

## Insights on Canadian Society

# Completion of a college certificate or diploma after a bachelor's degree

by Katherine Wall

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# Completion of a college certificate or diploma after a bachelor's degree

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## Overview of the study

Using data from the 2016 Census of Population and the Postsecondary Student Information System, this study examines the characteristics and outcomes of recent college graduates with a prior bachelor's degree.

- Among recent graduates of Canadian college certificate or diploma programs, 14% had previously completed a bachelor's degree or higher: 9% had completed a bachelor's degree or higher at a Canadian postsecondary institution and 5% had completed a foreign bachelor's degree or higher.
- In most cases, the college programs taken by people with a prior Canadian bachelor's degree did not replace their bachelor's degree, but instead provided more specialized, labour-market-directed applications of skills related to the field of study of the bachelor's degree.
- College graduates who had a previous Canadian bachelor's degree were more likely than those without one to have studied college programs such as human resources management and services or registered nursing specializations, and less likely to study fields such as the trades or childcare.
- People with a previous Canadian bachelor's degree who completed their college credential at age 35 or older were more likely than their younger counterparts to study fields similar to the ones chosen by college graduates without a bachelor's degree.
- People with a previous Canadian bachelor's degree who completed their college credential before age 35 were more likely to study fields that could complement and enhance the value of their bachelor's degree.
- College graduates with a previous Canadian bachelor's degree frequently held occupations that were closely related to their college field of study.

## Introduction

Although completing a college certificate or diploma program after a bachelor's degree has long been a topic of interest for federal policy makers and academic organizations, its prevalence and nature have not been clearly characterized to this day. According to some studies, this pathway largely consists of people with bachelor's degrees in the 'liberal arts' who are pursuing college because they have been unable to find work since completing their bachelor's.<sup>1</sup> Other studies indicate that students in this pathway tend to be older (in their 30s) and are seeking training that is related to their current job or directed towards a career change.<sup>2</sup>

Many of the studies exploring this issue have been limited to a single institution or a single subnational region, or have faced challenges related to limited sample size.<sup>3</sup> Additionally, many are from the United States. However, Canada differs from the United States, and from most other industrialized countries, in the strength and size of its college system. First, the proportion of Canadians with a college certificate or diploma as their highest level of education is larger than that of any other Organisation for Economic Co-operation and Development country.<sup>4</sup> Second, in contrast with the United States, where community colleges mainly

provide a starting point for entry into a university degree, Canada's college system has a large number of career-oriented programs. Third, in recent years, Canadian colleges have increasingly offered college postgraduate credentials—that is, credentials that typically require a previous postsecondary credential (e.g., a college diploma or bachelor's degree) as a prerequisite for entry. The number of students completing these college postgraduate credentials has risen from fewer than 1,000 in the year 2000 to more than 18,000 in 2017, representing 8% of all college graduates for that year.<sup>5</sup> As of yet, there has been little research on how common these college postgraduate credentials are among college graduates with a prior bachelor's degree.

The National Graduates Survey provides valuable context on the bachelor's-to-college pathway in Canada. It found that 7% of bachelor's degree graduates from the class of 1990 completed a non-degree college credential within five years of their bachelor's degree, and 6% of those from the class of 2015 had completed or were still enrolled in a non-degree college credential within three years of completing their bachelor's degree.<sup>6</sup> Pursuing these college credentials was most common among graduates from the bachelor's fields of visual and performing arts and communications technologies (11%); agriculture, natural resources and conservation (10%); physical and life sciences and technologies (10%); humanities (9%); and social and behavioural sciences and law (8%).<sup>7</sup> The most common college fields of study pursued by people in the bachelor's-to-college pathway—accounting for two-thirds of all

their college programs—were business, management and public administration; health and related fields; and social and behavioural sciences and law.<sup>8</sup> However, these data only include students who pursued their college credential relatively soon after finishing their bachelor's degree; do not specifically identify college postgraduate credentials; and do not have the sample size to allow the detailed field-of-study comparisons that would provide a clear understanding of relationships between the bachelor's and college credentials.

This paper fills the data and knowledge gap on college credentials completed after a bachelor's degree, by providing a clear characterization of this pathway's prevalence, nature and outcomes. It combines data from the Postsecondary Student Information System (PSIS) with data from the 2016 Census of Population to examine recent graduates from public colleges in Canada (i.e., those who graduated between 2010 and 2018) who had a prior bachelor's degree (see [Data sources, methods and definitions](#)).

The study contributes to existing knowledge in several ways. First, it includes individuals who completed their college credential many years after their bachelor's degree, that is, those who may be older and mid-career. Second, it compares recent college graduates with a bachelor's degree to those without one, giving a clearer perspective on the complex composition of the college population. Third, it is the first article to examine college postgraduate credentials in relation to the bachelor's-to-college pathway. Fourth, the study's large sample size allows for the examination of connections between bachelor's

degrees and subsequent college credentials by detailed field of study. Lastly, examining the relationship between occupation and detailed field(s) of study sheds light on the role of both the bachelor's degree and college credential in graduates' labour market outcomes.

Although this article deals with findings prior to the COVID-19 pandemic, it provides important insights to better understand non-traditional educational pathways, which may become more common in the current context. In particular, undertaking college studies after having completed a bachelor's degree may become a reality for a number of workers whose sector has been more severely impacted by the pandemic. While it is still early to evaluate the structural and longer-term changes to the economy caused by the pandemic, it is already clear that some industries such as accommodation and food services and arts, entertainment and recreation have been hit the hardest. Many workers from these sectors may have to complete a new program to start a new career or to build on their existing skills and knowledge.

