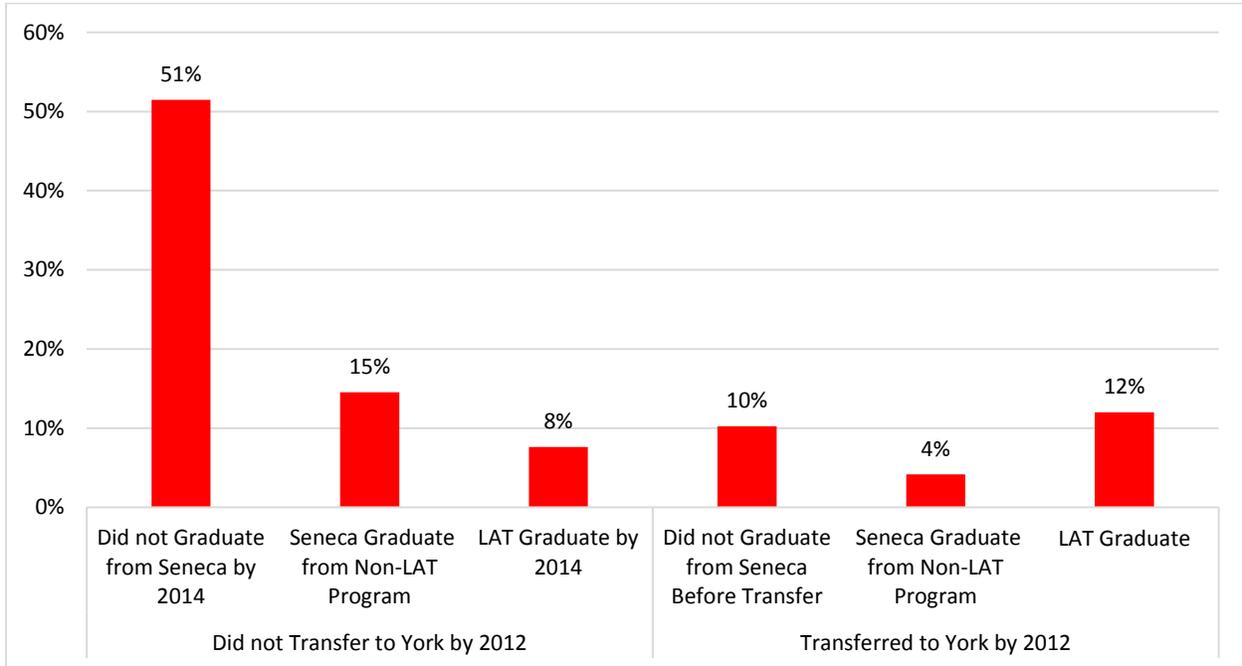
²² Data on transfer student numbers and academic performance are currently shared between the University of Toronto and Seneca for this group of students, but were not used for this paper.

²³ Students who started in the University of Toronto (UofT) stream, regardless of whether they transferred to York, are excluded from this section of the analysis because it is unknown whether these students transferred. An unknown number of York-stream entrants may have transferred to UofT or another university, however the results from the Graduate Satisfaction Survey show that only 11% of the York stream graduates (2007–2012) who transferred to university went elsewhere.

²⁴ This year range was selected to allow sufficient time for transfer.

entrants in the York stream (2,233 entrants) did not graduate from Seneca in any program by 2014, or transfer to York. About one-quarter (24%) of this group (539 LAT entrants, 12% of entire sample) had either a zero or no GPA.

Figure 2. Pathways of LAT York stream entrants, 2002–2010



Characteristics of LAT entrants by transfer pathway

The study compared the sociodemographic and academic characteristics of graduates and non-graduates who did not transfer to York with the characteristics of those who did (Table 4, Table 5). Variables included age at entry, gender, status in Canada, first language, parental education, neighbourhood income, high school performance, eligibility for university, and English-language placement at college entry.

It is interesting to note that only 36% of LAT entrants were 20 years and older and 48% were male. In contrast, in 2014, 80% of first-year students in Ontario universities were under the age of 20 and 45% were male.²⁵

Female students were more likely than male students to transfer to York and to graduate from LAT. Whereas females comprised only 49.5% of those who did not graduate from LAT *and* did not transfer, they made up 55% of those who both graduated and transferred. Higher-income students, both graduates and non-graduates, comprised a larger share of transfers to York. Those who transferred to York without graduating were somewhat younger than those in other pathways. The influence of other factors, including parental education, first language, and status in Canada, differed little across pathways.

²⁵ Council of Ontario Universities, *Application Statistics 2014*, <http://cou.on.ca/wp-content/uploads/2016/01/COU-Application-Statistics-2014.pdf>

Table 4. Sociodemographic characteristics of LAT York stream entrants by transfer pathway, 2002–2012

		All Entrants*				
		Did not Transfer to York		Transferred to York		
		LAT Non-Grad	LAT Grad	LAT Non-Grad	LAT Grad	
Number of Students**		4,339	2,863	331	625	520
Age at Entry	<20	64.2%	63.3%	65.3%	69.6%	61.9%
	20-24	32.0%	33.1%	29.6%	26.7%	33.3%
	25+	3.9%	3.6%	5.1%	3.7%	4.8%
Gender	Male	48.3%	50.5%	42.0%	43.8%	45.4%
	Female	51.7%	49.5%	58.0%	56.2%	54.6%
Status in Canada	Citizen	89.2%	88.8%	89.1%	90.2%	89.9%
	Other	6.0%	6.1%	5.7%	5.8%	6.1%
	International	4.8%	5.1%	5.1%	4.0%	4.0%
First Language	English	73.3%	73.4%	76.9%	69.7%	74.7%
	Other	26.7%	26.6%	23.1%	30.3%	25.3%
Parental Education	Degree	28.6%	27.7%	31.2%	33.7%	24.9%
	No Degree	71.4%	72.3%	68.8%	66.3%	75.1%
Neighbourhood Income	Low	23.5%	24.6%	23.0%	20.7%	20.9%
	Middle	33.1%	34.0%	32.5%	31.0%	31.1%
	High	43.4%	41.4%	44.6%	48.2%	48.1%

Note: Only students who began the York LAT stream in 2010 or earlier are included. Parental education was collected only for those students who entered Seneca College after 2006. Neighbourhood income was reported only for domestic students with an Ontario permanent address. "LAT Non-Grads" may have graduated from another Seneca program.

Over two-thirds of entrants took mostly university prep courses in high school, indicating that aspirations for university likely started at least in high school. However, many students struggled academically, with 62% failing at least one course in high school, 19% failing more than three courses, and more than three-quarters having an average of less than 70%. Only 7% of entering LAT students met the minimum requirements to enter university in Ontario (defined as a minimum of 70% in 6 U/M/OAC courses). Only 53% of entrants achieved a language test score equivalent to or above college-level English; the remainder were required to take at least one additional English course before attempting college-level English.

The pathway analysis clearly shows that high school achievement and language proficiency have a large impact on whether a student transfers and/or graduates from LAT: those who both graduate and transfer from LAT have the strongest high school background and language proficiency. Students who took mostly college preparation courses in high school and obtained less than a 70% average were particularly at risk for not transferring or graduating. Of those who did not both graduate from LAT and transfer to York 46% were placed in college-level English at entry. In contrast, 69% of those who both graduated and transferred to York were placed in college-level English at entry.

