

TRENDS

IN MARITIME HIGHER EDUCATION

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STUDENT PROGRESSION WITHIN UNIVERSITY OF FIRST ENTRY: PERSISTENCE AND GRADUATION

INTRODUCTION

The nature of the progression of students through their first university program of study is complex to describe and interpret. While a good proportion follow what might be classified as the traditional path – four years of full time study at the same institution culminating in the completion of a bachelor's degree – still greater numbers take a less straight forward route to graduation that can mean periods of part-time study, changing programs, stopping out (taking a year or two off but returning to study), or changing

institutions. And there are some that leave and do not return to study at the university level. Understanding the nature of these pathways is important in order to be able to assist students with academic and career choices, and to identify specific groups in greater need of assistance navigating their educational path. It also draws attention to the resources devoted to student recruitment and student financial assistance, both of which realize greater returns when students progress along the most

efficient path and through to completion¹.

To begin to help characterize the varied pathways of the Maritime university student population, the Commission has developed, with the assistance of its Working Group made up of institutional researchers², two measures of student progress and outcomes: persistence and graduation, within the university of first entry. The statistics are derived from the MPHEC's longitudinal PSIS file which enables the tracking of individuals over time.

Highlights

We have calculated measures of persistence and graduation in Maritime Universities, based on the MPHEC longitudinal PSIS file, which enables the tracking of students over time, within-institution.

- Of the students entering a four-year Bachelor's degree directly from high school in 2001, 77% were still enrolled in the same institution after one year. Of this cohort, 39% completed a degree within four years, and 57% completed a degree within six years.
- Of those from the 2001 cohort who were not enrolled after one year, 19% returned to study at the same institution within the next five years.
- After six years, 39% of the 2001 cohort had left the institution of first entry without having completed a degree.

FACTORS AFFECTING AFTER ONE YEAR PERSISTENCE AND THE SIX-YEAR GRADUATION RATE

- The overall persistence rate after one year for all Bachelor's students over 6 cohorts (2001-2006) is 79% and the six-year graduation rate for the 2001 cohort is 58%.

- Students enrolled in programs which are applied or professional in their orientation are the most likely to persist (84% after one year) and to graduate (65% cumulative graduation rate after six years), while those enrolled in the Humanities, Arts & Social Sciences are less likely to persist (73% after one year) and to graduate (52% within six years).
- Gender is weakly associated with differences in persistence after one year, but the difference is greater in subsequent years. Gender is also linked to the six-year graduation rate, with women (61%) more likely to graduate within six years than men (53%).
- Students from outside the Maritimes who move to attend a Maritime University have a higher persistence rate after one year (81%) and a higher six-year graduation rate (63%) than students from the Maritimes (77% persistence after one year; 57% six-year graduation rate); However, among Maritime students, those who study outside their home province have a higher graduation rate (60%) than those who study within their home province (57%).



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METHODOLOGICAL NOTES

Definitions	
Cohort Year	Each academic year, a new cohort is established; the year a new cohort begins is referred to as the cohort year.
Cohort	In the cohort year, students included in the cohort for tracking purposes are: <ul style="list-style-type: none"> • New at the institution in the fall term • Aged 19 or less on Dec. 31st • Enrolled full-time in a program leading to a Bachelor's degree [Full-time is defined as enrolment in at least 60% of a full course load: # credits to be considered FT = (Total expected credits/semester) x 0.60] • The definition of cohort approximates that population which enters university directly from high school; 71% of full-time students new to an institution are aged 19 or less (this proportion increases to 81% if students entering with transfer credits are excluded).
Persistence	<ul style="list-style-type: none"> • Persistence is defined as the percent of the cohort that enrolled in the <i>same institution</i> in subsequent years, regardless of registration status or field of study. That is, the student may be enrolled full- or part-time, or on a co-op work term, and/or may have changed programs. • Students who 'stop out' (i.e., leave the institution for a year or more but return) are counted when they re-enrol, with the exception of students who complete a degree and enrol again at the same institution. • Persistence is measured in the fall term.
Graduation/ Degree Completion	The graduation/degree completion rate is defined as the percent of the cohort that completed an undergraduate degree at the same institution after <i>x</i> years. The statistic is cumulative.
NOTE: Students in 2 and 3 year Engineering diploma programs at associate institutions are excluded from the graduation rates because these students would complete their degree at another institution. Students in these diploma programs are included in the calculation of persistence.	

THE MEASURES: PERSISTENCE AND GRADUATION

As a general concept, persistence is "the ability of students to continue their post-secondary studies from one year to the next and ultimately to proceed to the completion of their program"³, and it is also a concept that can apply to several levels – course, program/discipline, institution and system⁴. A student's pattern of course withdrawals and/or switching, overall course load, and patterns of remaining in or switching majors or disciplines and institutions will all impact the amount of time it takes to complete a degree. Students may also "stop out" (take a year or two off but return to study) or leave post-secondary education indefinitely. Examining some of the factors, including discipline of study, gender and region/province of origin, associated with students' progress and completion within the institution of first entry is the focus of this analysis.

INTERPRETATION OF NUMBERS

Because persistence and graduation rates were obtained from administrative data, a full census of the cohort was used to calculate these rates and therefore any difference observed is statistically significant. For some subgroups of the cohort, the population size may be small and differences and rates may not necessarily be meaningful. We have calculated a confidence interval to identify important or meaningful differences. For example, when rates of persistence are calculated for the entire cohort (approximately 10,000 students) a difference greater than 1% between years is considered important⁵.

MPHEC Longitudinal PSIS Data File

The measures in this report were created using the MPHEC's Longitudinal PSIS data file. As of 2009, this file included:

- 62,300 individual students (Bachelor level)
- 6 cohorts (2001 to 2006); ± 10,000/cohort
- 7 years of data for the fall 2001 cohort
- Longitudinal information *within the same institution* for each student on the number of years enrolled, changes in program, degree completed
- Demographic information including gender, age, program, student origin

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THE COHORT

We focus this paper on the “traditional” new student group – those who enter university directly from high school. Limiting analysis to this group allows us to follow students from the very beginning of their post-secondary educational pathway. And although some would suggest that this traditional recruitment group is in decline, it is still the largest, comprising 71% of new students (excluding those with transfer credits, 81% of those enrolling for the first time at an institution are aged 19 or less).