In addition, the demand for workers from the health sector remains high in the current context of the pandemic. As this study shows, some of the college health programs that were common among bachelor's degree holders who completed a subsequent college credential, such as registered nursing, are particularly relevant to the pandemic response. Therefore, understanding this educational pathway sheds light on its importance to Canada's supply of skilled workers in certain crucial careers.

### About 14% of recent college graduates had previously completed a bachelor's degree or higher

Among recent graduates of Canadian college certificate or diploma programs (i.e., those who graduated between 2010 and 2018), 8% had previously completed a bachelor's degree at a Canadian postsecondary institution<sup>9</sup> and another 1% had previously completed a Canadian credential above the bachelor level (e.g., master's or doctoral certificate, diploma or degree). Furthermore, 5% had previously completed a bachelor's degree or higher in another country. However, this last group is not discussed in the current article because their characteristics and outcomes are very different from those of Canadian degree holders.

In this article, recent college graduates with a prior bachelor's degree refers only to those with a bachelor's degree from a Canadian institution followed by a college certificate or diploma.<sup>10</sup> These

college certificates and diplomas are also referred to as college credentials.

Among the provinces, the proportion of college graduates who had a prior Canadian bachelor's degree was highest in Ontario and British Columbia (both at 12%), followed by Nova Scotia (9%) (Chart 1). It was lowest in Quebec (2%).<sup>11</sup>

These provincial differences can be explained in large part by provincial differences in post-secondary education systems. One major component of Quebec's postsecondary system (accounting for 4 in 10 of its recent college graduates) is the completion of a two-year pre-university diploma at a CEGEP (Quebec college), followed by a three-year baccalaureate at a university. People entering these general pre-university CEGEP programs do not typically have a prior bachelor's degree.

In contrast, Ontario and British Columbia have numerous postgraduate credential programs. These are college programs with

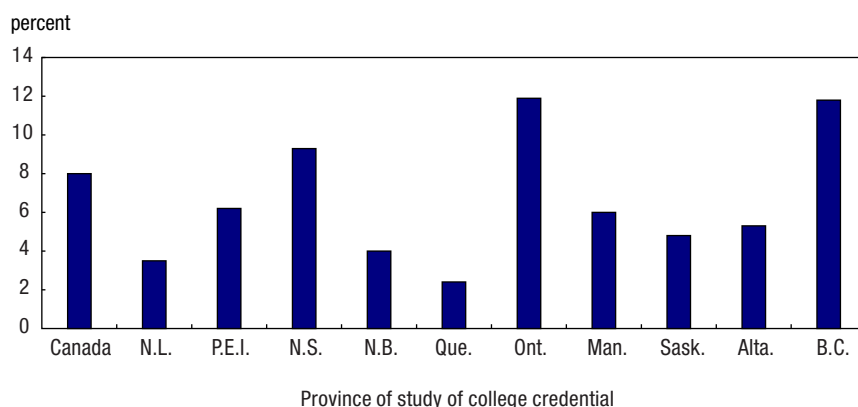
program-specific entry requirements beyond a high school diploma, such as a previous college credential or bachelor's degree in a related field. Some also allow entrants without a prior postsecondary credential but with relevant work experience, on a case-by-case basis. These programs typically build on existing skills and knowledge and are often directed at specific careers. The names of these programs—including graduate certificates, post-degree diplomas and post-baccalaureate certificates—may vary depending on the province, institution and specific nature of the credential. In this article, they are all described as college postgraduate credentials.

Among people who had a college credential as their most recent credential, college postgraduate credentials made up 10% of all non-degree college credentials completed between 2010 and 2018 in Ontario, 5% in British Columbia and Saskatchewan, and 4% in Nova Scotia, compared with 2% or less in all other provinces. Furthermore, the vast majority of college postgraduate credentials (over 90%) were completed in Ontario or British Columbia.

Recent college graduates with a prior bachelor's degree tended to be older (median age at graduation of 26) than those without one (median age at graduation of 22). They were also more likely to graduate from college at age 35 or older (19%) than those without a prior bachelor's degree (13%). Graduation at age 35 or older could suggest a career change or return to the labour market after an absence. Recent college graduates with a prior bachelor's degree were also more likely to be women (68%) than those without a bachelor's degree (56%).

**Chart 1**

**Proportion of college graduates<sup>1</sup> who had previously completed a bachelor's degree in Canada, by province of study of college credential, 2010 to 2018**



1. Includes those who graduated between 2010 and 2018.

Source: Statistics Canada, Education and Labour Market Longitudinal Platform, 2010 to 2018.

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### Recent college graduates with a prior bachelor's degree were more likely than those without a bachelor's degree to study fields such as human resources or registered nursing specializations

Among recent college graduates (excluding those who graduated from pre-university programs),<sup>12</sup> the most common college fields of study for those with a prior bachelor's degree were business, management and public administration (28%); health and related fields (24%); and social and behavioural sciences and law (18%). This is consistent with similar findings from other studies.<sup>13</sup> The most common specific fields of study were human resources management and services (8%) and registered nursing specializations (6%).<sup>14</sup> Registered nursing specializations provide students with expertise in a particular field of nursing, such as critical care, surgical or neonatal nursing.