Table 5. High school academic background of LAT York stream entrants by transfer pathway, 2002–2012

		All Entrants*	Did not Transfer to York		Transferred to York	
			LAT Non-Grad	LAT Grad	LAT Non-Grad	LAT Grad
Number of Students		4,339	2,863	331	625	520
Number with HS GPA		3,319	2166	258	494	401
High School Course Type	Mostly U/M	68.5%	63.5%	73.6%	79.1%	78.8%
	Mostly C/W	31.5%	36.5%	26.4%	20.9%	21.2%
High School Average (Gr 11/12)	<60%	12.0%	15.1%	7.8%	7.1%	4.2%
	60-69%	64.1%	65.8%	62.8%	64.0%	55.6%
	70-80%	22.0%	18.1%	25.6%	26.5%	35.2%
	>80%	1.9%	1.0%	3.9%	2.4%	5.0%
High School Average and Course Type	C/W <60%	4.8%	6.6%	2.3%	1.4%	0.5%
	C/W 60-69%	19.0%	22.5%	14.7%	12.1%	11.0%
	C/W 70-79%	6.8%	6.7%	8.1%	6.3%	7.2%
	C/W >80%	0.9%	0.6%	1.2%	1.0%	2.5%
	U/M <60%	7.3%	8.5%	5.4%	5.7%	3.7%
	U/M 60-69%	45.1%	43.3%	48.1%	51.8%	44.6%
	U/M 70-79%	15.2%	11.4%	17.4%	20.0%	27.9%
	U/M >80%	1.0%	0.4%	2.7%	1.6%	2.5%
Number of HS Course Failures (Gr 11/12)	None	38.3%	34.1%	49.6%	40.7%	50.4%
	1-3	42.8%	44.5%	36.8%	42.1%	38.2%
	4+	18.9%	21.4%	13.6%	17.2%	11.5%
Eligible for University (min 70% average in 6 U/M courses)		7.4%	5.0%	11.6%	11.7%	12.5%
English-Language Placement at Seneca Entry	ELL- Level 1 or 2	3.1%	3.5%	3.3%	2.7%	0.8%
	Below college level/ ELL - Level 3	44.0%	49.8%	34.9%	34.3%	30.1%
	College-level English	51.7%	46.0%	59.5%	61.1%	66.5%
	Exempt	1.1%	0.6%	2.3%	1.9%	2.6%

Note: *Only students who began the York stream in 2010 or earlier are included. "LAT Non-Grad" refers to those who did not graduate from LAT; they may have graduated from another Seneca program.

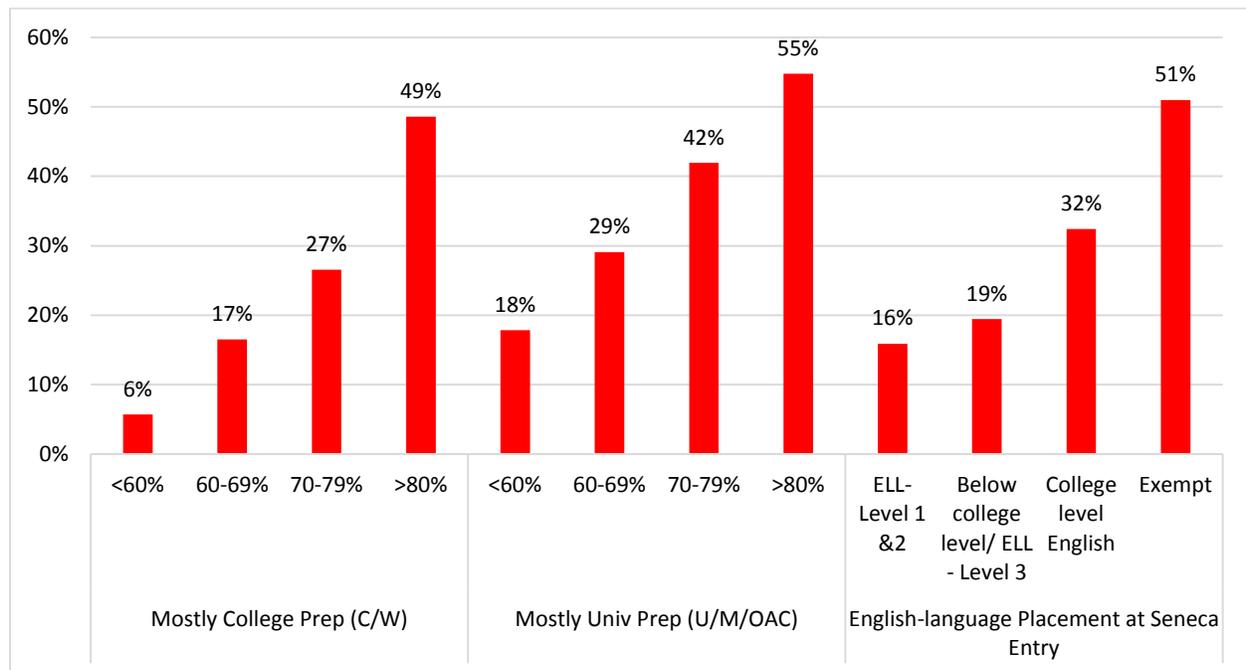
In general, transfer rates to York were higher for students who had higher grades in high school, and for those who took the university preparatory stream (Figure 3).²⁶ Students with stronger English-language proficiency at entry were also more likely to transfer. Over half (55%) of entrants with a high school average of 80% or higher, who had also taken mostly university prep courses, transferred to York. In

²⁶ Figure 3 is based on the same data source as Table 5, but includes a calculated transfer rate to York by high school background and English-language proficiency.

contrast, the transfer rate was much lower (6%) for those who took mostly college prep courses and had a high school average below 60%.

A similar trend is seen with language placement results, with less than one-fifth of those who tested below college-level English transferring, compared with over half of those who were exempted from taking college-level English. However, it is clear that high school performance and language proficiency are not the only factors that influence whether a student transfers: many students with weaker backgrounds are transferring, and many strong students are not.

Figure 3. The percentage of LAT York stream students who transferred to York by 2012, by high school background and language placement at Seneca entry, 2002–2010 entrants



Although the purpose of the LAT program is made clear—to prepare college students for transfer to university—some LAT entrants had already attended university (Table 6). Regardless, previous university did not affect their propensity to graduate or transfer. There is, however, a difference in transfer rates by plans for university. At the start of college, 82% of all LAT entrants had plans for university. Aspiration for university was higher for both graduates and non-graduates who ultimately transferred to York, than their non-transfer counterparts.