Placing the focus on students entering directly from high school means that “non-traditional” students, such as older students, new, or transferring from another university, are excluded from the current analysis. The MPHEC intends to look at these groups in future research.

In each academic year, a new cohort is established to be tracked. The year the cohort is established is referred to here as the cohort year. To be included in the cohort for analysis, students must meet the following criteria:

- New at the institution in the fall term of the cohort year
- Aged 19 or less on Dec. 31st of the cohort year
- Enrolled full-time in a program leading to a Bachelor’s degree in the cohort year.

This definition approximates that population which enters university directly from high school.

Table 1 provides key information about the 2001 cohort, which is the cohort for which the longest time series exists. The information consists of data recorded in the cohort (beginning) year. It is important to note that the statistic for the percentage who enrolled on a part-time basis is included for information; these students are not included in the cohort for further analysis.

Table 1: Characteristics in Cohort Year 2001

		N	Percent (%)
Registration Status in Cohort Year^a	Part-time (not part of cohort for analysis)	400	n/a
	Full-time	9894	100%
Gender	Male	3934	39.8
	Female	5960	60.2
Region/Province of Origin	New Brunswick	2994	30.3
	Nova Scotia	4535	45.8
	Prince Edward Island	699	7.1
	Maritime subtotal	8228	83.2
	Newfoundland and Labrador	381	3.9
	Quebec	75	0.8
	Ontario ^b	644	6.5
	Rest of Canada	194	2.0
	Outside Canada	362	3.7
	Outside Maritimes subtotal	1656	16.7
Percent Enrolled by Discipline Cluster in Cohort Year^c	Humanities, Arts & Social Sciences	4341	43.9
	Physical & Life Sciences and Mathematics	1986	20.1
	Applied Arts & Sciences / Professional	2077	21.0
	Commerce & Administration	1490	15.1
	Program Length (assuming full-time, uninterrupted study) NOTE: In this study, all program lengths are combined unless otherwise stated		
	2 years ^d	103	1.0
	3 years ^{d,e}	1837	18.6
	4 years	7037	71.1
	5 years	917	9.3

Note: column percentages may not sum to 100.0 due to rounding

^a Determined in the fall term; part-time students are excluded from the cohort definition

^b Ontario students make up the largest proportion of enrolments in the cohort from outside of the Maritimes. In 2002, Ontario students comprised 8.7% of the entire cohort; in 2003, this proportion increased 8.9 percentage points to 17.6%. This increase was associated with the elimination of grade 13 in Ontario which produced a double cohort. Since then, the proportion of Ontario students declined somewhat, and in 2007 stood at 10.4%.

^c A list of majors comprising each discipline cluster may be found at <http://www.mphec.ca/en/Resources/DisciplineClusters.pdf>

^d Includes students in 2 and 3-year Engineering diploma programs at associate institutions. They are included for the measurement of persistence but are excluded from the graduation rates because these students would complete their degree at another institution.

^e At some Nova Scotia institutions students can complete a 3-year Bachelor’s degree. In most institutions, for administrative purposes, all students in the Arts and Sciences are pooled in first year in either a 3-year or 4-year degree program regardless of the program they intend to finish. The most common degree completed is a 4-year degree.

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STUDENT PROGRESSION AND STATUS OVER SEVEN YEARS – 2001 COHORT

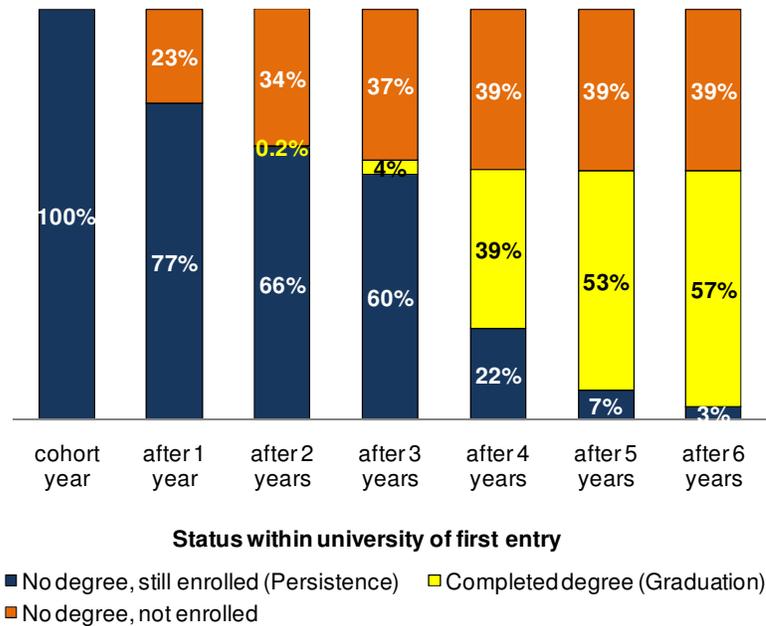
We begin our discussion by first examining the pattern of student persistence and graduation over seven years, among those who enrolled in three- or four-year degree programs in 2001 (Figure 1). We limit our detailed analysis in this section to these programs because program length can affect the time to completion. Three and four years are also the most common degree length and represents 89% of the 2001 cohort. These statistics are generated from data pooled from all Maritime universities for the 2001 cohort, but student progress and outcomes are still measured within institution of first entry.

AFTER ONE YEAR

The reference point for Figure 1 is the cohort year (2001), where 100% of the cohort is present. After one year (i.e., in second year), 77% of the cohort is still enrolled at the same institution. Over subsequent cohort years, this statistic varies by no more than 2 percentage points⁶ reaching a peak of 79% for the 2003 and 2004 cohorts. The remaining 23% are not enrolled; this figure is also known as the attrition rate. A certain proportion of these 'leavers' end up returning to their original institution (sometimes referred to as 'stop-outs'). As part of this analysis, we are able to track these students when they return and they are counted within the overall persistence and graduation statistics in this report: 19% of those not enrolled after one year ($N=2,018$) ended up re-enrolling at some point over the next five years.

