# Academic Dual Credit Students:

## Experiences and Performance
### in the BC Post-Secondary System

*by Plaid Consulting*
*April 2020*

BCCAT

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## EXECUTIVE SUMMARY

The British Columbia Council on Admissions & Transfer (BCCAT) commissioned Plaid Consulting to conduct a study focused on Academic Dual Credit (ADC) in British Columbia post-secondary institutions (PSIs). Dual credit in British Columbia occurs when credit is granted at both a secondary school and post-secondary institution for completion of a course (FitzGibbon, 2015). For the purposes of this study, ADC is defined as including dual credit course offerings other than those identified as Trades (Trades DC).

This study follows a 2017 BCCAT study on dual credit programs (Drover-Davidson, Betts, Bennett & Hodgson, 2017). Four BC PSIs elected to participate in this research: Camosun College (Camosun), Kwantlen Polytechnic University (KPU), North Island College (NIC), and Thompson Rivers University (TRU). This project includes:

- An analysis of provincial ADC participation and transition rates;

- Telephone interviews with 11 school district administrators on their perceptions of the ADC experience; and,

- Four case studies, one for each participating institution. The case studies use data from:

  - An online survey gathering information on the experiences of 727 ADC participants
    (18% of the 4,146 ADC students invited to participate); and,

  - A student performance analysis, with performance measured by grade point average (GPA),
    comparing ADC participants and non-participants.

The intention of this report is not to compare institutions, but to better understand the overall experiences and performance of students participating in ADC in BC.

## Provincial Academic Dual Credit Participation

An analysis of provincial Student Transitions Project (STP) data suggests 68% of ADC participants participated in post-secondary education (PSE), slightly lower than the average 72% in our student survey data. Langara College, Kwantlen Polytechnic University, and Thompson Rivers University were the institutions with the highest rates of ADC participants returning to any PSI. Thompson Rivers University, the University of Victoria, and the University of the Fraser Valley were the institutions with the highest rates of ADC students returning to the same PSI where they were previously enrolled in dual credit courses.

At institutions identified as colleges or research-intensive universities, 20% of ADC participants attended the same institution in which they participated in ADC and at least one other institution, suggesting that these students may pursue studies at a college prior to transferring to a research-intensive university, or vice versa. 55% of ADC participants at BC institutes elected to attend a different BC PSI following high school graduation.

ADC participants completed credentials in a wide range of disciplines. Students completing multiple credentials were the largest group, followed by students completing credentials in business-related and health-related disciplines.

# Survey of School District Administrators

Eleven school districts were interviewed for this project. Administrators found ADC programs beneficial for their students, noting that students returned to class more confident and mature, and able to share their post-secondary experiences with other students. Districts with program staff dedicated to ADC were seen as being the best able to support ADC programs.

Administrators also noted challenges related to ADC. There was discussion of the Ministry of Education (MoE) shifting from a *per course* funding model to a *per student* funding model.

This potential shift concerns school districts, as they feel that it may reduce opportunities for ADC study. Additionally, many districts felt that the compliance and audit requirements from MoE were too rigid: they reported that ADC opportunities must be tied to a student's career path, or funding could be lost. Respondents felt that pathway exploration was seen by audit teams as not necessarily career-related.

# Survey of Academic Dual Credit Participants

A total of 727 students completed the survey (18% of 4,146 invitations). Responses came from mostly post-secondary students, ranging from those enrolled in their first year of study through those enrolled in their fourth year. Most respondents learned about ADC from their teacher or counsellor and participated in ADC to experience what PSE would be like. Respondents found the enrolment process clear and the workload manageable, and felt ADC was helpful in preparing for PSE. However, improving the ADC enrolment process and increasing awareness of ADC were also recommended improvements. Nearly all respondents would recommend ADC to other students.

Fifty-four percent of ADC participants returned to their ADC institution for further study. This included 17% who had intended to go to a different PSI originally. Only four percent of respondents that had intended to attend the same PSI ultimately went elsewhere. These movement patterns, in addition to student and district administrator opinions that experiencing post-secondary was one of the biggest benefits of ADC, suggest that ADC can serve as a recruitment tool.