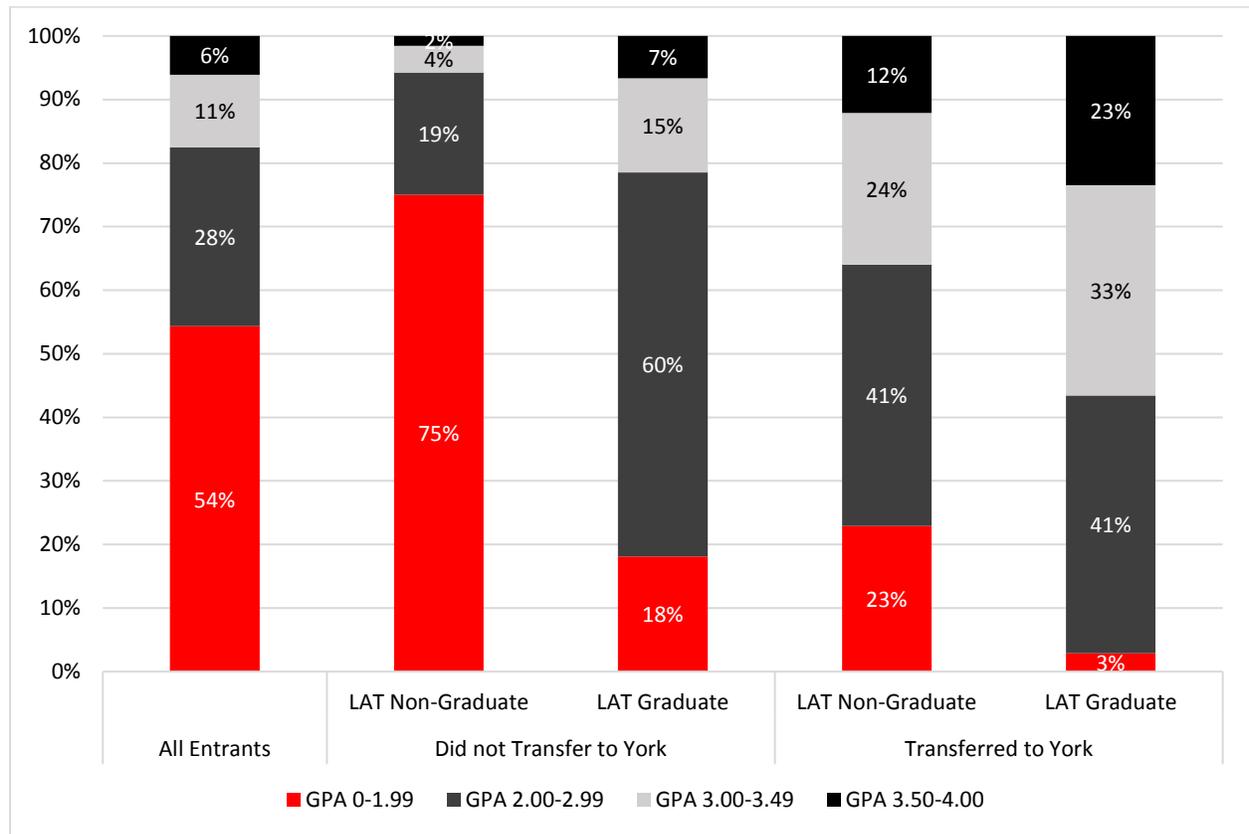
Table 6. Previous university experience and aspirations for university of LAT York stream entrants by transfer pathway, 2002–2012

		All Entrants*	Did not Transfer to York		Transferred to York	
			LAT Non-Grad	LAT Grad	LAT Non-Grad	LAT Grad
Last school university	Yes	2.6%	2.2%	5.3%	3.0%	2.4%
Aspired to university	Yes	81.7%	78.3%	82.8%	91.8%	87.4%

Notes: Only students beginning the York stream in 2010 or earlier are included. This sample excludes anyone who appeared at York before entering LAT. "LAT Non-Grad" refers to those who did not graduate from LAT; they may have graduated from another Seneca program.

The articulation agreement between York and Seneca stipulates that students must maintain a GPA above 3.0, both overall and in key courses, to be eligible for transfer. As expected, whether a student transfers and/or graduates is largely reflective of their Seneca grades. Of those who did not graduate or transfer, three-quarters had a GPA below 2.0,²⁷ whereas 56% of those who graduated and transferred had a GPA of 3.0 and above (Figure 4). As shown, the group that graduated from LAT and transferred to York comprises both those who were in the articulated stream and those who were not, which may explain the high share of transfers with a GPA below 3.0.

Figure 4. Seneca grades of LAT York stream entrants by transfer pathway, 2002–2012



Note: "LAT Non-Grad" refers to those who did not graduate from LAT; they may have graduated from another Seneca program.

Regression analysis: Propensity for transfer

To determine which individual factors independently influence propensity for transfer to York, multiple regression models were run (Table 7). Model 1 includes high school grades and course stream, but does not include grades at Seneca or indicate whether the student graduated from LAT. Model 2 includes

²⁷ Seneca’s academic policy states that “Students will only be eligible to graduate with a Seneca College certificate or diploma if they have maintained an overall good standing (1.7 Program GPA) in their current program of study,” <http://www.senecacollege.ca/academic-policy/acpol-08.html>

high school grades and Seneca graduation status, but does not include Seneca GPA. The third model excludes high school performance, but includes Seneca GPA and graduation status.

As shown consistently across all models, LAT entrants who had plans for university after graduation had an increased likelihood of transfer. Yet, an interesting finding of this study is that some students entered LAT without the intention to transfer, even though LAT is explicitly a university transfer program.

Those who reported that English was not their first language were 5 percentage points more likely to transfer. However, entrants who were placed in below college-level English for English-language learners (ELL) were less likely to transfer to York. Gender and age had little or no effect across models, nor did year of entry over the study duration.

Students from high income neighbourhoods were more likely to transfer than those in the lowest income group. However, this effect was only evident when high school grades were taken into consideration, indicating that, independent of college performance, neighbourhood income was not a significant factor in transfer to York. When controlling for high school grades, students who had previous university attendance were less likely to transfer.

Students who had taken mostly university preparatory courses in high school while attaining an average of 75% and higher were more likely to transfer. Those who had taken the college preparatory stream, with grade averages below 75%, were less likely to transfer than the reference group who had a high school average below 75% with mostly university preparatory courses. Whether a student graduated from LAT before transferring had a major influence on whether the student transferred, even when controlling for grades at Seneca. Obtaining a Seneca GPA of greater than 3.0 increased the likelihood of transferring to York by over 40 percentage points, the largest influence of all variables.

Table 7. Propensity to transfer to York University

Reference	Variables	(1)	(2)	(3)
Ref: No Plans for University	Plans for university	0.106*** (0.019)	0.095*** (0.017)	0.099*** (0.015)
Citizenship (Ref: non-Canadian)	Canadian	0.008 (0.039)	0.000 (0.038)	0.012 (0.026)
Starting Age at College (Ref: Under 20 yrs)	20-24	0.017 (0.019)	0.011 (0.018)	-0.029** (0.014)
	25 yrs +	0.152** (0.075)	0.126 (0.070)	0.022 (0.042)
Gender	Male	-0.019 (0.016)	-0.013 (0.015)	0.003 (0.013)
First Language	English	-0.048** (0.019)	-0.052*** (0.018)	-0.055*** (0.015)
Census Neighbourhood Income (Ref: low income)	Mid income	0.034 (0.022)	0.034 (0.020)	0.005 (0.017)
	High income	0.066*** (0.021)	0.055*** (0.020)	0.032 (0.017)
English-language Placement (Ref: College-level English)	Below college level/ ELL - Level 3	-0.124** (0.055)	-0.076 (0.059)	-0.057 (0.043)
	ELL- Level 1 or 2	-0.106*** (0.017)	-0.078*** (0.016)	-0.047*** (0.013)
Ref: Not University	Last school university	-0.159** (0.070)	-0.161** (0.070)	-0.044 (0.051)
HS Grades (Ref: Gr. 11/12/OAC courses mostly U level & HS GPA below 75%)	Mostly C level & average <75%	-0.093*** (0.017)	-0.070*** (0.016)	
	Mostly C level & average >=75%	0.132**	0.056	

Reference	Variables	(1)	(2)	(3)
		(0.056)	(0.050)	
	Mostly U & average $\geq 75\%$	0.245*** (0.048)	0.183*** (0.046)	
Seneca Grad Status (Ref: Did not graduate)	Graduated from LAT		0.378*** (0.022)	0.296*** (0.021)
Seneca GPA (Ref: <3.0)	3.0 to <3.5			0.408*** (0.025)
	≥ 3.5			0.455*** (0.031)
LAT Entering Year (Ref: 2010)	2002	-0.093 (0.059)	-0.093 (0.056)	-0.101** (0.046)
	2003	0.016 (0.039)	0.003 (0.036)	-0.002 (0.031)
	2004	0.014 (0.036)	0.007 (0.034)	0.002 (0.029)
	2005	0.028 (0.035)	0.021 (0.033)	0.034 (0.028)
	2006	0.074** (0.036)	0.068** (0.034)	0.035 (0.029)
	2007	0.062 (0.036)	0.062 (0.034)	0.042 (0.029)
	2008	0.014 (0.035)	0.017 (0.033)	0.021 (0.029)
	2009	0.064 (0.040)	0.068* (0.038)	0.031 (0.034)
Term Started (Ref: Fall)	Winter	-0.015 (0.020)	0.005 (0.018)	-0.014 (0.015)
Constant		0.213*** (0.058)	0.145*** (0.056)	0.089** (0.043)
Observations		2,957	2,957	3,545
R-squared		0.069	0.179	0.289

Notes: Robust standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$; 2002–2010 academic years for entrants starting in LAT York stream. International students and students without an Ontario permanent postal code were excluded.