As this analysis is focussed on within-institution activity, the proportion of those not enrolled who transferred to another institution to resume studies, or who discontinued their studies indefinitely, is unknown. However, findings from *Moving Through, Moving On*⁷, which analysed student

Figure 1: Within-institution status (in the fall term) of the 2001 cohort ($N=8,854$) who enrolled in 3- or 4-year programs in the cohort year, all Maritime universities combined



mobility patterns for 2001-2004, can provide an estimate of these numbers: of the 20.2% who left their institution, one-quarter had actually switched to another post-secondary institution⁸ in the Atlantic Region, with the remaining three-quarters counted as leavers both from the perspective of the institution, as well as the Atlantic post-secondary 'system'.

AFTER TWO YEARS

After two years, persistence declines by 11 percentage points to 66%. After three years, the figure falls another six percentage points to 60%. However, by this time, a small proportion (4%) of the cohort has completed a degree. From the perspective of attrition, then, there is only a three percentage point change in the rate after two and three years (from 34% to 37%).

GRADUATION

After four years, a substantial proportion (39%) of the cohort has completed a degree while another 22% are still enrolled. After the fifth and sixth years, the cumulative

degree completion rate increases to 53% and 57%, respectively, while the proportion who remain enrolled without yet completing a degree declines from 7% to 3%. After six years, 39% of the 2001 cohort has left the institution without completing a degree.

ARE MARITIME PERSISTENCE AND GRADUATION NUMBERS HIGH OR LOW?

Whether the statistics are high or low in the absolute sense, and whether any policies might be introduced to change them, is a judgement to be made by individual institutions and governments. However, the definitions of persistence, attrition and graduation used here are comparable to those in many other jurisdictions, and we are thus able to judge the relative status of the numbers.

It is well documented⁹ that students are most likely to leave between first and second year; in subsequent years that likelihood decreases substantially. Research from Canada and the United States indicates that the average first-year attrition rate

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usually falls between 20-25%¹⁰, (the corollary - average second-year persistence - would fall between 75-80%). The findings recorded here fall directly in that range. In addition, most recent U.S. research indicates a six-year graduation rate of 56%¹¹, again matching closely the findings from this research.

Exploring the statistics further, while close to 40% completed within the standard time frame, through full-time, uninterrupted study, the majority did not, following longer pathways (after six years, the cumulative graduation rate rises a further 17 percentage points to 57%), or leaving the institution without completing (39% within six years).

It is important to emphasize that this study follows student progress within the institution of first entry – what happens to the nearly 4-in-10 students who leave? Information available from other research can shed some light on this question. According to research from the Youth in Transition Survey, the five-year graduation rate of Canadian university students rises from 52% to 69% if students who switch programs and complete their degree at another institution¹² are included. In another study, 28% of students had transferred to another institution within five years of initial enrolment while 16% left post-secondary education completely¹³. Thus, by shifting the focus from the institutional perspective to the student perspective, the research indicates that persistence and degree completion are actually higher than that recorded within-institution.

It is important to note in this context that many institutions recruit students to complete one or two years of study, with some emphasizing “first year at home” study, after which point students can transfer to another institution to complete their studies, or take a program not offered at the institution closest to home. For example, the academic information at the Nova Scotia Agricultural College states: “This program is designed for

those students who are interested in beginning degree studies at a post-secondary institution, while continuing to live at home. You will have the opportunity to enrol in first year science or arts courses, with the option of transferring to another university afterwards.”¹⁴ In another example, *University Programs on the Miramichi*, offered by the University of New Brunswick (UNB Fredericton), Mount Allison University (MTA), and St. Thomas University (STU), is designed to enable qualified individuals to take university level courses in the Miramichi area. After completing their first year, students transfer to one of the sponsoring universities (or another university) to complete their degree programs¹⁵. It seems that at least some of the drop in persistence between first and third years is anticipated and even in some cases, the result of explicit marketing by the institution.

Related to this are programs offered by institutions that require at least one or two years of study at the bachelor level to be eligible for admission. These would include professional programs such as the Doctor of Veterinary Medicine, Bachelor of Laws, and Dentistry. In the Maritimes, the delivery of Engineering programs has a structure where several institutions offer the first two or three years of an Engineering degree (which culminates in a diploma¹⁶), and eligible students must transfer to one of three universities in the Maritimes (University of New Brunswick,

Université de Moncton, or Dalhousie University) to complete the degree.

FACTORS ASSOCIATED WITH PERSISTENCE

Aside from the pattern identified above, there are many important factors that influence a student’s progress and ultimate success in completing a degree, including parents’ level of education, motivation, academic preparation and financial factors¹⁷, but these are beyond the scope of this research. In this research the analysis is instead focused on the following variables available within the PSIS longitudinal file:

- Discipline cluster of program started in cohort year
- Gender
- Region of origin

The analyses that follow examine the entire cohort of first-year degree-seeking students, for all program lengths combined, focusing on two key statistics: persistence after one year and cumulative graduation rate after six years, (when most students will have completed their degree regardless of program length). Table 2 provides these statistics for the entire cohort.

It is notable that the persistence rate after one year varied by no more than two percentage points over six cohorts, ranging from 78% to 80% and averaging 79%. The percentage of students who completed a degree within six years at the university where they first enrolled was 58%.

Table 2 : Within-institution persistence after one year and graduation rate after six years in Maritime Universities, all program lengths combined

Cohort Year	2001	2002	2003	2004	2005	2006
<i>N</i>	9894	10155	11278	9900	9796	9453
Persistence after one year	78%	79%	80%	79%	78%	79%
<i>N</i>	9771 ¹					
Graduation after six years	58%					

¹ Excludes engineering students at associate universities

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DISCIPLINE CLUSTER IN COHORT YEAR

Evidence¹⁸ in the literature indicates that the persistence of students in professional/applied programs is higher than in other types, such as in the liberal arts. To analyse relationships by program or field of study a variable referred to as discipline cluster¹⁹ is used. The four categories within this variable are: (1) Humanities, Arts & Social Sciences (includes students with undeclared majors who are enrolled in Arts faculties); (2) Physical & Life Sciences and Mathematics (includes students with undeclared majors who are enrolled in Science faculties); (3) Applied Arts & Sciences/Professional; and (4) Commerce & Administration.

Assignment of students to categories is recorded in the cohort year; change of discipline in subsequent years is not analysed here.