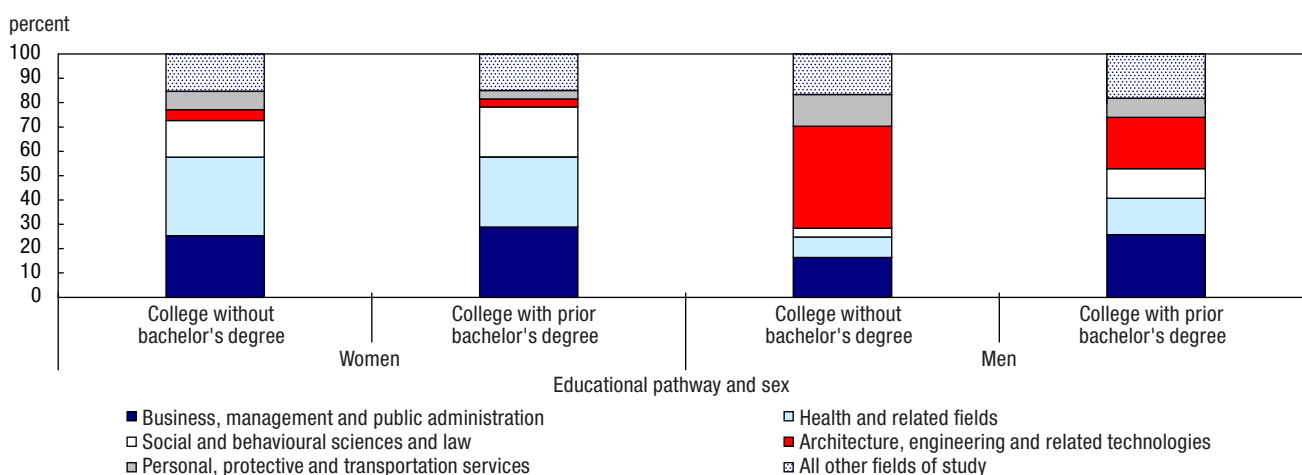
The two most common college fields of study for men overall were architecture, engineering and related technologies—which, at the college level, mainly consists of trades<sup>15</sup> and engineering technology—and business, management and public administration (Chart 2). Architecture, engineering and related technologies was more common among men without a prior bachelor's degree, while business, management and public administration was more common among men with a prior bachelor's degree.

Male college graduates with a prior bachelor's degree were 9 percentage points more likely than those without one to study business, management and public administration at college and, more specifically, 4 percentage points more likely to study in the business subfield of human resources management and services.<sup>16</sup> They were also 9 percentage points more likely to study social and

behavioural sciences and law, in fields such as geographic information science and cartography; public relations, advertising and applied communications; and paralegal programs. Lastly, male college graduates with a prior bachelor's degree were 7 percentage points more likely than those without one to study in health and related fields, including registered nursing specializations, paramedic programs, and medical laboratory science and allied professions. In contrast, they were half as likely as those without a prior bachelor's degree to study architecture, engineering and related technologies at college (21% vs. 42%).<sup>17</sup>

Unlike men, the broad field of study distribution for women who recently graduated from college differed comparatively little between those who had a prior bachelor's degree and those who did not. The most common fields of study among women were business, management

**Chart 2**  
College major field of study,<sup>1,2</sup> by educational pathway and sex, 2010 to 2018



1. Major field of study uses the primary groupings of the Classification of Instructional Programs 2016.

2. Excludes pre-university diplomas.

Source: Statistics Canada, Education and Labour Market Longitudinal Platform, 2010 to 2018.

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and public administration; health and related fields; and social and behavioural sciences and law. This was true for both groups of women—those who had a prior bachelor's degree and those who did not.

However, they differed in the specific college programs studied. Within business, management and public administration, women with a prior bachelor's degree were 7 percentage points more likely than their counterparts without one to study human resources management and services and 3 percentage points less likely to study business operations support and assistant services (e.g., secretarial programs). In health and related fields, they were more likely to study registered nursing specializations (by 7 percentage points), and less likely to study in health aide/attendant/orderly programs (by 5 percentage points) and vocational nursing programs (by 4 percentage points). In the field of social and behavioural sciences and law, they were slightly more likely to study in fields such as public relations, advertising and applied communications, and paralegal programs, and less likely (by 4 percentage points) to study in child care provider and assistant programs.

Furthermore, college postgraduate credentials made up a notable share of the college programs completed by those with a prior bachelor's degree. Three in ten (30%) recent college graduates with a prior bachelor's degree had a postgraduate credential as their college credential, including 33% of women and 24% of men. In contrast, only 2% of college graduates without

a prior bachelor's degree had a postgraduate credential as their college credential. These graduates may have had a previous (non-postgraduate) college certificate or diploma or been admitted on the basis of relevant work experience.

In some fields of study, a large share of the college programs completed by those with a prior bachelor's degree consisted of college postgraduate credentials. These credentials made up nearly two-thirds of college programs in the fields of human resources management and services (64%); over three-quarters of those in public relations, advertising and applied communications (77%); and 71% of registered nursing specializations. In comparison, they made up 2% of childcare provider and assistant programs.