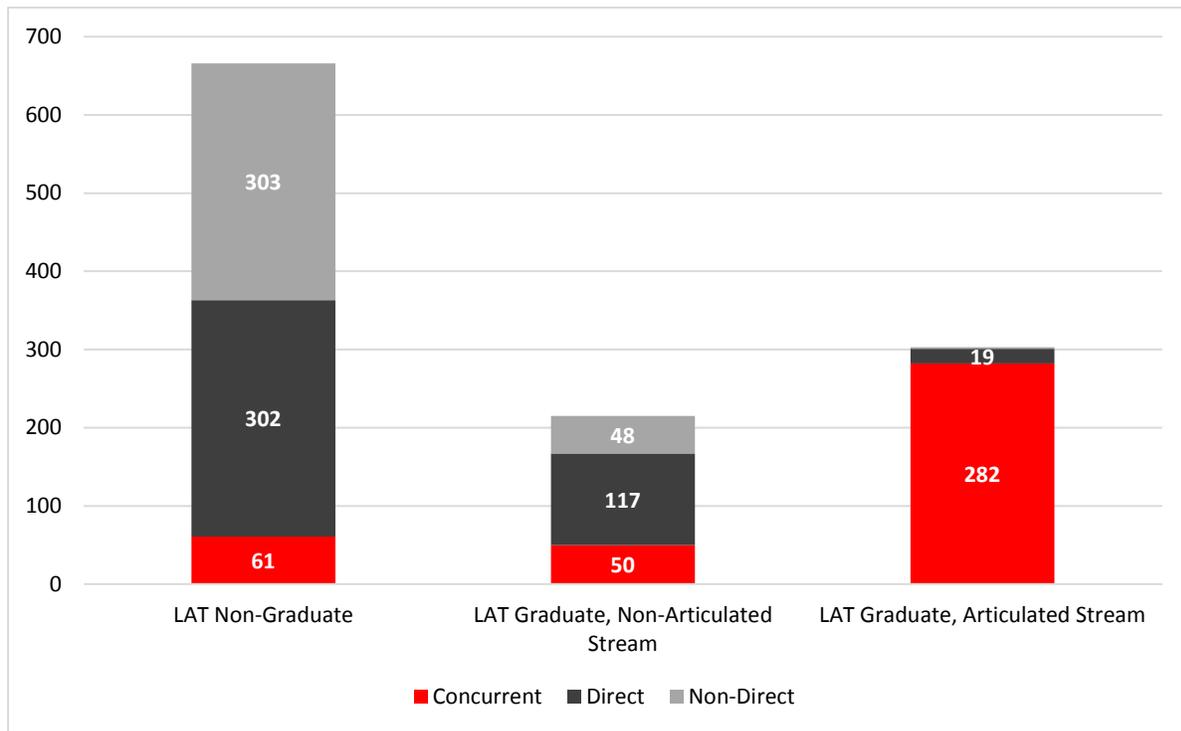
Post-transfer outcomes at York University

This section examines various transition factors—timing of transfer, amount of transfer credit, program of entry—of all LAT entrants who transferred to York, for both the York and UofT streams. Additionally, it explores how successful transfer students were at York, in terms of time to completion, graduation status and academic performance.

Timing of transfer

Timing of transfer to York relates to whether the student graduated and whether they followed the articulated stream. Overall, 70% of all LAT transfers (graduated or not) attended York within a year of leaving Seneca: 33% enrolled concurrently, 37% attended the following year, and the remainder (30%) transferred at least one year later (Figure 5). As described previously, the Seneca-York articulation agreement allows a LAT student to enrol in a summer course at York provided they have a 3.0 GPA in their first year. This accounts for the 93% of those in the articulated program who were enrolled at York in the same academic year as they were at Seneca, compared to only 23% who graduated from the non-articulated stream. Those who transferred without completing LAT were more likely to have a gap between leaving the LAT program and entering York, with 45% taking more than a year before transferring.

Figure 5. Timing of LAT transfers to York University, 2002–2012

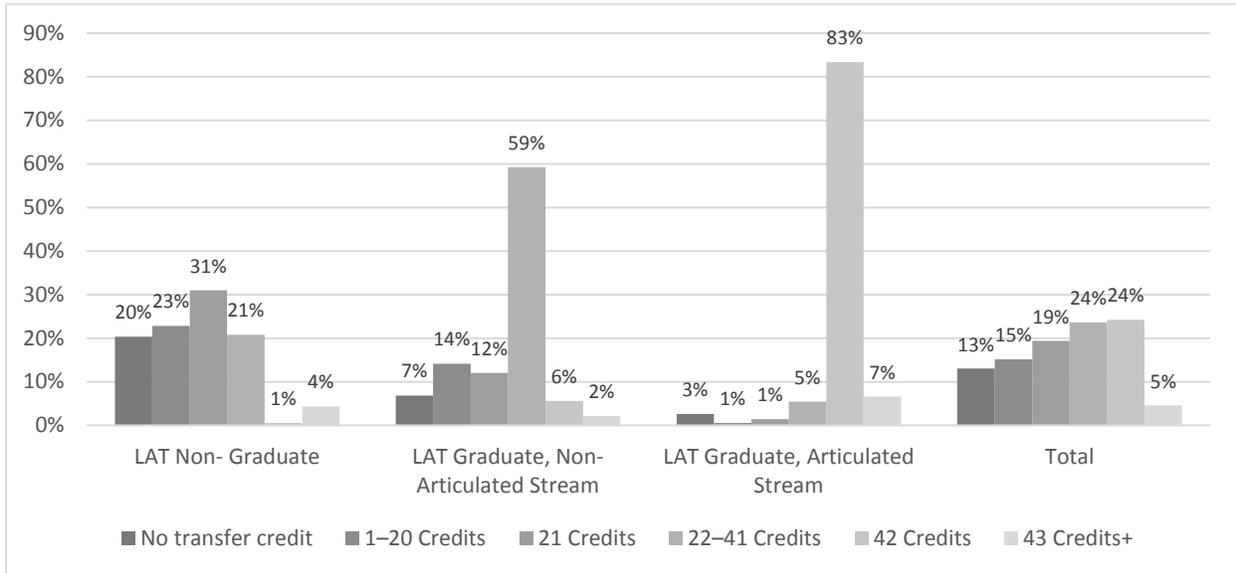


Notes: Excludes those who left Seneca (graduates and non-graduates) after 2010. “Concurrent” – enrolled at both Seneca and York in the same academic year. “Direct” – enrolled at York the following year after leaving Seneca (both graduates and non-graduates). “Non-direct” – at least one academic year after having been enrolled in the LAT program. Note that some LAT non-graduates may have completed another Seneca program prior to entering York.

Amount of transfer credit

Ninety per cent of those graduating from the articulated stream obtained 42 credits or more, as prescribed in the articulation agreement with York, whereas only 8% of graduates from the non-articulated stream obtained 42 or more credits (Figure 6). The non-graduates of LAT obtained a wide range of credits, providing evidence of the diversity of this group—from those who may have withdrawn within the first semester to those who graduated from another Seneca (non-LAT) program. The York records showed the varied bases of admission: 78% were admitted as a college transfer student, with the remaining 22% based on high school performance, previous university, or mature student status (data not shown).