Exploring the relationship between discipline cluster and student progress and outcomes (Figure 2), we note that persistence after one year was highest among those students who enrolled in Applied Arts & Sciences/Professional programs in the cohort year (84%). Students who had enrolled in Physical & Life Sciences and Mathematics programs followed closely with a persistence rate of 83% after one year. By comparison, 79% of those who enrolled in Commerce & Administration programs, and 73% of those who enrolled in Humanities, Arts and Social Sciences persisted after one year of studies. The gap between the highest and lowest rates was 11 percentage points.

A similar pattern emerged when comparing the graduation rates after six years across the disciplines, though the gap between Applied Arts & Sciences/Professional (65%) and Humanities, Arts and Social Sciences (52%) was slightly larger, standing at 13 percentage points.

A time series analysis (Figure 3) shows that for the entire period, persistence after one year of students who enrolled in Applied Arts &

Figure 2: Persistence after one year, and graduation rate after six years, by discipline cluster in the cohort year, 2001 cohort all program lengths combined

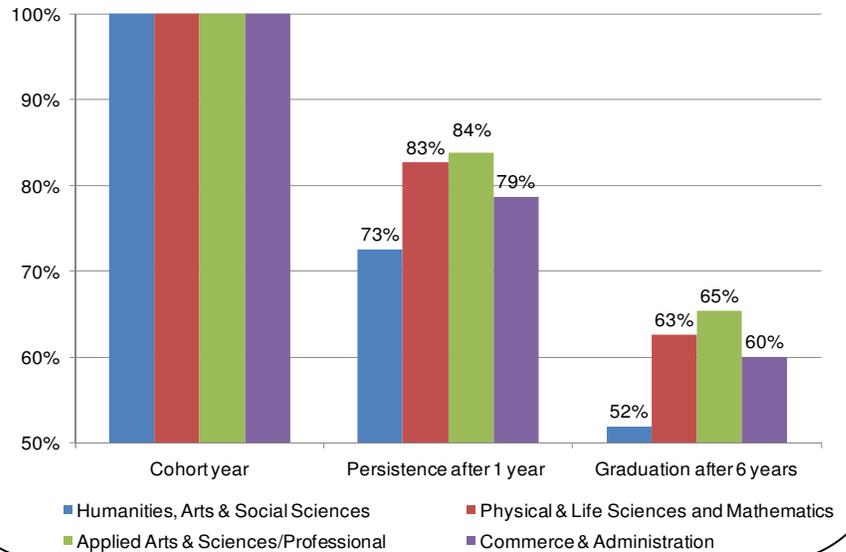
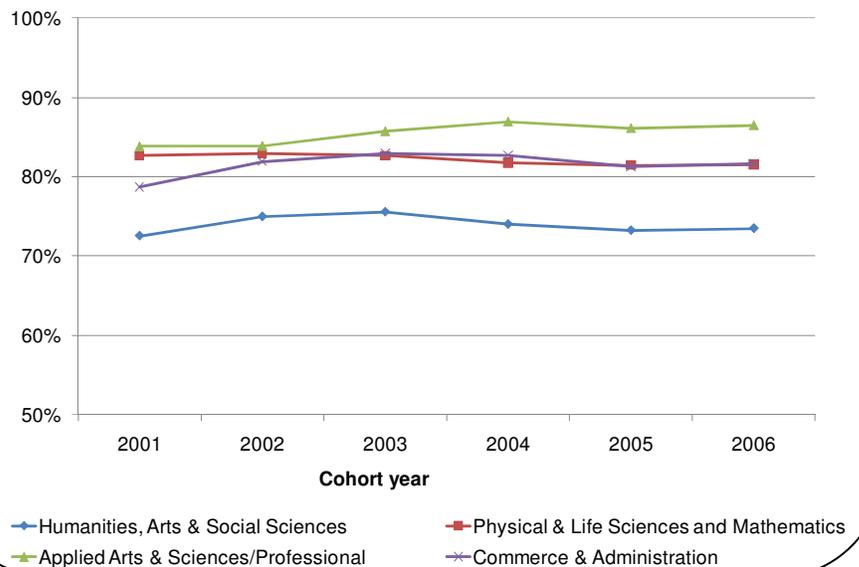


Figure 3: Persistence after one year by discipline cluster (recorded in the cohort year), cohort years 2001-2006 all program lengths combined



Sciences/Professional programs has consistently been the highest, and Humanities, Arts and Social Sciences programs, the lowest, of the four categories.

It is interesting to note that persistence after one year of those enrolled in Applied programs has increased since the 2001 cohort year, from 84% to 86%. By contrast, after an increase over two consecutive cohort years from 73% to 76%, the persistence rate of students in

Humanities, Arts and Social Sciences declined, and stood at 73% after one year for the 2006 cohort year.

Finally, while persistence for Physical & Life Sciences and Mathematics (83%) was greater than Commerce & Administration (79%) after one year for the 2001 cohort year, in subsequent cohorts these two statistics have converged, with both standing at 82% for the 2006 cohort year.

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Although there appears to be no direct match for these particular discipline clusters in the literature on persistence, the differences observed here do reflect the broad field-of-study patterns observed elsewhere²⁰, with the evidence indicating that persistence tends to be higher in applied programs than in liberal arts. The explanation given is that “students are more likely to stay in school when there is a clear connection in their minds between their studies and their intended career path”²¹ and this connection would be more explicit in Applied/Professional programs than in the liberal arts programs.

...A NOTE ABOUT PROGRAM LENGTH

Universities in the region offer bachelor’s degree programs of varying duration, from three-year to five-year. A separate analysis was conducted to examine the relationship between persistence/graduation and program length. The key finding was that persistence and graduation rates were higher for students in five-year programs than in three- or four-year programs. Specifically, 83% of those in the 2001 cohort who began in five-year programs persisted after one year, as compared to 77% of those who enrolled in three- or four-year programs: Furthermore, this gap was fairly consistent over time, varying between six and eight percentage points between the 2001 and 2006 cohorts. There was also a gap in the graduation rate after six years, with 64% of those who began in five-year programs, and 57% of those who enrolled in three- or four-year programs, completing their degree within six years.

