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**PROJECT SNAPSHOT**

**Understanding Transfer Experience in the Skilled Trades**

**Type:** Research

**Project Number:** 2021-41 or R2141

**Project Lead:** Durham College of Applied Arts and Technology

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**Collaborators:**Ontario College Applicant Service

**Project Summary**

The shortage of skilled trades workers in Ontario has led to a renewed focus on enabling access to skilled trades education through related postsecondary and apprenticeship training. The Construction sector in particular has been impacted by the shortage of trained skilled tradespersons and will be the focus of this research project. Construction trades encompass skilled labour from across 40 different trades and each with unique skillsets. These skills range from concrete finishing to heavy equipment operation and steam fitting and will be the focus of the proposed research. Durham College is a Training Delivery Agent for the Ministry of Labour, Training and Skills Development with authorization to offer training in more than 13 apprenticeship programs across a variety of skilled trades. These include a variety of apprenticeship training programs in the Construction category. Durham College’s vision is to inspire learners to create success for themselves and their communities through the best in innovative and transformative education. This vision is also achieved through the delivery of additional training through postsecondary programs in the skilled trades.

Durham College offers over 140 full-time postsecondary programs across nine academic schools, serving 10,565 full-time students this fall. Among these programs are over 20 full-time skilled trades programs providing training to over 1,400 students each year. Durham College offers extensive programming related to the Construction sector. There are 14 postsecondary programs across a wide range of Construction sector trades that provide training to approximately 1,200 students each fall. These programs include Building and Construction Technician; Welding Engineering Technician; Heating Ventilation and Air Conditioning; Gas Technician; Mechanical Techniques - Plumbing; Carpentry and Renovation Technician; Architectural Technology and Civil Engineering Technology. Durham College’s apprenticeship programs span a variety of skilled trades in the Construction sector, including plumbing and mobile crane. This study represents a first- of-its-kind exploration into student transfers from postsecondary to apprenticeship training programs in the Construction sector in Ontario. In particular, student interest in apprenticeship training programs, access to apprenticeship opportunities, the relative success of students enrolling in apprenticeship training after a postsecondary experience, and the employment outcomes for graduates in skilled trades postsecondary programs will be explored. This research proposes to explore the following aspects of skilled trades postsecondary programs and apprenticeship training:

1. Postsecondary student interest in Construction sector apprenticeship training programs at Durham College.

 a. What is the interest among the graduates of postsecondary skilled trades

 programs in pursuing apprenticeship training in the Construction sector?

 b. What is the interest among the graduates of non-skilled trades

 postsecondary programs in pursuing apprenticeship training in the Construction sector?

1. Transfer experience.

a. What barriers limit postsecondary students’ ability to successfully enrol in apprenticeship training in the Construction sector?

b. What supports enable postsecondary students to successfully transfer to apprenticeship training in the Construction sector?

c. Explore the aspects of equity, diversity and inclusion (EDI) in apprenticeship training. Are the various equity groups represented in apprenticeship training programs? What impact do demographic or diversity markers (for example, gender identity and expression, age, Indigenous identity, racial identity etc.) have on access to apprenticeship training?

1. Graduate outcomes.

a. What are the differences in the in-class completion rates (measured by graduation) for apprentices with prior education in a postsecondary skilled trades program as compared to apprentices who do not have prior postsecondary experience? Are these completion rates different for the students with partial postsecondary experience as compared to students who graduated from the postsecondary programs? Are the in-class completion rates different for apprenticeship students whose prior postsecondary education is in a skilled trades related area?

 b. Investigate the graduate outcomes, including employment outcomes, for graduates

 from postsecondary skilled trades programs.

1. Has the College’s skilled trades related postsecondary programming resulted in the increased availability of skilled workers over the last few years? What are the longitudinal graduation rate trends for students enrolled in postsecondary skilled trades programs?
2. Are graduates of the skilled trades postsecondary program able to find relevant employment opportunities? What are the employment outcomes, such as, overall employment, full-time employment, employment in a related field for graduates of the postsecondary skilled trades programs?

### Project Rationale

The project represents the first systematic review of postsecondary skilled trades students in the Province of Ontario. This landmark study represents a launching point from which further, systematic research projects can explore the landscape of postsecondary trades education and its deep connections to the apprenticeship training system in the Province.

The shortage of skilled trades workers in Ontario has led to a renewed focus on enabling access to skilled trades education through related Post-Secondary education and apprenticeship training. The Construction sector in particular has been impacted by the shortage of trained skilled tradespersons and will be the focus of this research project. Construction trades encompass skilled labour from across 40 different trades and each with unique skillsets. These skills range from concrete finishing to heavy equipment operation and steam fitting and will be the focus of the proposed research.

Currently, there is next to no research available on student mobility in construction related postsecondary programs in Ontario. This study represents a preliminary but in-depth exploration of student pathways, demographic profiles, and academic success factors for Construction Related (CR) postsecondary programs and a comparative analysis with the postsecondary non-Construction Related (NCR) programs.

Through such explorations, patterns of student transfers, systemic barriers and best practices can begin to be documented in a more comprehensive manner similar to what currently exists in other postsecondary areas.