There are two types of ADC structures: on a per-seat basis, where a student enrolls in an existing post-secondary class; or on a per-class basis, where a school district or group of school districts fund a class exclusively offered to ADC students. The class takes place either at the PSI or at a high school. The degree to which an ADC participant experiences PSE varies depending on the ADC model. Student respondents noted that in the per-seat model it was helpful if the instructor knew they were ADC students, while those in the per-class model noted that they appreciated the supportive environment of the high school, but wondered how representative of PSE their experience was.

A couple of findings surprised us. First, provincial ADC participation analysis shows a seven-year average of 68% of ADC participants transitioning to further public post-secondary education within BC. However, the publicly available STP transition rates show a five-year average of 72%, and a ten-year average of nearly 80%. Exploring these differences would be helpful in future research; for example, are students who participate in ADC more likely to go to institutions outside the BC public post-secondary system?

Second, 23% of ADC participants at KPU, NIC, and TRU were male, compared with 45% for non-ADC participants. At Camosun, these numbers were 43% and 42%, respectively. Given that ADC participants of both genders outperform non-ADC participants, there may be an opportunity for institutions to learn from how Camosun has achieved more gender balance among its ADC students.

> *"I gained a lot of lab experience going into my first year of university as a science student, as opposed to other students who did not have the same lab experience and were lost and confused in labs."* - Survey respondent

> *"Taking Dual Credit course(s) helped me for university, and being involved in a Dual Credit program was the best educational decision that I made."*
> - Survey respondent

## Student Performance Analysis

On the surface, ADC participants across all institutions performed well in post-secondary studies. ADC students tended to have higher term 1, year 1, and year 2 grade point averages than students who did not participate in ADC. However, our analysis shows that when additional variables such as gender, national status, English 12 grade, Classification of Instructional Programs (CIP) cluster of the program the student was admitted to, and school district were added to the analysis, ADC participation ceased being a significant predictor of GPA. Gender, national status, English 12 grade, and certain CIP clusters were significant predictors. The results for NIC were different: ADC was a significant predictor of GPA, but explained a smaller proportion of the variance. Interestingly, NIC's ADC and non-ADC participants had nearly identical average grades in English 12, which may explain why this variable was not as significant a predictor of GPA as it was at the three other institutions. These results suggest that ADC students are already high performers: a possibility that is also indicated by the average English 12 grades of ADC students being higher than the average English 12 grades of non-ADC students at Camosun, KPU, and TRU.

## Future Research Suggestions

The results of this research have opened up a variety of questions that could provide a basis for further research into ADC. These include:

- What is the impact of changing from a per-course funding model to a per-student funding model?

- How do compliance and audit requirements affect the availability of ADC opportunities?

- Why are there differences between provincial long-term PSE student transition rates and ADC students' transition rates?

- Why do provincial transition rates appear to be higher than ADC rates? Does this suggest that ADC students are going elsewhere for their PSE?

- What are the educational pathways of ADC students from high school through post-secondary completion?

- Are there regional differences in ADC opportunities and participation?

Another direction for future research is a qualitative comparison of ADC and non-ADC participants' perceptions of the post-secondary transition process, with a focus on understanding how ADC may have helped the transition.

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# INTRODUCTION

The British Columbia secondary school system provides opportunities for students to complete post-secondary courses that count towards both secondary school graduation and future post-secondary studies. While these opportunities often carry different names in different jurisdictions – such as "dual enrolment", "concurrent enrolment", and "accelerated credit enrolment" (FitzGibbon, 2015) – "dual credit" is the most popular term in BC. This term is utilized by the BC Ministry of Education to denote

> *BCCAT commissioned this study to better understand the experiences of students completing at least one ADC course in an academic area and transitioning to post-secondary studies.*

specific agreements between school districts and post-secondary institutions, in which the school district arranges studies and pays tuition for students at the post-secondary institution (British Columbia Ministry of Education, 2018). For the purposes of this report, we use the terms "Academic Dual Credit" (ADC), "Trades Dual Credit" (Trades DC), and "Dual Credit" which encompasses both ADC and Trades DC. This report focuses on Academic Dual Credit, which generally includes the arts, business, health, science, and technology.

The British Columbia Council on Admissions & Transfer (BCCAT) commissioned this study to better understand the experiences and performance of students completing at least one ADC course in an academic area and transitioning to post-secondary studies. This project follows up on a 2017 BCCAT study on dual credit programs (Drover-Davidson, Betts, Bennett & Hodgson, 2017) that focused on the South Island Partnership (SIP), a partnership between Camosun College and five school districts on southern Vancouver Island.