On further investigation, it turns out that much of this difference is due to the influence of the discipline cluster—nearly seven-in-ten students enrolled in five-year programs (Table 3) are in Applied Arts & Sciences/Professional programs, which, as explained above, are strongly linked to higher persistence rates. By comparison, three- and four-year

programs are more heavily weighted toward the liberal arts (Humanities, Arts & Social Sciences), which have the lowest persistence rates.

GENDER

An analysis by gender revealed differences in the graduation rate after six years but not in persistence after one year. For the 2001 cohort, persistence varied by one percentage point between women (78%) and men (77%) (Figure 4). Looking at the trend over six cohorts, the rates, and the size of the gap, have remained relatively stable (Figure 5). It is also worth noting that there is no gender gap for the 2006 cohort.

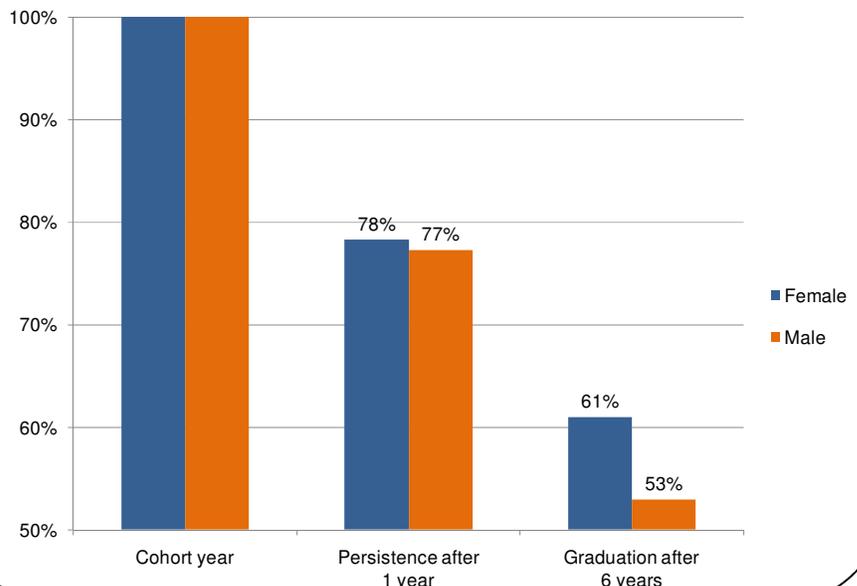
There is, however, an eight percentage point difference in the graduation rate after six years between women (61%) and men (53%) (Figure 4). It is interesting to note that the statistic for men exactly matches that recorded in the U.S.²², while the women’s graduation rate is two percentage points higher than that recorded in the U.S. (59%).

The difference in the size of the gap in the persistence rate after one year and the six-year graduation rate is seven percentage points. There are two potential sources of the difference: persistence rates in the intervening years, and in the time needed to accumulate academic credits that can be applied to complete a particular program.

Table 3: Distribution of students by discipline cluster and program length

Discipline Cluster	Program Length	
	3 & 4 year (%)	5 year (%)
Humanities, Arts and Social Sciences	48	11
Physical & Life Sciences and Mathematics	22	0
Applied Arts & Sciences / Professional	15	69
Commerce & Administration	15	20

Figure 4: Persistence after one year, and the graduation rate after six years, by gender, 2001 cohort; all programs lengths combined



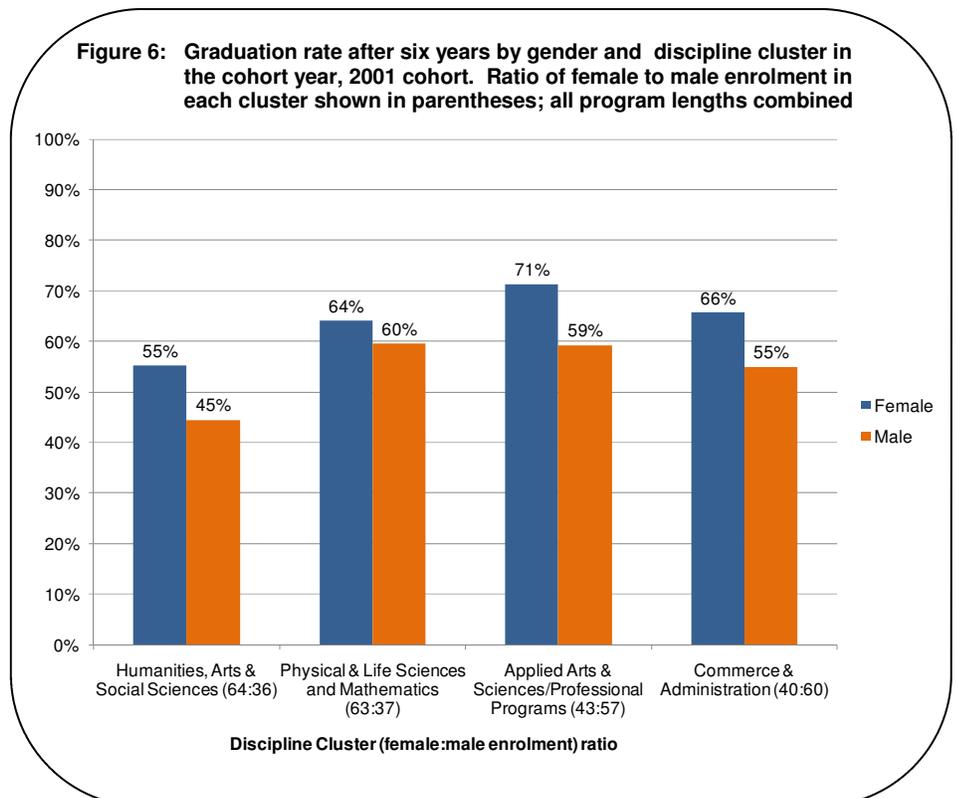
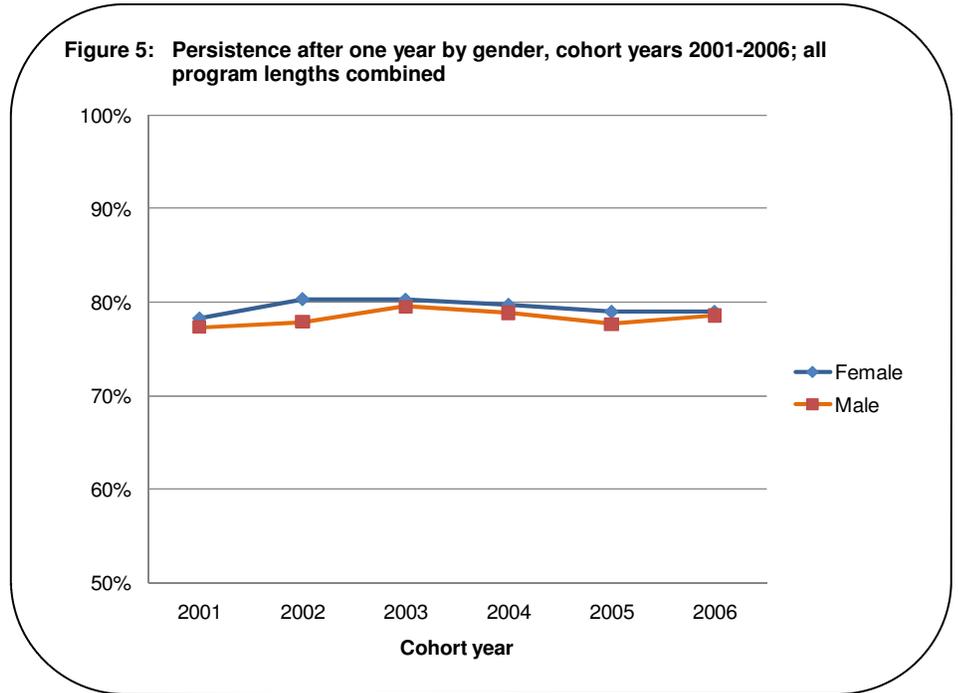
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Although the current analysis does not specifically investigate the latter we do note a difference in persistence particularly after four years, where 30% of men are still enrolled without having yet completed a degree as compared to 21% of women. This is due at least in part to greater proportions of men (14%) than women (7%) enrolled in five-year programs, and who therefore need more time to accumulate sufficient credits to graduate. The difference is smaller after six-years, where five percent of men are still enrolled without having completed a degree, as compared to three percent of women. The gender difference in degree completion rates is more likely due to the greater proportion of men leaving the institution without having completed a degree. After four years, 41% of men are no longer enrolled at the institution compared to 36% of women. These proportions remain essentially the same after six-years.