**Methods**

Key research questions were explored using descriptive analysis for the data variables as indicated below.

The descriptive analysis is presented comparatively for each of the four program categories as identified. In addition, insights derived from the descriptive analysis will help to establish trends in enrolment, a profile of student enrolments in each of the reporting years, and will further enable a comparative analysis across the four program categories.

Student Demographic Profiles:

* Enrolment
* Credentials
* Age
* Gender
* Residency Status (i.e., international vs. domestic)

Additionally, regression analyses were conducted to investigate whether student demographic factors, prior postsecondary experience (verified), relatedness of the occupational cluster to the prior program of study, prior credential level, and the time interval between prior postsecondary and subsequent DC program enrolment are predictors of student interest in skilled trades programs and subsequent success as determined by first semester GPA for students in skilled trades programs.

### Describe any limitations

This research study was unique and first-of-its-kind in Ontario to undertake a systematic investigation into attributes and enrolment patterns of the students enrolled in skilled trades programs. However, the base population investigated in this study was limited to the students enrolled at DC over the 2016 to 2020 period. While DC does offer a variety of skilled trades programs, expanding the study to include multiple institutions will allow a greater pool of skilled trades programs to be included along with a larger sample size so the conclusions can be generalized to an even greater student population.

The ability to investigate program affinity in prior postsecondary education for skilled trades students was severely limited in this study due to the deployment of credit transfer as a permanent marker on the student record for the duration of their time at the given institution. Ontario’s colleges use CSER specifications to assign and report the CT flag for a student who has been awarded credit transfer.

Unfortunately, once awarded, a CT flag is a permanent identifier on the student record irrespective of the subsequent programs in which they may enroll, and whether they receive any further prior learning credit for those programs. This creates significant difficulty in ascertaining whether a student has received relevant credit in a program in any given academic year or semester and adversely impacts the ability to analyze and report on student mobility.

There is significant value in undertaking efforts to map the curriculum of skilled trades postsecondary programs to that of relevant apprenticeship programs. DC has taken the initiative to formalize apprenticeship programs as Ontario College Certificates to support the modernization of the skilled trades and apprenticeship system, and enable the Province’s economic recovery. This would serve as a key step in facilitating student transfers between postsecondary education and apprenticeship training.

### Research Findings

The analysis confirmed a widely perceived notion that interest in construction related skilled trades programs is prevalent among the young, domestic, male population. The research study, however, also found evidence that older students in skilled trades programs, particularly those with prior postsecondary experience, were likely to have higher academic performance in the first semester than their younger peer group. The study also found evidence of a need for continued supports for female and international students in skilled trades programs. The research additionally identified the significant opportunity to promote skilled trades education to international students to help address the skilled trades labour shortage in the Province and contribute to the economy.

The research study explored potential antecedent academic pathways for students enrolling in skilled trades programs, and identified key informational barriers to executing further research in the area. The limited investigation did, however, indicate the potential for pathways among certain programs in the Technology occupational cluster to skilled trades programs. Limitations of how the CT flag is currently deployed and recorded on enrolment files precluded the opportunity to fully investigate the levels of affinity between prior postsecondary programs and subsequent interest in skilled trades programs.

### Future Research

The ability to investigate program affinity in prior postsecondary education for skilled trades students was severely limited in this study due to the deployment of credit transfer as a permanent marker on the student record for the duration of their time at the given institution. Ontario’s colleges use CSER specifications to assign and report the CT flag for a student who has been awarded credit transfer.

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Building an understanding of the pathways that students follow to enrol in skilled trades postsecondary programs is only a preliminary step in understanding student mobility. It is also important to explore student pathways into and out of apprenticeship programs. In particular, the next stage of research is recommended to explore student interest in apprenticeship training programs, access to apprenticeship opportunities for the graduates of skilled trades postsecondary programs, the relative success of students enrolling in apprenticeship training after a postsecondary experience, and the employment outcomes for graduates in skilled trades postsecondary programs.

The following research areas are also recommended for a future study:

* Postsecondary student interest in construction sector apprenticeship training programs at DC.
* Transfer experience.

### Student Outcomes

There is significant value in undertaking efforts to map the curriculum of skilled trades postsecondary programs to relevant apprenticeships. This preliminary effort is a necessary first step toward a more formal system of articulation and transfer similar to what is available to students in other postsecondary disciplines. Such a formalized system would have innumerable benefits to students similar to those already realized in areas with a more established system of transfer.

Female and international students in particular could also benefit from better student supports that would enable them to pursue the skilled trades in larger numbers. Currently both of these student populations are underrepresented in skilled trades CR programming.

### Institutional Outcomes

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### Sector or System Implications

This study represents a preliminary but in-depth exploration of student pathways, demographic profiles, and academic success factors for Construction Related (CR) postsecondary programs and a comparative analysis with the postsecondary non-Construction Related (NCR) programs. Through such explorations, patterns of student transfers, systemic barriers and best practices can begin to be documented in a more comprehensive manner similar to what currently exists in other postsecondary areas.