### **Among recent college graduates with a prior bachelor's degree, the field of study of the college credential was often related to that of the bachelor's degree**

For recent college graduates with a prior bachelor's degree, the most common bachelor's field of study was social and behavioural sciences and law (33%), followed by the humanities (15%) (Chart 3). This is consistent with other findings.<sup>18</sup> Social and behavioural sciences and humanities are typically associated with higher over-qualification rates and lower earnings than other bachelor's fields of study. This may give students in these fields added incentive to pursue additional college studies.<sup>19</sup>

The bachelor's degree and college credential fields of study were often related to each other. For example, 78% of those whose bachelor's degree was in health and related fields, and 50% of those whose bachelor's degree was in physical and life sciences and technologies, studied health and related fields at college. Over half (56%) of those whose bachelor's degree was in business, management and public administration studied that field at college. Among those with a bachelor's degree in the social and behavioural sciences and law field or the humanities field, about 6 in 10 graduates had either business, management and public administration or social and behavioural sciences and law as their college field of study.

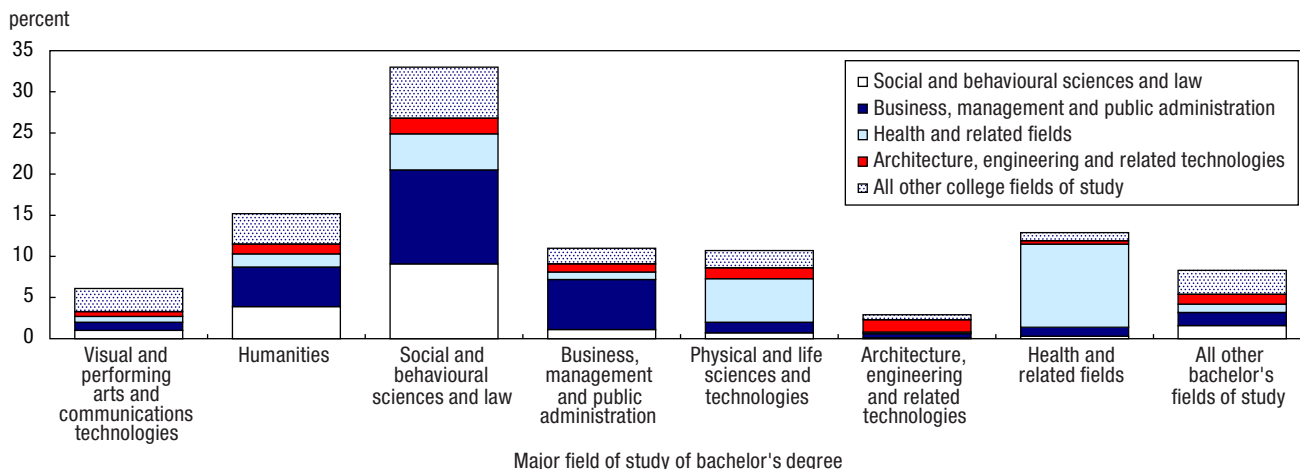
Chart 3 illustrates these findings, showing the most common combinations of bachelor's and college fields of study, including health to health, science to health, business to business, and social and behavioural sciences and law to either business or social and behavioural sciences and law. These patterns are similar to findings on individuals who completed any short (non-degree) university or college credential within six years of obtaining their bachelor's degree.<sup>20</sup>

These combinations can be examined in more detail to more clearly illustrate close relationships between bachelor's and college fields of study. Bachelor's degree holders in psychology or sociology were most likely to study either human resources management and services (17%) or social work (8%) at college. Within the humanities, common college programs for those

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**Chart 3**

**Distribution of recent college graduates with a prior bachelor's degree, by bachelor's degree and college credential major field of study,<sup>1</sup> 2010 to 2018**



1. Major field of study uses the primary groupings of the Classification of Instructional Programs 2016.

Source: Statistics Canada, Education and Labour Market Longitudinal Platform, 2010 to 2018.

with a bachelor's degree in English included public relations, advertising and applied communications (9%); publishing (7%); and journalism (5%). For those with a bachelor's degree in physical and life sciences and technologies, one of the most common college fields studied was medical laboratory science and allied professions (13%).

Among those with a bachelor's degree in health who completed a subsequent college program, about 40% had a bachelor's degree in registered nursing<sup>21</sup> followed by a college program in a nursing specialization (e.g., critical care or neonatal nursing). This is a very clear case of the college program enhancing skills established during the bachelor's degree. Bachelor's degrees in nursing are associated with high wages and a high job match,<sup>22</sup> so this is not generally a case of students needing to pursue

additional education to find work in their field. In fact, in many college nursing specialization programs, prior work experience as a registered nurse is a prerequisite for entry. The nursing specialization program can provide additional benefits, such as work in a desired specialty area.

However, there are also some cases where the college credential was in a field supporting the prior bachelor's degree: for example, going from accounting to accounting technology,<sup>23</sup> law to paralegal programs or registered nursing to vocational nursing. These paths could have provided an alternative for people who, after their bachelor's degree, did not complete the additional steps needed for professional accreditation (such as articling, and passing examinations to become a Certified Professional Accountant or lawyer). In addition, there are also cases where the two

fields were unrelated. For example, a wide range of different bachelor's degrees were followed by college credentials in childcare or paralegal programs. Nonetheless, these cases were exceptions to the general pattern. Overall, less than 10% of recent college graduates with a prior bachelor's degree studied in paralegal programs, childcare, vocational nursing or accounting technology.

The overall findings indicate that the college programs taken by individuals with a prior bachelor's degree did not replace their bachelor's degree but—instead—provided more specialized, labour-market-directed applications of skills related to the field of study of the bachelor's degree. Therefore, the bachelor's degree and college credential were typically complementary.