Figure 6. Number of transfer credits provided to Seneca LAT students and graduates transferring to York, 2002–2012

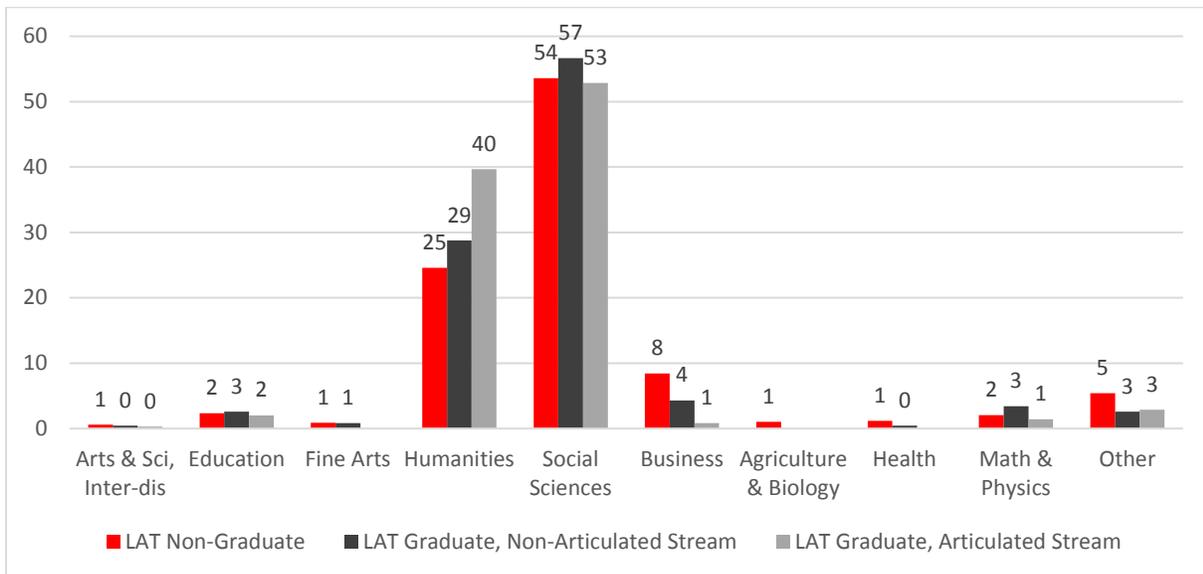


Note: This excludes the York credits that Seneca LAT students obtained before graduation from Seneca.

Program of entry at York

As would be expected from a liberal arts transfer program, most students who continued on to York were predominately enrolled in the social sciences or humanities, with over half entering the social sciences (Figure 7). Graduates in the articulated stream were the most likely to continue into the humanities (40%), compared with only one-quarter of those from the non-articulated stream (25%).

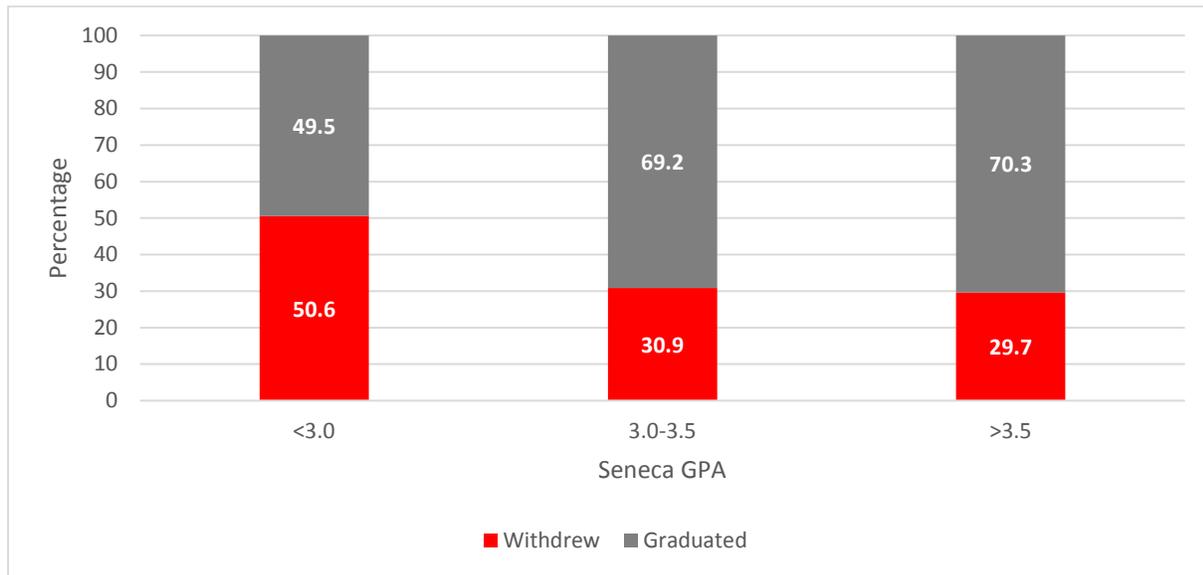
Figure 7. First program area of entry of Seneca LAT students and graduates transferring to York, 2002–2012



Academic outcomes

Irrespective of graduation or articulation status at Seneca, only half of transfers to York who had a Seneca GPA of below 3.0 (70%) graduated, compared with the 70% of transfers with a GPA of 3.0 and above (Figure 8).

Figure 8. Graduation status of LAT transfers to York University, by Seneca grades, 2002–2012



Note: Excludes those in progress as of 2012

There is a clear relationship between performance at York and grades at Seneca (Table 8). Transfers with a Seneca GPA below 3.0 obtained a 64% average at York, whereas those with a Seneca GPA higher than 3.5 obtained a 75% average at York. Those who withdrew from York, whose Seneca GPA was 3.5 and below, tended to struggle academically, with average grades in the 50s. In contrast, those who withdrew from York, and had a Seneca GPA above 3.5, obtained a 67% average at York, potentially indicating that many left for non-academic reasons. Interestingly, those who graduated from York obtained comparable York averages irrespective of Seneca grades.

Table 8. Grades at York (%) for LAT to York transfers, by York status and Seneca GPA, 2002–2012

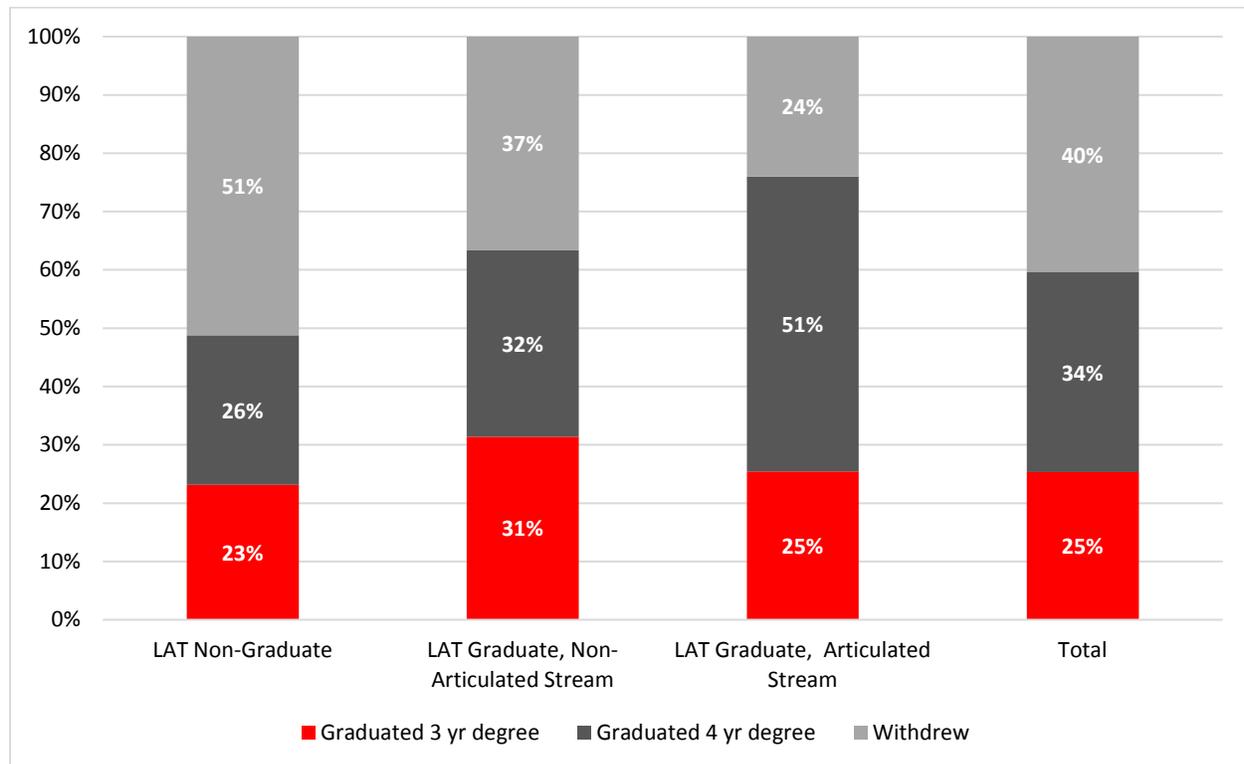
Seneca GPA		Withdrew	Graduated	In Progress as of Fall 2012	Total
<3.0	mean	53.2	72.3	66.0	64.1
	SD	22.6	7.4	13.1	17.3
	n	208	224	232	664
3.0 to 3.5	mean	54.6	74.3	72.4	69.2
	SD	24.9	6.2	7.1	15.8
	n	83	204	54	341
>3.5	mean	66.5	77.6	78.0	75.1
	SD	19.5	6.4	7.3	12.0
	n	52	128	40	220