This study aims to:

- Describe the performance of students who completed at least one ADC course and transitioned to post-secondary studies;
- Compare the post-secondary performance of these students with a control group who did not complete an ADC course;
- Gather information from students about their experience with ADC and how it affected their transition to post-secondary studies; and,
- Identify areas for future research.

This report has four major sections. We begin with providing a provincial context for participation in ADC, examining how many students participate in ADC and then transfer to BC public post-secondary institutions. Following this, we provide information from interviews with school district administrators who oversee ADC activities within their district. We proceed to four case studies of British Columbia public post-secondary institutions that are involved in ADC programs: Camosun College, Kwantlen Polytechnic University, North Island College, and Thompson Rivers University. The case studies include a comparison of student performance and demographics between ADC and non-ADC students, and results from a survey focused on the experience of students who participated in ADC at the institution. Finally, we provide suggestions for future research.

# ACADEMIC DUAL CREDIT PARTICIPATION IN BRITISH COLUMBIA

This section presents an analysis of province-wide ADC participation, compared across post-secondary institutions. Data were provided by the provincial Student Transitions Project (STP) operated by the Ministry of Education.

## Methodology and Limitations

Data from the Student Transitions Project were provided to the researchers in October 2019. The data included two datasets: one with ADC participants identified by institution, and one for ADC participants identified by credential. The data were selected from the Ministry of Education's STP_Enrolment table. The STP data request is shown in **Appendix 10: Student Transitions Project Data Request**. The fields used for analysis in each data set are shown in **Tables 1** and **2** below.

**Table 1:** Fields and Definitions for Dataset 1: ADC Participants by Institution

| Field | Definition |
| --- | --- |
| PSI Code | The code of the PSI in which the student participated in ADC. |
| PSI Full Name | The name of the PSI in which the student participated in ADC. |
| PSI School Year | The school year in which the student participated in ADC. |
| Same Only PSI | Summary metric indicating if the student returned for further study only at the same PSI in which they participated in ADC. |
| Different Only PSI | Summary metric indicating if the student returned for further study only at a different PSI than they participated in ADC. |
| Same And Others PSI | Summary metric indicating that the student returned to both the institution where they participated in ADC and one or more other institution(s). |
| Different And Others PSI | Summary metric indicating that the student returned to two or more institutions that were different from the institution where they participated in ADC. |
| No PSI | Summary metric indicating the student had not returned to further study in PSI in BC at the time of this study. |

**Table 2:** Fields and Definitions for Dataset 2: ADC Participants by Credential

| Field | Definition |
|---|---|
| PSI Code | The code of the PSI in which the student participated in ADC. |
| PSI Full Name | The name of the PSI in which the student participated in ADC. |
| PSI School Year | The school year in which the student participated in ADC. |
| Grad Year | The school year in which the student completed a post-secondary credential (this field is blank for those who had not completed a credential within the time period of this dataset). |
| Credential Completed | Summary metric indicating the number of students who completed a credential. |
| Credential Not Completed | Summary metric indicating the number of students who had not completed a credential within the time period of this dataset. |
| Classification of Instructional Programs (two-digit) | Two-digit code representing the field of study of the student's completed credential. |
| Credential Type | An indicator of the type of credential(s) completed. Values included Certificate, Diploma, Bachelor's Degree, First Professional Degree, or Multiple Credentials (if a student completed more than one type of credential at the time of this study). |

The finalized datasets had these inclusions and exclusions:

- Inclusions:

  o Students attending PSI between 2010/11 and 2017/18.
  o Students who graduated high school after their ADC experience.

- Exclusions:

  o Students who had a gap of more than four years between their PSI attendance and their last known high school attendance.

  o Trades-related programs, identified by Classification of Instructional Programs (CIP) codes 12 (personal and culinary services), 32 (basic skills, not for credit), 46 (construction trades), 47 (mechanic and repair technologies / technicians), 48 (precision production), and 49 (transportation and materials moving). These codes likely identify students taking Trades DC but not Academic DC.