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### Among recent college graduates with a prior bachelor's degree, younger graduates were more likely to study programs related to their bachelor's degrees

Among recent college graduates with a prior bachelor's degree, 81% were younger than 35, while 19% were aged 35 and older. In addition, an analysis of 2015 college graduates found that most (79%) of the younger graduates completed their college credential within five years of their bachelor's degree, while most (88%) of the older group completed theirs more than five years after their bachelor's degree.<sup>24</sup>

The college fields of study of the two groups differed markedly. For example, younger graduates of both sexes were more likely than their older counterparts to study social and behavioural sciences and law (Chart 4), including fields such as

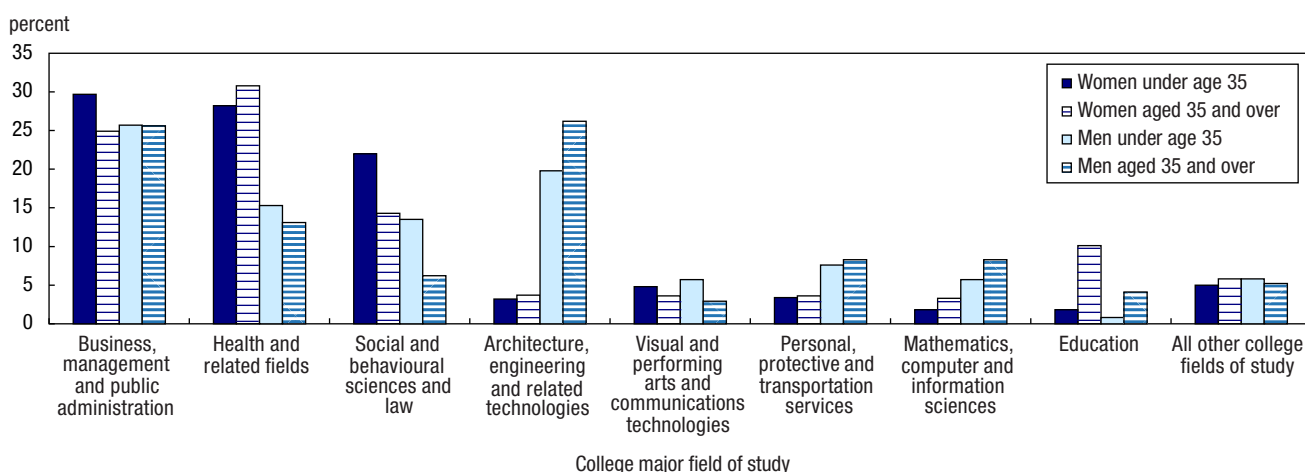
public relations, advertising and applied communications; journalism; and geographic information science and cartography. They were also more than twice as likely (33%) as older graduates (15%) to choose college postgraduate credential programs.

Older graduates, particularly women, were more likely than their younger counterparts to study education at college, including professional development for teachers, in teaching aide programs and teaching English as a second language. Older male graduates were also much more likely than their younger counterparts to study architecture, engineering and related technologies; they were 7 percentage points more likely to study the trades (i.e., construction trades, mechanic and repair technologies, precision production). Older female graduates were also more likely (by 1.5 to 3 percentage points in all

cases) than younger women to study in child care provider and assistant programs, business operations support and assistant services (e.g., secretarial programs), accounting technology, health and medical administrative services, vocational nursing, or health aide programs.

In short, younger men and women were more likely than their older counterparts to study a range of programs related to their bachelor's degrees. In contrast, programs more commonly taken by older graduates were similar to those taken by college graduates without a bachelor's degree and can be characterized as replacing the bachelor's degree rather than supplementing it. These programs may be directed at a career change or re-entering the workforce after a break in employment (e.g., because of job loss or childcare reasons).

**Chart 4**  
College major field of study<sup>1</sup> of recent college graduates with a prior bachelor's degree, by age and sex at college graduation, 2010 to 2018



1. Major field of study uses the primary groupings of the Classification of Instructional Programs 2016.

Source: Statistics Canada, Education and Labour Market Longitudinal Platform, 2010 to 2018.

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### Recent college graduates with a prior bachelor's degree often held occupations that were closely related to their college field of study

The bachelor's degree and college credential fields studied by recent college graduates with a prior bachelor's degree tended to be related to each other, and both fields tended to be related to their occupation. This relationship was particularly close between the college field and the occupation. For example, business and finance professions were generally the most common occupation among those who studied business at college,

for a variety of bachelor's degree fields (Table 1).<sup>25</sup> Likewise, health occupations were most common for those with a college credential in health.

Examining detailed college fields of study and occupations reveals how specific the relationship between the two can be. For example, 53% of those with a college credential in human resources management and services worked in occupations closely related to human resources.<sup>26</sup> Nearly half (45%) of those with a college credential in public relations, advertising and applied communications worked as professionals or managers in

advertising, marketing or public relations. In health fields, 88% of graduates from college paramedic programs worked as paramedics.