An analysis of the graduation rate after six years by gender within discipline cluster shows another important difference (Figure 6): the gap in the graduation rate between men and women was 11 or 12 percentage points for all discipline clusters except Physical & Life Sciences and Mathematics, where the gap was four percentage points.

Examining this difference further, again the gender difference can be linked to the greater proportion of men leaving the institution before completing a degree (for each discipline cluster there was a 9 to 10 percentage point difference between the proportion of men and women who left the institution without completing a degree except for the Physical & Life Sciences and Math, where the difference was four percentage points).

We also find differences in major fields of study for men and women within discipline clusters. Within Applied or Professional programs, women are more likely to be enrolled in Education (37%) or Health



professions (32%), while men are more likely to be enrolled in Engineering (40%) and Computer Science programs (34%), but within

each of these fields of study women showed higher degree completion rates.

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REGION OF ORIGIN

With students from outside the region making up ever-greater proportions of enrolment in Maritime universities²³, it is important to explore the relationship between student progress and outcomes, and geographic origin. For this analysis, students were assigned to one of three categories: (1) those who were from the Maritimes, studying either in their home province, (2) those studying outside home province, and (3) those who were living outside the region prior to enrolment. A breakdown by province of origin may be found in Table 1.

Figure 7 illustrates persistence after one year and graduation rates after six years for these groups as well as for the two Maritime groups combined. For the 2001 cohort, students who came from outside the region to study were more likely to persist after one year (81%) than those students who were originally from the Maritimes (77%), a gap of four percentage points. The difference between Maritimers studying in their home province (77%) and those studying outside their home province (76%) was small.

The differences among the groups in the six-year graduation rate was somewhat larger, with 63% of non-Maritimers and 57% of Maritimers having graduated within six years of first enrolling, a gap of six percentage points. Maritimers studying outside their home province had a graduation rate (60%) three percentage points higher than those who were studying in their home province (57%).

It is interesting to note that the persistence rate of Maritimers has not changed more than a percentage point over the last five cohorts, ranging between 78% and 79%. The persistence trend of non-Maritimers follows a different pattern, however; after increasing between the 2001 (81%) and 2003 (85%) cohorts, it declined, reaching 81% for the 2005 cohort (Figure 8). In 2006, the rate was 83%. It should be noted that the

peak rate recorded for the 2003 cohort coincides with the peak year of enrolments from the Ontario double cohort. Notably, the gap in the rate between those from the Maritimes and those from outside the region, though somewhat variable in size (ranging from three to seven

percentage points), is nevertheless continuously present.

The persistence rate after one year for Maritimers studying in another Maritime province was two percentage points higher than the rate for Maritimers studying in their home province for some cohorts (Figure 8).

Figure 7: Persistence after one year and graduation rate after six years by region of origin, 2001 cohort; all program lengths combined