The analysis of provincial ADC participation was more challenging than anticipated and should be considered within the context of several limitations. The Ministry of Education's data systems do not have an indicator of dual credit participation in general, nor specifically the participation in ADC that we were looking for. Consequently, a definition specific to this project was used. This impacts the ability to compare ADC participation rates in this study to participation rates in other studies looking at Dual Credit, as each may potentially use different definitions. Additionally, the timeframe of eight academic years selected for this study may have been insufficient to fully capture degree completion for students who pursued a bachelor's degree, particularly if they completed another credential prior to their bachelor's degree.

## *Analysis of Provincial Academic Dual Credit Participation*

The first dataset provided by the Ministry included ADC enrolment patterns across the province's public institutions. It initially contained 10,524 student records, provided in aggregate form. For each academic year in which students first participated in DC, and where the PSI at which students enrolled in ADC courses was identified, a summary total was provided for these categories:

- no PSI attended
- same PSI attended (only)
- same PSI attended plus others
- different PSI attended (only)
- different PSI attended (multiple).

The data included records from the 2010/11 to 2017/18 academic years. However, the data for the 2017/18 academic year of students who first participated in ADC only showed 27 records for students who participated in post-secondary studies (and 1,180 for those who did not). As such, this year was excluded as an outlier. It is likely that either students who graduated in this year have not yet enrolled in PSE, or their data for the 2018/19 academic year has not yet been submitted. Consequently, our analysis dataset includes 9,317 student records. 68% (6,314) of these students had attended a BC public post-secondary institution, and 32% (3,003) had either not yet attended post-secondary or were attending a private or non-BC institution. Among those who attended a BC public PSI, 60% (3,810) attended the same institution of their ADC experience, and 40% (2,504) attended different institutions.

**Figure 1** shows that 41% (3,781) of ADC students go on to further study at the same PSI as their ADC experience, with a further 27% (2,485) attending a different institution. The institutions with the highest rates of ADC students transitioning to further study are Langara College, Kwantlen Polytechnic University, Thompson Rivers University, Douglas College, and the University of Victoria. The Nicola Valley Institute of Technology, Langara College, Kwantlen Polytechnic University, the Justice Institute of BC, and Vancouver Community College have the highest rates of students returning to those specific institutions following ADC. In the figure, institutions are grouped by institution type.

**Figure 1:** ADC Students' Transition to BC Public Post-Secondary Education

| Institution Type | PSI Name | | | |
|---|---|---|---|---|
| Colleges | Camosun College | 36% (442) | 30% (361) | 34% (408) |
| | Coast Mountain College | 27% (155) | 25% (142) | 48% (270) |
| | College of New Caledonia | 49% (188) | 12% (44) | 39% (149) |
| | College of the Rockies | 47% (175) | 10% (37) | 43% (163) |
| | Douglas College | 44% (123) | 32% (89) | 23% (65) |
| | Langara College | 38% (99) | 46% (121) | 16% (43) |
| | North Island College | 44% (247) | 32% (179) | 24% (137) |
| | Northern Lights College | 29% (157) | 20% (106) | 51% (272) |
| | Okanagan College | 49% (195) | 16% (64) | 34% (136) |
| | Selkirk College | 38% (147) | 26% (99) | 36% (139) |
| | Vancouver Community College | 25% (49) | 39% (78) | 36% (72) |
| Institutes | British Columbia Institute of Technology | 50% (97) | 23% (44) | 28% (54) |
| | Justice Institute of British Columbia | 31% (138) | 41% (183) | 28% (124) |
| | Nicola Valley Institute of Technology | | 60% (90) | 29% (43) |
| Research-Intensive Universities | Simon Fraser University | 25% (31) | 34% (42) | 40% (49) |
| | Thompson Rivers University | 63% (435) | 15% (105) | 22% (150) |
| | University of British Columbia | 33% (46) | | 67% (94) |
| | University of Northern British Columbia | 52% (29) | 34% (19) | 14% (8) |
| | University of Victoria | 61% (105) | 15% (25) | 24% (41) |
| Teaching-Intensive Universities | Capilano University | 44% (58) | 28% (37) | 29% (38) |
| | Emily Carr University of Art and Design | 39% (117) | 35% (106) | 26% (79) |
| | Kwantlen Polytechnic University | 36% (224) | 45% (280) | 19% (117) |
| | University of the Fraser Valley | 58% (213) | 14% (50) | 29% (105) |
| | Vancouver Island University | 43% (330) | 25% (197) | 32% (247) |
| | Grand Total | 41% (3,781) | 27% (2,485) | 32% (2,995) |

Category
■ Attended Same Institution      ■ Attended Same or Different Institution
■ Attended Different Institution  ■ Did not attend PSI

NOTES:

UNBC is excluded from this chart due to a small sample size. The UBC data are combined into Attended Same or Different Institution due to a small sample size. Royal Roads University does not offer ADC. Students in the Did Not Attend PSI group may have attended private or non-BC PSI.