The bachelor's degree field of study could also have important connections to the occupation. This becomes clearer when examining not only the most common occupational group (as shown in the table below) but also all professional and technical health occupations. Among those with a college credential in health, 7 in 10 of those with bachelor's degrees in science or health worked in professional and technical health occupations,<sup>27</sup> compared with 5 in 10

**Table 1**

#### Most common occupation for college graduates from 2010 to 2014 with a prior bachelor's degree, by selected combinations of bachelor's degree and college credential major fields of study

Major field of study of bachelor's degree	Major field of study of college credential	Most common occupation <sup>1</sup>
Business, management and public administration	Business, management and public administration	Professional occupations in business and finance (23%)
Social and behavioural sciences and law		Professional occupations in business and finance (21%)
Humanities		Administrative and financial supervisors and administrative occupations (19%)
All other fields of study		Professional occupations in business and finance (15%)
General (non-specialized) registered nursing <sup>2</sup>	Registered nursing specializations <sup>3</sup>	Professional occupations in nursing (96%)
Health and related fields (other than the general-specialized nursing pathway)	Health and related fields (other than the general-specialized nursing pathway)	Technical occupations in health (40%)
Physical and life sciences and technologies	Health and related fields	Technical occupations in health (61%)
Social and behavioural sciences and law		Technical occupations in health (37%)
All other fields of study		Technical occupations in health (30%)
Social and behavioural sciences and law	Social and behavioural sciences and law	Paraprofessional occupations in legal, social, community and education services (20%)
Humanities		Paraprofessional occupations in legal, social, community and education services (15%)
All other fields of study		Paraprofessional occupations in legal, social, community and education services (25%)

1. National Occupational Classification (NOC) 2016 major groups.

2. Refers to CIP 51.3801.

3. Refers to all six-digit categories within CIP 51.38, except for CIP 51.3801.

**Note:** CIP stands for Classification of Instructional Programs, NOC stands for National Occupational Classification.

**Sources:** Statistics Canada, Education and Labour Market Longitudinal Platform, 2010 to 2014, and the 2016 Census of Population.

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of those with bachelor's degrees in social and behavioural sciences and law and with 4 in 10 of those with degrees in other fields.

In some cases, both the bachelor's degree and college credential fields of study were closely related to each other and to the person's occupation. For example, nearly all (96%) graduates with a bachelor's degree in (non-specialized) registered nursing followed by a college credential in a registered nursing specialization worked in nursing professions.

### Conclusion

This study uses data from the Postsecondary Student Information System combined with 2016 Census of Population data to provide new information on recent college graduates with a prior bachelor's degree.

Recent college graduates with a prior bachelor's degree were less likely than those without a bachelor's degree to have taken college programs in fields such as mechanic and repair

technologies, construction trades, childcare, secretarial programs, and vocational nursing. Instead, they were more likely to study fields directed at professional or technical occupations, such as human resources management and services; registered nursing specializations; or public relations, advertising and applied communications.

This was particularly true among recent college graduates with a prior bachelor's degree who graduated from their college program before age 35. In comparison, those who completed their college program at age 35 or older were more likely than their younger counterparts to study programs similar to those of college graduates without a prior bachelor's degree. This suggests that older college graduates were returning to school to pursue a career change, return to the workforce after an absence or react to a job loss.

Recent college graduates with a prior bachelor's degree frequently studied in related college fields that built on their bachelor's degree.

For example, going from a bachelor's degree in registered nursing to a registered nursing specialization, from sociology to social work, or from scientific fields to medical laboratory science. They also often held occupations that were related closely to their college field of study.

In summary, college graduates with a prior bachelor's degree—particularly younger ones—studied primarily in college programs that were related to their bachelor's degree, and they commonly found occupations that were also related to their studies. This shows that the bachelor's-to-college combination is typically not a case of one credential replacing another, but of the two credentials providing greater value to the graduate than either one would alone.

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**What proportion of bachelor's degree graduates pursued a college credential?**

Data from the Education and Labour Market Longitudinal Platform can also cast light on the proportion of bachelor's degree graduates who pursued or completed an additional credential within five years of completing their bachelor's degree.<sup>28</sup> Unlike the rest of the article, this does not provide information on individuals who completed their college diploma more than five years after their bachelor's degree, but it does give a picture of the educational pathways of recent bachelor's degree graduates.

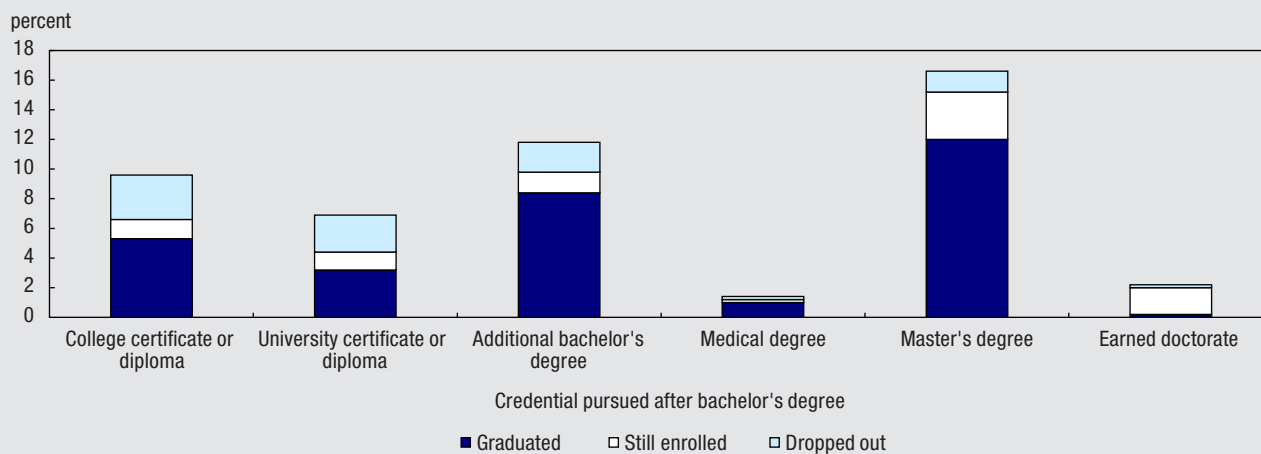
Overall, 40% of 2012 bachelor's degree graduates pursued a subsequent credential sometime between 2013 and 2018, and 28% had completed one as of the 2017/2018 academic year (this includes the possibility of a person pursuing multiple subsequent credentials). Of these graduates, 10% pursued a college certificate or diploma (from a public college), which was lower than the percentage of those who pursued a master's degree (17%) or an additional bachelor's degree (12%, mainly in education, law or registered nursing). However, pursuing a