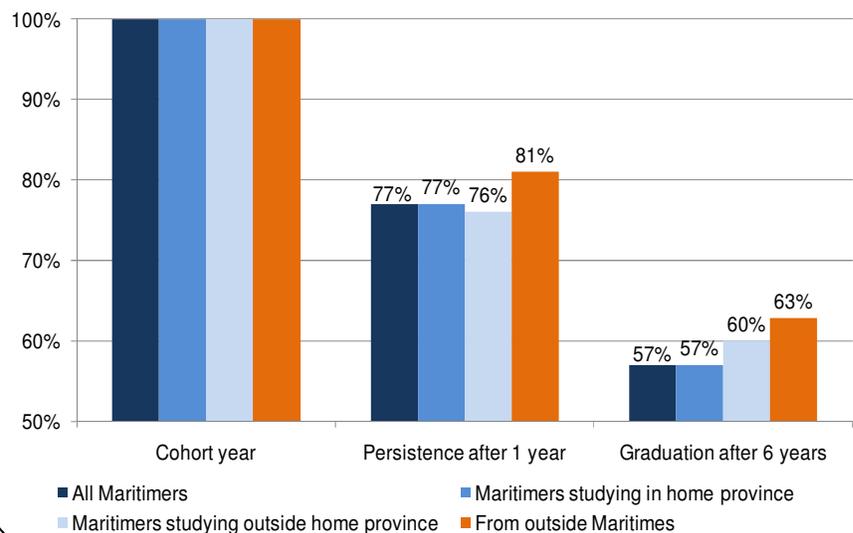
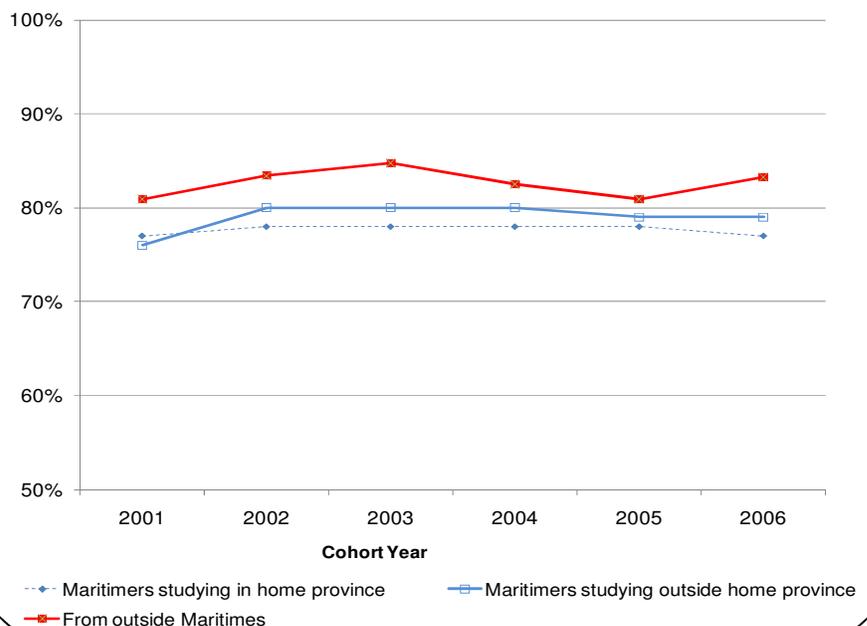


Figure 8: Persistence after one year by region of origin, cohort years 2001-2006; all program lengths combined



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...A NOTE ABOUT THE ONTARIO DOUBLE COHORT

It should be noted that further examination of the data shows an impact on certain trends which are associated with the peak enrolments of students from Ontario, coinciding with the Ontario double cohort (created by the elimination of grade 13 in 2003). These trends are:

- Figure 3: The 2003 peak in the persistence after one year of students in the Humanities Arts and Social Sciences is associated with increased enrolment of Ontario students.
- Figures 7 and 8: When the students from Ontario are excluded from the “outside the Maritimes” group, we find that the persistence after one year for the outside Maritimes group is lower (ranging between 76% and 82% between the 2001 and 2006 cohorts), with a negligible difference from the Maritimer statistic.

There appears to be some evidence that this group of students (from Ontario) tends to be somewhat more likely to persist. Given these findings, it would be interesting to compare the two-year persistence and six-year graduation rates of Ontario students studying in Ontario.

SUMMARY AND IMPLICATIONS

STUDENT PROGRESSION AND STATUS OVER SEVEN YEARS AMONG STUDENTS BEGINNING IN A THREE-OR FOUR-YEAR PROGRAM – 2001 COHORT

- Less than half (40%) of students beginning in a four-year degree program follow a full-time, uninterrupted course of studies to complete within that time frame, drawing attention to the fact that the majority do not follow this “traditional” educational path. After six years of study, 57% had completed a degree at the university of first entry.

- These findings also show that the greatest drop in persistence occurs between first and second year. Twenty-three percent of the 2001 cohort did not enrol in the second year; however, because the analysis focuses on institution of first entry, it is not known what proportion transferred institutions or did not resume studies. We do know that of those who left after the first year, 19% returned to the institution within the next five years.
- By the sixth year, 39% of the cohort had left the institution of first entry without having completed a degree.
- Whether or not these statistics are judged to be high or low in the absolute sense, they do match closely those in the literature, based on research conducted in Canada and the U.S.

FACTORS AFFECTING PERSISTENCE AFTER ONE YEAR AND THE SIX-YEAR GRADUATION RATE

- On average, 79% of direct-entry students (all program lengths combined) in the Maritimes return to the same university after one year and 58% complete a degree within six years.
- Discipline cluster is a key factor associated with persistence and graduation within the university of first entry. Students enrolled in programs which are applied or professional in their orientation are the most likely to persist and to graduate, and those enrolled in the Humanities, Arts & Social sciences, the least likely. This pattern reflects existing research, and is often linked to a clearer connection between a student’s studies and their future career.
- While gender is weakly associated with differences in persistence after one year, the difference is greater in subsequent years. Gender is also linked to the six-year

graduation rate, with women more likely to have graduated after six years than men. The difference is due mostly to a greater proportion of men leaving the institution before having completed a degree, and to a lesser extent, among those who persist, to men taking longer to complete.

- Students who move to study (Maritimers studying outside their home province, and students from outside the region) are more likely to persist and graduate within 6 years. The effect seems to be strongest among students from Ontario.

IMPLICATIONS

- Although there are certain limitations to this work, namely that the analysis of student progress is confined to the institution of first entry, it nevertheless provides important insight into the patterns of student progress and outcomes within Maritime universities.
- The focus on a homogenous group – those students entering university directly from high school provides a benchmark by which stakeholders can begin to think about questions related to student persistence and graduation, and what the optimal situation should be from the perspective of both students and institutions.
- Although the paper compares Maritime statistics to those from other jurisdictions, the purpose is not to judge whether these numbers are high or low but simply to demonstrate that typical student patterns of progress which exist elsewhere are also present in the Maritimes.

The Commission welcomes discussion and insights that the reader may wish to share, particularly as it moves on to the next stage of work, which will

STUDENT PROGRESSION WITHIN UNIVERSITY OF FIRST ENTRY: PERSISTENCE AND GRADUATION

expand the knowledge base of persistence and graduation in the Maritimes through the provision of institutional level statistics of the direct-entry group. Further analysis will expand the scope to include non-traditional students at the bachelor level (older students, transfer students) as well as graduate students.