**Figure 2** shows whether the ADC participant attended the same institution where they took ADC courses, classified by institution type. Notably, 20% of students in the college and research-intensive universities category attended both the same institution in which they participated in ADC and a different institution. This suggests there is a large proportion of students who chose to attend a college prior to transferring to a research-intensive university, or vice versa. Nearly 56% of students who took ADC at an institute attended an institution other than their ADC institution.

**Figure 2:** ADC Students Who Attended the Same Institution for PSE, By Institution Type
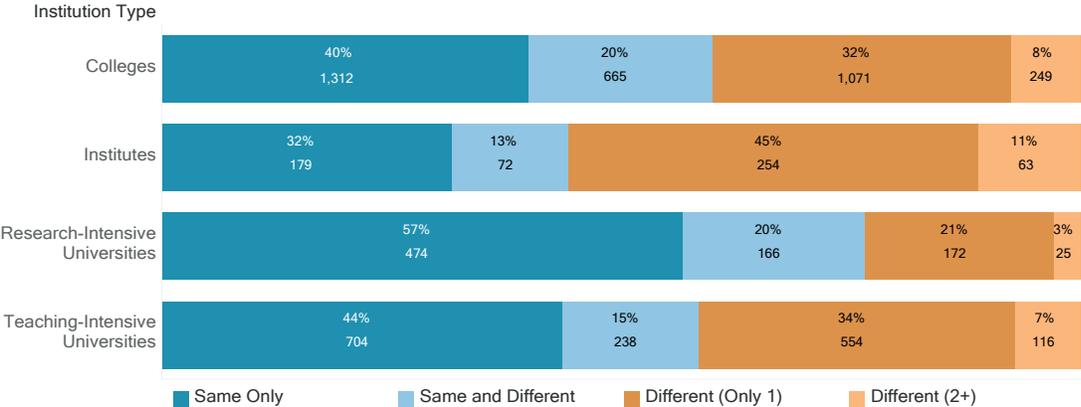


## Analysis of Provincial Academic Dual Credit Post-Secondary Credential Completion

The second dataset provided by the Ministry included data on the ADC students who completed post-secondary credentials. This dataset contained 10,524 aggregate records for students who participated in ADC at BC's public institutions between the 2010/11 and 2017/18 academic years. Of these students, 8,171 had not completed a credential at the end of the period that the data covered. In these aggregated data, it is not possible to distinguish whether these students are continuing their post-secondary studies or did not pursue any post-secondary education at all.

Among these students, 2,353 completed at least one credential; 27% (626) completed a certificate; 25% (578) completed a diploma; 10% (237) completed a bachelor's degree; 1% (15) completed a first professional degree; and 38% (897) completed multiple credentials.

We also looked at how long it took students to complete a post-secondary credential from their time of enrolment in ADC (**Figure 3**). Students completing certificates took an average of 1.5 years; students completing diplomas took an average of 3.1 years; and students completing bachelor's degrees took an average of 5.1 years. Students took anywhere between zero and six years to complete multiple credentials. This wide variation is likely attributable to combinations of credentials being completed. For example, a student completing a certificate and a bachelor's degree would likely take at least five years to complete both. The data in the figure exclude 8,171 students who had not graduated from PSE, one student who graduated from a post-secondary credential prior to ADC participation, and any group where the total number of students was fewer than 10 graduates (20 total graduates across all credential types and time periods).