college certificate or diploma was more common than pursuing a university certificate or diploma (7%); doctorate (2%); or degree in medicine, dentistry, optometry or veterinary medicine (1%) (Chart 5).

Of the 10% who pursued a college credential after their bachelor's degree, 5% completed the credential, 1% were still enrolled as of the 2017/2018 academic year and 3% dropped out (i.e., had not completed their credential and were not still enrolled in it as of 2017/2018).<sup>29</sup>

Pathways varied by province.<sup>30</sup> Bachelor's graduates from Ontario institutions were more likely to have completed a subsequent college certificate or diploma (8%) than those from other provinces (4% to 5% in British Columbia and each of the Atlantic provinces, 2% to 3% in the Prairie provinces, and less than 2% in Quebec). Bachelor's graduates from Quebec institutions were more likely to complete a university certificate or diploma instead (11% vs. less than 5% in all other provinces).

**Chart 5**  
**Proportion of 2012 bachelor's degree graduates who pursued a subsequent credential between 2013 and 2018, by credential type and completion status**



Source: Statistics Canada, Education and Labour Market Longitudinal Platform, 2012 to 2018.

### Data sources, methods and definitions

#### Data sources

The Postsecondary Student Information System (PSIS) is an administrative data file that records enrolments in and graduations from public colleges and universities in Canada. It provides extensive coverage from 2010 to 2018 and partial coverage prior to 2010. These records can be used longitudinally and combined with other data sources through the Education and Labour Market Longitudinal Platform. The 2016 Census of Population long-form questionnaire samples one-quarter of the Canadian population and provides education data on individuals who were aged 15 years and older at the time. This article uses a data integration between these two sources.

#### Target population

The target population for this article is individuals with a (non-degree) college credential as their most recently completed credential in PSIS,<sup>31</sup> and—at most—a bachelor's degree from a Canadian institution in the 2016 Census of Population. Census respondents with a foreign credential at the bachelor level or above, or with a Canadian credential above the bachelor level, were excluded. The total target population includes 20,721 recent (between 2010 and 2018) college graduates with a prior Canadian bachelor's degree, and 222,604 recent college graduates without a prior bachelor's degree.

Those who were recorded in the census as attending university during the September 2015 to May 2016 period and who had no bachelor's degree recorded in PSIS, as well as those who completed their most recent PSIS credential prior to age 21, were excluded from the target population to avoid including individuals who recorded an incomplete bachelor's degree as a completed one in the census. International students were also excluded, as they are less likely to link to the census than other groups within PSIS. In all other respects, the quality of the PSIS–census linkage was high.

Data on occupations included only individuals who completed their college credential between 2010 and 2014, as census data on occupations were for 2015/2016 (depending on when the person's most recent occupation was). This ensures that the occupation data reflect a person's situation after having completed their college credential, not during it.

The population of the supplementary analysis described in the box is all students in PSIS who completed a bachelor's degree in 2012. The population size for this analysis was 177,735.

#### Methodology

The analytical dataset was created by longitudinally arranging all of a person's recorded PSIS graduations from 2010 to early 2018 to create one PSIS record per person, identifying which PSIS credential they completed most recently,<sup>32</sup> then integrating the longitudinal PSIS data with the 2016 Census and applying census weights.

Only individuals who appeared in both PSIS and the 2016 Census were included in the target population. All data on the characteristics (e.g., major field of study) of the bachelor's degree are from the census. All data on the characteristics of the college credential are from PSIS. PSIS credentials were reclassified into groupings that are equivalent with the census categories and the details of this process can be provided upon request. Occupational data are from the census.

For the supplementary analysis described in the box, students in PSIS who completed a bachelor's degree in 2012 were linked longitudinally to their graduation records for the years 2012 to 2018 and their enrolment records for the academic years 2013/2014 to 2017/2018 to identify all subsequent enrolments and graduations (not only the most recent one).

#### Definitions

**Recent college graduates:** Individuals recorded in PSIS as having graduated from a Canadian public college with a non-degree credential between 2010 and 2018, and who do not have any subsequent graduations recorded in PSIS during that period (i.e., college is their most recently completed credential). In the occupation analysis, this group is restricted to those who graduated between 2010 and 2014.

**College credential:** For the purposes of this paper, college credentials are defined as non-degree credentials from a public college, as recorded in PSIS. They include both college postgraduate credentials and college credentials from non-graduate programs. They do not include bachelor's degrees completed at a college. Individuals counted as having a college credential are solely those who have a college credential as their most recently completed credential in PSIS.