Seneca GPA		Withdrew	Graduated	In Progress as of Fall 2012	Total
Total	mean	55.6	74.2	68.6	67.5
	SD	23.0	7.1	12.4	16.5
	n	346	556	328	1,230

Notes: Includes LAT students who entered Seneca in the winter of 2002 and transferred to York by 2012; 38 are omitted due to missing York grades; 5 transfer students had missing Seneca grades but are included in overall total. Students who obtained a GPA of 0 at Seneca or York were included in the averages (n=27 at Seneca, n=41 at York). SD = standard deviation of the mean.

In total, 60% of LAT transfers to York graduated during the years under study, 57% of whom completed a four-year (honours) degree (Figure 9). As a general comparison, 62% of the 2012 graduates from York's Faculty of Liberal Arts and Professional Studies completed an honours degree.²⁸ Two-thirds of those in the articulated stream completed an honours degree, compared with just over half of those who either did not graduate from LAT or graduated from the non-articulated pathway. More than half of those who transferred without completing LAT between 2002 and 2012 withdrew without graduating, the highest withdrawal rate of all three pathways. Graduates of the articulated LAT stream were the most likely to graduate, at 76%.²⁹

Figure 9. Status at York, by LAT pathway



²⁸ From York University's Factbook, <http://www.yorku.ca/factbook/factbook/index.php?year=2012%20-%202013>. The articulation agreement is specifically with York's Faculty of LAPS.

²⁹ As a comparison, York's 2012 graduation rate was 76.5%, calculated as the share of the 2003 entering cohort who graduated by 2010. See: <http://oipa.info.yorku.ca/files/2014/04/2012-MTCU-KPI1.pdf>

Notes: Includes LAT students who entered Seneca in the winter of 2002 and transferred to York by 2012; excludes 333 transfer students who were still enrolled at York.

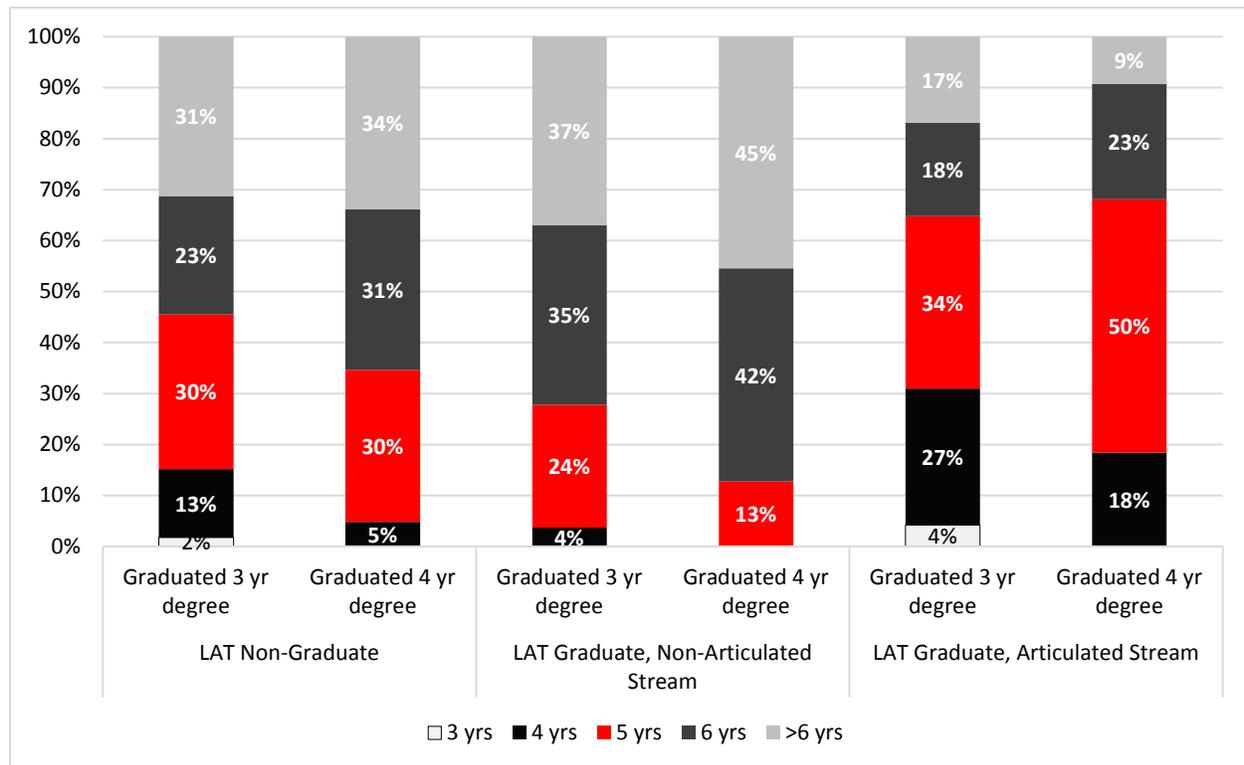
Although graduates from the articulated stream were much more likely to complete an honours degree than were other transfer students, their grades in four-year degree programs were similar across pathway types, with graduates from the articulated stream obtaining a slightly higher average in the three-year degree programs (Table 9). On average, transfers who withdrew from York performed poorly at York if they had gone through the non-articulated stream, with averages of 53% and 56% for LAT non-graduates and LAT non-articulated stream graduates respectively. LAT articulated stream graduates who withdrew had a higher average, at 66%.

Table 9. Degree type and grades obtained at York for LAT transfers, 2002–2012

	LAT Non-Graduate		LAT Graduate, Non-Articulated Stream		LAT Graduate, Articulated Stream	
	# of Transfers	York GPA (%)	# of Transfers	York GPA (%)	# of Transfers	York GPA (%)
Graduated 3 Yr Degree	112	69.8	54	69.1	71	72.1
Graduated 4 Yr Degree	124	75.9	55	77.5	141	78.1
Withdrew	248	52.5	63	55.7	67	65.7
In Progress	203	66.5	61	68.7	69	74.4
Total Transfers	687	64.1	233	67.5	348	73.7

Note: York GPAs were missing for 38 transfer students who did not graduate from York.