**Figure 3:** Time to Credential Graduation from First Year of Enrollment in ADC

| Credential | Average Years to PSE Graduation | *Years to PSE Graduation from ADC Year* | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Certificate | 1.5 | 51% 305 | 20% 119 | 5% 28 | 3% 21 | 7% 40 | 10% 60 | 3% 18 | 2% 11 |
| Diploma | 3.1 | 2% 13 | 9% 50 | 21% 122 | 22% 127 | 19% 110 | 21% 120 | 5% 27 | |
| Bachelors Degree | 5.1 | | | | | 25% 57 | 37% 83 | 31% 71 | 7% 16 |
| Multiple Credentials | 2.5 | 16% 142 | 14% 125 | 21% 184 | 12% 106 | 19% 168 | 12% 102 | 6% 51 | |

Among the 2,353 students who graduated with a post-secondary credential, the majority (897) completed credentials in multiple areas of study, as indicated by CIP classifications, during their academic career (**Figure 4**). The next most popular areas of study were business-related (632) and health-related (412). Areas represented by other CIPs had substantially fewer graduates. Both business- and health-related programming have grown over time. At Camosun, business-related ADC grew from zero student registrations in 2009-10 to 97 in 2014-15 (Drover-Davidson et al., 2017).

**Figure 4:** Post-Secondary Courses/Programs Taken by ADC Students, by CIP Classification

CIP Description

| | |
|---|---|
| Multiple CIPs | 897 |
| Business, management, marketing and related support services | 635 |
| Health services/allied health/health sciences, general | 412 |
| Visual and performing arts | 110 |
| History | 92 |
| Social sciences | 21 |
| Engineering technology, general | 24 |
| Security and protective services | 25 |
| Liberal arts and sciences, general studies and humanities | 14 |
| Work and family studies | 15 |
| Other CIPs (N<10) | 108 |
| Grand Total | 2,353 |

# SURVEY OF SCHOOL DISTRICT ADMINISTRATORS

## Methodology and Limitations

Interviews were conducted by telephone with 10 school district administrators representing 10 school districts (SDs), all of whom had ADC partnerships with at least one of the four institutions participating in this study. An additional interview was conducted by email; two respondents submitted a joint response. For analysis purposes, we will count this joint response as one response.

The interview questions can be viewed in **Appendix 3: School District Administrator Telephone Survey**. **Table 3** shows the school districts where interviews were conducted, along with the DC partnerships they list on their websites.

**Table 3:** Institutional Partnerships by School District

| School District | Partnerships with Post-Secondary Institutions |
|---|---|
| SD35 – Langley | KPU, BCIT, VCC |
| SD36 – Surrey | BCIT, KPU, VCC, SFU |
| SD61 – Greater Victoria (2 interviews) | Camosun, UVic, VCC |
| SD63 – Saanich (1 emailed response by 2 respondents) | BCIT, Camosun, TRU, VIU, Quadrant Marine Institute |
| SD64 – Gulf Islands | BCIT, Camosun, COTR, KPU, NIC, TRU, VCC |
| SD69 – Qualicum | BCIT, KPU, NIC, VIU |
| SD70 – Alberni | JIBC, NIC, VIU |
| SD71 – Comox Valley | NIC |
| SD73 – Kamloops-Thompson | TRU |
| SD79 – Cowichan Valley | Camosun, VIU, VCC, TRU |

Four additional school districts (three in Metro Vancouver and one on Vancouver Island) were contacted to participate in interviews, but no response was received.

Six of the 12 interviewees had a role in career education, two were responsible for pathways and partnerships or trades and transitions, and five had more general district or school-wide responsibilities. Interviewees included one assistant superintendent, five principals or vice-principals, four coordinators, and one each of manager and district lead.

The analysis that follows is structured around five broad themes that emerged during the interviews: types of DC, funding, partnerships and motivators, benefits, communications, keys to success, and promotions and influencers.

## Analysis

### Dual Credit Partnerships and Type

The school districts represented in the interviews offered both ADC and Trades DC programs. Many interviewees noted that student interest can drive both the partnerships they have, and the range of dual credit courses and programs available. For example, the Comox Valley School District partners with North Island College to offer dual credit opportunities to students. Academic offerings include business, fine art, and interactive media (North Island College, 2019a). Trades offerings include aircraft structures, automotive service, carpentry, and electrical (North Island College, 2019b).

## Funding Model

Generally, ADC enrolments are funded by school districts, which are in turn funded by the Ministry of Education. There are two forms of ADC funding: on a per-seat basis, where a student's tuition in an existing post-secondary class is funded, and on a per-class basis, where a full class section is offered for ADC students only. The class is offered either at the PSI or the high school. Interviewees noted that the experience was more valuable when courses are offered on a PSI campus as a regular course, as students are able to gain a better understanding of the post-secondary experience. If a student withdraws or is forced to withdraw from a dual credit course, they may be required to reimburse the school district for the cost of tuition (School District No. 22 [Vernon], 2019). More detail on funding requirements is shown in **Appendix 5: Dual Credit Funding Model.**

Administrators noted challenges regarding ADC access and partnerships, audits and compliance, and funding. Compliance with the Ministry of Education's audits was cited as a significant barrier to DC programming.