Endnotes

- ¹ Parkin, A. and Baldwin N. 2009. *Persistence in Post-secondary Education in Canada: The Latest Research*. Canada Millennium Scholarship Foundation.
- ² A Working Group was established to assist the Commission develop measures of student progress and outcomes. For more information, see <http://www.mphec.ca/en/about/StudentProgressandOutcomesWorkingGroup.aspx>
- ³ Parkin, A. and Baldwin N. 2009. *Persistence in Post-secondary Education in Canada: The Latest Research*. Canada Millennium Scholarship Foundation.
- ⁴ Hagedorn, L. 2005. How to define retention: A new look at an old problem. *Transfer and Retention of Urban Community College Students* (TRUCCS). USC Rossier School of Education.
- ⁵ When comparing persistence or graduation rates to the overall cohort mean we used a conservative Confidence Interval (CI) for the proportion (p) calculated as follows:

$$\cong z \sqrt{\frac{p(1-p)}{N}}$$

CI \cong 2 Standard Errors, where $p = 0.5$ and N is the population size. When comparing two proportions, p_1 and p_2 , the Confidence Interval for the difference was calculated as:

$$\cong z \sqrt{\frac{p_1(1-p_1)}{N_1} + \frac{p_2(1-p_2)}{N_2}}$$

CI \cong 2 Standard Errors, where $p_1 = 0.5$ and $p_2 = 0.5$, and N_1 and N_2 are the respective population sizes.

- ⁶ Persistence After One year by Cohort Year (among students who enrolled in three and four year programs)

cohort	N	Persistence after 1 year
2001	8854	77%
2002	9126	79%
2003	10064	79%
2004	8874	79%
2005	8818	78%
2006	8573	78%

- ⁷ Finnie, R. and Qiu, H. 2009. *Moving Through, Moving On: Persistence in Post-Secondary Education in Atlantic Canada*. Council of Atlantic Ministers of Education and Training, The Millennium Scholarship Foundation and Statistics Canada.
- ⁸ The scope of analysis in this study was limited to publicly-funded universities and community colleges. Those students who switched either to a private post-secondary institution or any post-secondary institution outside the region would be included in the "leavers" statistic.
- ⁹ Parkin, A. and Baldwin N. 2009. *Persistence in Post-secondary Education in Canada: The Latest Research*. Canada Millennium Scholarship Foundation.; Finnie, R. and Qiu, H. 2008. "Is the glass (or classroom) half-empty or nearly full? New evidence on persistence in post-secondary education in Canada". In Finnie, R. et al. 2008. *Who Goes? Who Stays? What Matters? Accessing and Persisting in Post-secondary Education in Canada*. School of Policy Studies, Queen's University; Grayson, J.P and Grayson, K. 2003. *Research on Retention and Attrition*. Canada Millennium Scholarship Foundation: "Indicateurs de cheminement des étudiantes et étudiants inscrits au baccalauréat dans les universités québécoises. Bulletin statistique de l'éducation No. 23."

- ¹⁰ Grayson, J.P and Grayson, K. 2003. *Research on Retention and Attrition*. Canada Millennium Scholarship Foundation.
- ¹¹ National Center for Education Statistics. 2009. "Enrolment in Post-secondary Institutions, Fall 2007; Graduation Rates, 2001 & 2004 Cohorts; and Financial Statistics, Fiscal Year 2007." U.S. Department of Education.
- ¹² Finnie, R. and Qiu, H. 2008. Is the glass (or classroom) half-empty or nearly full? In Finnie, R. et al. 2008. *Who Goes? Who Stays? What Matters? Accessing and Persisting in Post-secondary Education in Canada*. School of Policy Studies, Queen's University.
- ¹³ *Ibid.*
- ¹⁴ <http://nsac.ca/prospectivestudents/programs/localstudents/>
- ¹⁵ Each of the three participating universities (University of New Brunswick, St. Thomas University and Mount Allison University), offers a selection of courses, from which a full- or part-time program is constructed. One university is chosen as the "home or host" institution, although the student is not required to continue their studies at the host university. <http://extend.unb.ca/brochures/miramichi.pdf>
- ¹⁶ Engineering diploma students at associate universities are included in persistence statistics but not in the graduation rate statistics.
- ¹⁷ Parkin, A. and Baldwin N. 2009. *Persistence in Post-secondary Education in Canada: The Latest Research*. Canada Millennium Scholarship Foundation.; Finnie, R. and Qiu, H. 2008. "Is the glass (or classroom) half-empty or nearly full? New evidence on persistence in post-secondary education in Canada". In Finnie, R. et al. 2008. *Who Goes? Who Stays? What Matters? Accessing and Persisting in Post-secondary Education in Canada*. School of Policy Studies, Queen's University; Grayson, J.P and Grayson, K. 2003. *Research on Retention and Attrition*. Canada Millennium Scholarship Foundation.
- ¹⁸ Grayson, J.P and Grayson, K. 2003. *Research on Retention and Attrition*. Canada Millennium Scholarship Foundation.
- ¹⁹ A list of majors comprising each discipline cluster may be found at: <http://www.mphec.ca/en/Resources/DisciplineClusters.pdf>
- ²⁰ Éducation Québec. 2002. *Bulletin statistique de l'éducation*; Grayson, J.P and Grayson, K. 2003. *Research on Retention and Attrition*. Canada Millennium Scholarship Foundation.
- ²¹ Parkin, A. and Baldwin N. 2009. *Persistence in Post-secondary Education in Canada: The Latest Research*. Canada Millennium Scholarship Foundation.
- ²² National Center for Education Statistics. 2009. *Enrolment in Post-secondary Institutions, Fall 2007; Graduation Rates, 2001 & 2004 Cohorts; and Financial Statistics, Fiscal Year 2007*. U.S. Department of Education.
- ²³ Maritime Provinces Higher Education Commission. "2007 Surveying the Enrolment Landscape: Factors and Trends in Maritime University Enrolment: 2000-2001 to 2005-2006." *Trends in Maritime Higher Education* Volume 5, Number 1.



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