Of those who transferred to York without graduating from LAT, 54% took six years or more to complete a three-year degree program and 65% took six years or more to graduate from a four-year degree program (Figure 10). Interestingly, those who graduated from the non-articulated stream of LAT were more likely to take six or more years, with 72% taking six or more years to complete a three-year degree and 87% taking six or more years to complete a four-year degree. Graduates of the articulated pathway had fewer combined years. Nearly one-third (31%) of those graduating from a three-year York degree program did so within four years of entering Seneca and over two-thirds (68%) of those graduating from a four-year York degree program did so within five years. It is interesting to note that 18% of graduates from the articulated stream were able to obtain both credentials within four years of entering LAT at Seneca. On average, non-graduates of LAT took six years combined at both institutions to complete a degree at York, slightly less time than those who first graduated from the non-articulated LAT stream (Table 9). For each of the three- and four-year degree programs, graduates of the articulated LAT stream on average took 5.3 years to complete.

Figure 10. Number of years between entry in LAT and York graduation, by pathway

Notes: Only academic years are available and not individual semesters, resulting in rounding. Includes students enrolled full time and part time, concurrently at York and Seneca, and those who may not have been continually enrolled.

Table 10. Average number of years by pathway, Seneca LAT entry to York graduation

Pathway		3 yr degree		4 yr degree	
		Mean	SD	Mean	SD
LAT Non-Graduate	Mean	5.9		6.1	
	SD	1.5		1.2	
	n	112		124	
LAT Graduate, Non-Articulated Stream	Mean	6.3		6.6	
	SD	1.4		1.1	
	n	54		55	
LAT Graduate, Articulated Stream	Mean	5.3		5.3	
	SD	1.4		1.0	
	N	71		141	

Regression analysis: Academic outcomes

The regressions analysed the factors independently associated with two post-transfer outcomes: i) graduation from York and ii) cumulative York GPA of 5.0 (required for an honours degree). Results are summarized in Table 11.

Transfers who were LAT graduates, non-Canadian citizens, younger, or who obtained good Seneca grades were significantly more likely to graduate from York. High school grades/course type and English-

language placement at Seneca had no effect on whether a student graduated from York. A study gap of two years or more before transferring to York reduced the chance of graduation. The amount of transfer credit, because of its implicit connection to completion and grades, had a positive effect on graduation.

To determine which factors influenced academic performance after transfer, for both graduates and non-graduates of York, a regression model was performed using the cumulative York GPA necessary for honours (5.0). Transfers who were LAT graduates, non-Canadian citizens, and obtained good Seneca grades were more likely to obtain a York GPA of 5.0 or higher. The transfer's age did not influence their York GPA, but their neighbourhood income did: transfers from higher income neighbourhoods were more likely to attain a GPA of 5.0.

No clear relationship between high school grades and success after transfer could be established. Likewise, a student's first language and English-language placement at college entry were unrelated to their academic success at York. Those who entered natural and applied science fields were less likely to achieve a GPA of 5.0 than those who entered humanities, arts and education. Higher amounts of transfer credit, even when controlling for Seneca grades and whether or not the student graduated from LAT, were associated with academic success in terms of grades.

Table 11. Regression models for outcomes after transfer to York

		Graduated From York After Transfer			Cumulative GPA 5.0+			
Citizenship (Ref: Non-Canadian)	Canadian	-0.236*** (0.089)	-0.286*** (0.061)	-0.283*** (0.061)	-0.191** (0.082)	-0.208*** (0.056)	-0.199*** (0.057)	
	Starting Age at College (Ref: Under 20 yrs)	20-24	-0.132*** (0.046)	-0.128*** (0.039)	-0.142*** (0.039)	0.010 (0.040)	-0.035 (0.034)	-0.039 (0.034)
	25 Yrs +	-0.074 (0.152)	-0.161 (0.091)	-0.207** (0.092)	-0.062 (0.137)	-0.037 (0.083)	-0.067 (0.085)	
Gender	Male	-0.039 (0.039)	-0.027 (0.035)	-0.015 (0.035)	0.003 (0.034)	0.015 (0.030)	0.020 (0.030)	
	First Language	English	-0.013 (0.048)	-0.007 (0.043)	0.008 (0.043)	0.010 (0.041)	0.019 (0.036)	0.027 (0.036)
Census Neighbourhood Income (Ref: low income)	Mid income	-0.027 (0.055)	0.013 (0.048)	0.016 (0.048)	0.082 (0.048)	0.084** (0.042)	0.082** (0.041)	
	High income	0.050 (0.052)	0.068 (0.046)	0.062 (0.045)	0.097** (0.046)	0.101** (0.040)	0.095** (0.040)	
English Placement (Ref: College English)	Below college level & ELL - Level 3	-0.085 (0.340)	0.128 (0.180)	0.144 (0.184)	-0.064 (0.153)	-0.086 (0.119)	-0.090 (0.114)	
	ELL- Level 1 or 2	0.007 (0.042)	0.025 (0.038)	0.030 (0.038)	-0.057 (0.036)	-0.000 (0.033)	-0.003 (0.032)	
Ref: Not University	Last school university	-0.421*** (0.107)	-0.155 (0.114)	-0.112 (0.118)	-0.256 (0.136)	-0.079 (0.092)	-0.060 (0.093)	
HS Grades (Ref: Gr. 11/12/OAC courses mostly U level & HS average below 75%)	Mostly C & average <75%	-0.059 (0.056)			0.048 (0.046)			
	Mostly C & average >=75%	-0.238** (0.111)			0.049 (0.083)			
	Mostly U & average >=75%	-0.015 (0.065)			0.087 (0.064)			
Seneca Grad Status (Ref: LAT non-grad)	Graduated from LAT	0.220*** (0.039)	0.192*** (0.035)	0.065 (0.049)	0.217*** (0.035)	0.156*** (0.032)	0.070 (0.043)	
	Seneca GPA (Ref: <3.0)	3.0 <3.5		0.152*** (0.040)	0.130*** (0.042)		0.187*** (0.036)	0.163*** (0.039)
	>=3.5			0.152*** (0.049)	0.137** (0.053)		0.307*** (0.040)	0.285*** (0.044)
Entering Program at York (Ref: Arts, Humanities, Education)	Social Sciences	0.034 (0.040)	0.036 (0.037)	0.032 (0.037)	-0.021 (0.036)	-0.041 (0.032)	-0.048 (0.032)	
	Business	-0.028 (0.096)	0.020 (0.083)	-0.014 (0.081)	0.045 (0.085)	0.044 (0.073)	0.013 (0.070)	
	Natural and Applied Sciences	-0.062	-0.096	-0.099	-0.140	-0.226***	-0.211**	

		Graduated From York After Transfer			Cumulative GPA 5.0+		
		(0.127)	(0.105)	(0.105)	(0.104)	(0.084)	(0.087)
Term Started at Seneca (Ref: Fall)	Winter	-0.041	-0.025	-0.033	-0.037	-0.043	-0.047
		(0.046)	(0.040)	(0.039)	(0.043)	(0.036)	(0.036)
Timing of Transfer (Ref: direct transfer)	+1 academic year to transfer	-0.041	0.038	0.020	0.008	0.099	0.095
		(0.077)	(0.069)	(0.069)	(0.064)	(0.055)	(0.055)
	+2 academic years to transfer	-0.180**	-0.135	-0.213***	-0.020	0.032	0.008
		(0.085)	(0.077)	(0.082)	(0.066)	(0.060)	(0.063)
Transfer Credit Rec'd at York (Ref: none)	1–20 credits			-0.088			0.050
				(0.079)			(0.063)
	21 credits			-0.132			0.013
				(0.072)			(0.062)
	22–41 credits			0.061			0.135**
				(0.069)			(0.058)
	42 credits			0.112			0.171**
				(0.079)			(0.069)
	43+ credits			0.177			0.249***
				(0.108)			(0.082)
Constant		0.801***	0.707***	0.766***	0.619***	0.555***	0.508***
		(0.100)	(0.081)	(0.099)	(0.097)	(0.076)	(0.087)
Observations		627	764	764	833	1,005	1,005
R-squared		0.118	0.121	0.146	0.074	0.120	0.135