**College postgraduate credential:** For the purposes of this paper, college postgraduate credentials are defined as college credentials that have program-specific entry requirements beyond a high school diploma (e.g., a previous postsecondary qualification). This includes non-degree college credentials from the following categories of PSIS: post-career, professional and technical training programs; post-baccalaureate, non-graduate programs; and graduate programs. The vast majority of college postgraduate credentials fall under the category of post-career, technical or professional training certificates.

**Bachelor's degree:** Individuals with a bachelor's degree are defined as those with a bachelor's degree as their highest certificate, diploma or degree, as reported in the 2016 Census, and with Canada as their location of study.

### Notes

1. See Wilson (2009), Clark (1999) and Butlin (2001).
2. See Winter and Harris (1999).
3. See Winter and Harris (1999), Vaala (1991) and Wilson (2009).
4. Statistics Canada (2017a).
5. Postsecondary Student Information System (PSIS) Table 37-10-0012-01, Statistics Canada.
6. Clark (1999) and National Graduates Survey 2018, Statistics Canada.
7. National Graduates Survey 2018, Statistics Canada. The bachelor's field of study for which pursuing a subsequent college credential was most common was personal, protective and transportation services (19%), but this field of study is very uncommon at the bachelor's degree level.
8. National Graduates Survey, 2018, Statistics Canada.
9. Broadly speaking, this figure gives the bachelor's-to-college population as a share of recent college graduates. It differs from the National Graduate Survey figures in the introduction, which give the bachelor's-to-college population as a share of bachelor's graduates.
10. Recent college graduates who completed a bachelor's degree from a college are not included.
11. The territories are not analyzed because of a low sample size.
12. These are the aforementioned pre-university two-year diplomas from CEGEPs in Quebec. Almost all (94%) of these programs were in general arts (Classification of Instructional Program [CIP] 24.01) or general sciences (CIP 30.01). Pre-university diplomas exist only in Quebec.
13. National Graduates Survey, 2018, Statistics Canada; Ntwari and Fecteau (2020).
14. Registered nursing specializations encompass all of the CIP's six-digit codes within 51.38 (registered nursing, nursing administration, nursing research and clinical nursing) except for 51.3801 (registered nursing).
15. Specifically, the fields of construction trades (e.g., carpentry, plumbing), mechanic and repair technologies (e.g., auto mechanics) and precision production (e.g., welding).
16. This field provides students with the skills to work in human resources positions involving, for example, recruitment, hiring, the professional development of employees and labour relations.
17. Specifically, they were 7 percentage points less likely to study mechanic and repair technologies (e.g., auto repair), 6 percentage points less likely to study construction trades, and 5 percentage points less likely to study engineering technologies and engineering-related fields.
18. Ntwari and Fecteau (2020).
19. Statistics Canada (2017b and 2017c).
20. Ntwari and Fecteau (2020). There are also some differences in findings, which are attributable to differences between the target populations of the papers. Ntwari and Fecteau's article covers non-degree credentials from both universities and colleges, whereas this article looks only at non-degree college credentials. Furthermore, while Ntwari and Fecteau examined those who completed a bachelor's degree in 2010 and a non-degree credential between 2011 and 2018, this paper includes people who completed their bachelor's degree at any point in time, followed by the completion of a college credential between 2010 and 2018. Therefore, this article can cover those who completed their college credential long after their bachelor's degree. As a result of these differences, health is more prominent as a field of study for college credentials in this paper than it is as a field of study for short credentials in Ntwari and Fecteau.
21. CIP 51.3801.
22. For example, 80% of people with a bachelor's degree in registered nursing from a Canadian institution and no subsequent college credential worked as registered nurses and registered psychiatric nurses or as nursing supervisors. See also Statistics Canada 2017b and 2017c.
23. These cases could have involved people who, after finishing their bachelor's degree in accounting, did not achieve professional certification (e.g., as a chartered professional accountant).
24. For those who completed their college credential within five years of their bachelor's degree, the year of completion of their bachelor's degree was taken from PSIS. Those with a bachelor's degree recorded in the census but not in PSIS are considered to have completed their bachelor's degree more than five years before their college credential (i.e., before 2010).
25. A mild exception was college graduates in business who had a prior bachelor's degree in the humanities. They were slightly more likely to work in administrative and financial supervisors and administrative occupations (19%) than in professional occupations in business and finance (18%).

## Completion of a college certificate or diploma after a bachelor's degree

26. Specifically, as human resources professionals (29%), human resources and recruitment officers (10%), human resources managers (9%), and personnel clerks (6%).
27. This excludes those who followed the general-to-specialized nursing pathway.
28. These data, like the rest of the article, exclude credentials from private colleges, which are not covered by the Education and Labour Market Longitudinal Platform. They also exclude apprenticeship and other trades certificates.
29. These figures do not add to 10% because of rounding.
30. These data are provided with respect to the province of the institution where the bachelor's degree was completed, irrespective of where the person completed their subsequent credential.
31. Limiting this category to individuals with college as their most recent college credential ensures that the category includes only those whose college credential (PSIS) was completed after their bachelor's degree (census). If a student completed a college credential followed by a bachelor's degree, the bachelor's degree would be recorded in PSIS as the more recent credential.
32. Credentials that could not be classified according to census categories (namely, the PSIS categories of "Other programs" and "Other undergraduate credentials"), non-credit and non-credential programs, and adult basic education were excluded.

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