Robust standard errors in parentheses; *** $p < 0.01$; ** $p < 0.05$; ^ entrants starting in LAT York stream, 2002–2010 academic years; ^^ all York LAT transfers to York, 2002–2012 academic years, excluding those still enrolled at York

Discussion

Seneca's LAT program is unique in Ontario and has long been considered a pathway for students who could not enter university through other means, as demonstrated by the results in this study. While only 7% of the 2002–2010 York-stream entrants were eligible for university based on high school performance, 82% had plans for university after graduation from college. Aspirations for university likely started in high school, with 69% taking mostly university preparatory courses. However, many of these students struggled academically: less than one-quarter obtained an average of 70% or above, considered the minimum requirement for university entry.

Many of these LAT cohorts continued to struggle academically when they entered college: over one-half left Seneca without a Seneca credential or without transferring to York. While over one-quarter of LAT entrants transferred to York, only 27% of this group came from the articulated pathway. Non-graduation from the LAT program had a rippling effect: Seneca non-graduates were less likely to graduate from York, and thereby left both institutions without obtaining a credential from either one.

Compared to LAT students who transferred to York without graduating from the program, those who graduated before transferring were more successful at York—they had more transfer credit and were stronger academically. However, the regression models showed an independent effect on graduating even when controlling for academic or sociodemographic factors, which likely related to a high level of student resilience or determination to finish a credential despite struggling academically.

In total, 1,268 LAT students had transferred to York by 2012: Of these, 333 (26%) were still in progress, 30% had withdrawn, 25% had graduated from a three-year degree program, and 19% had obtained a four-year degree. Their overall grade average at York was 68%. Those who graduated from the articulated pathway had the highest graduation rates and grades, took less time to complete, and were more likely to complete a four-year than a three-year degree program.

The multiple regression models performed for this study identified independent influences on student transfer, graduation from York, and GPA (5.0) at York. Academic performance in high school and at

Seneca, English-language proficiency at college entry, and graduation before transferring were independent influencers on whether a student transferred.

The students with a higher propensity to graduate from York University after transfer were LAT graduates, non-Canadian citizens, younger, and had good grades at Seneca. High school grades no longer influenced performance, unlike the effect of college grades on student transfer.

Factors that determined whether a transfer student attained a York GPA of 5.0 were similar to those that determined whether a student graduated from York. Age was not a significant factor, but transfer students from higher income neighbourhoods were more likely to have a higher York GPA and transfer students who entered the sciences at York were more likely to have a lower GPA.

An earlier study (Smith et al., 2016) that analysed transfer students to York from all Seneca programs found similar results. One exception was that female transfer students from the full transfer population were more likely to graduate from York, whereas there was no gender effect in the LAT program in the current study. The literature also shows that females are more likely to persist to graduation in both college and university (Kerr, 2010; McCloy, Steffler & Decock, 2016). The reasons why a gender effect was not seen in the LAT program in the current study may be reflective of the type of students that enter LAT, or the program delivery, and may warrant further study.

The effect of income on propensity to transfer is interesting: Higher income students are more likely to transfer and to get higher grades after transfer, but not more likely to graduate. Researchers at Seneca have been looking at the role of income in a series of reports pertaining to Seneca transfer students. In a forthcoming report (Steffler, McCloy & Decock, 2016) on the overall Seneca population, income did not have an independent effect on whether a student transferred, but parental education did. In an occupational program, early childhood education, income had no effect on transfer rates of graduates (McCloy, Steffler & Decock, 2015). Interestingly, when controlling for a variety of factors, Seneca students from higher income neighbourhoods were more likely to obtain a high GPA at Seneca, but were not more likely to graduate from college (McCloy, Steffler & Decock, 2016).

Conclusions and recommendations

Seneca's liberal arts transfer program is both innovative and academically intensive. Students are required to take a full college course load, maintain an overall "B" average (with a minimum "C" grade in individual York-approved Seneca courses), and to take college and university courses in the same year. Those who fulfill these rigorous requirements are rewarded with as much as two full years of credit towards a Bachelor of Arts degree at York. This type of transfer agreement is unprecedented in the Ontario college system, but similar to that of the American junior college and the British Columbian systems (Greene & Decock, 1998; Skolnik, 1989).

Students who successfully graduated from the articulated stream at Seneca did well after transfer to York, with strong graduation rates and grades. However, admission standards for LAT are minimal, requiring only an OSSD and Grade 12 English. As a result of this open admission policy, entrants to LAT had a wide range of academic backgrounds: more than three-quarters had a high school average of less than 70%, and nearly half did not place in college-level English. Only about 16% of LAT entrants ultimately graduated from York. Therefore, one of the recommendations is that both the college and university fully inform prospective students of the academic demands required to complete LAT and to perform well after transfer. Additionally, at-risk students could be advised on the variety of upgrading options available, such as academic upgrading³⁰ either before entering LAT or during the program.

³⁰ <http://www.senecacollege.ca/fulltime/AUC.html>

Currently, in the early stages of the program, faculty remind students that the program is challenging and a minimum standard is required to transfer to York with full transfer credit.

The results also show, however, that some students are able to perform well academically despite weak high school backgrounds, and more research needs to be done, both quantitative and qualitative to determine whether they have unique characteristics that make them successful. As this study shows, once a student transfers, their high school performance is no longer a good indicator of how well they will perform at university, whereas their college grades are. Any review of admission standards will need to provide open access, allowing students who struggled in high school to prove themselves in college and pursue a viable pathway to university.

Such a review will also need to address the needs of students at risk of not meeting the requirements for transfer. About half (51%) of the entering class did not graduate from Seneca with any credential, and did not transfer to York. Of those who did transfer, 20% did not graduate from LAT or from York within the time frame of the study. The following recommendations attempt to address these issues:

Alternate pathways to college credential. Students need to have other credential options, such as an alternate diploma or degree pathway at Seneca or other colleges. Such alternatives are already occurring to a certain extent at Seneca. LAT students who are unable to fulfill all the program requirements are awarded a one-year general arts and science credential if they have completed sufficient credits.

Student advising. Early outreach for students who are disengaging for either academic or non-academic reasons is recommended. The LAT program is aware of this and is in the process of creating a student advisor position, who will be able to advise students on the importance of graduating before transferring, provide academic and non-academic support for those struggling, and to advise on alternate pathways to a Seneca credential. As well, since many strong students also left without graduating or transferring to university, a study of non-academic factors in student success may also be warranted.

LAT program review. Future research may include looking more closely at which specific courses students are struggling in, so that adjustments in delivery, timing, or content may be made.

Support for transfer students at York. As this study showed, students who have done well at Seneca continue to be successful at York. However, over half of transfers had a Seneca GPA of less than 3.0, and half of those ultimately withdrew from York. Therefore, students who transfer to York with a weak Seneca academic record require support and advising. Both Seneca and York have a shared understanding that they are working with students who have gaps, and more institutional support is needed to help improve the success of transfer students.

Continue tracking student outcomes. Finally, based on discussions with program coordinators and faculty, efforts continue to be made to improve the outcomes of students in the LAT program. To reveal whether these changes have had the desired effect, a similar study with recent cohorts (2012-2016) should be conducted with the addition of a qualitative component involving students, faculty and administrators involved in the program at both Seneca and York. Additionally, the study could be broadened to similar liberal arts college-university partnerships in the Toronto area.

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