> *Compliance audits are conducted annually to ensure the accuracy and eligibility of the student enrolment and other school data reported to the Ministry of Education by school districts and the extent to which policies are followed. This data is used for statistical, research and funding purposes. The fair distribution of available funding among school districts is based on the accuracy of these data reported.* (British Columbia Ministry of Education, 2002)

As part of the audit process, a school district has to demonstrate that a course is related to a student's intended career path, which can be challenging to demonstrate in some circumstances. For example, a student who wishes to study Law may ask to take a first-year English course, as such courses are typically part of the requirements for admission to law programs. On the surface, the English course is unrelated to the career path; this can be a risk to the sponsoring school district. Some interviewees also felt that the audit requirements discourage exploration, and felt that the audit criteria for ADC funding are tied too closely to career pathways rather than to exploration.

If a school district is not compliant with the audit requirements, the Ministry may not provide funding, leaving the school district to cover the funding shortfall. Interviewees described an apparent disconnect between the Ministry of Education's stated priorities of supporting career transition programs and the approach of its audit teams, particularly with respect to academic courses. This has resulted in some hesitance within school districts to sponsor more general ADC courses.

One representative noted that their district is moving away from offering dual credit courses that are not directly pathway-related and is instead electing to promote evening course opportunities at its local PSI without collecting funds from the Ministry of Education. Students needing funding to attend these courses are encouraged to apply for federal grants, such as the Canada Student Grant for Part-Time Studies. Interviewees also noted that the fear of losing funding often hampers dual credit program development, negating the opportunities for students, particularly those who are non-traditional PSE students, to explore post-secondary options.

Finally, there are also concerns about the potential change to the DC funding model in the 2021/22 funding year. This perception is that the funding model will change from a *per-course* funding model to a *per-student* funding model. The administrators we spoke to felt this change could reduce the number of ADC opportunities. Moving to a per-student funding model could also prevent students from enrolling in multiple ADC courses. Interviewees expressed a desire for the Ministries of Education and Advanced Education to continue to work with school districts, to ensure that DC programs can continue to support student learning and exploration.

> *Many interviewees noted that student interest can drive  both the partnerships they have, and the range of dual credit courses and programs available.*

## Post-Secondary Institution Partnerships and District Motivators

While school districts' primary partnerships are with the post-secondary institution(s) located in or near their community, districts will form partnerships with other geographic areas as well. This is especially true for smaller or more remote communities where there is no local post-secondary institution, and where students must relocate to take advantage of Dual Credit opportunities. As a result, school districts in smaller communities tend to develop partnerships with institutions in communities where students can secure accommodation and support. School districts pay tuition fees for students taking ADC courses elsewhere, but students are responsible for other costs relating to their DC opportunity.

*While school districts' primary partnerships are with the post-secondary institution(s) located in or near their community, districts will form partnerships with other geographic areas as well.*

Many interviewees noted that additional partnerships were developed as needed, if a student has a specific need or interest. Creating new partnerships was perceived to be easier with some PSIs than others.

The top motivations for school districts to be involved in DC were supporting pathway exploration (nine of 11), post-secondary transition (six), and using the funding in other ways (three).

## Perceived Effects of the Dual Credit Program on Students

Most administrators described the effect of the ADC program on students as depending on a variety of factors, such as the student, their motivations for participating in ADC, whether the class is offered at the high school or at the PSI, and the topic of the course. Potential effects included increased confidence, motivation, and responsibility, as well as a better understanding of higher education. Administrators felt the greatest benefits of ADC to students were exposure to post-secondary education, understanding the workload in post-secondary studies, and gaining post-secondary credits with no tuition costs.

> *Students return to the high school after attending college with increased maturity, self-confidence and direction. They stand taller, their self-esteem is higher, and their leadership heightened.* - District Administrator Communication and Student Support Network

## Communication and Student Support Network

Communication between the following parties was cited as important for running effective dual credit programs:

- Student and school district;
- Student and post-secondary institution;
- Student and professor/instructor;
- School district and post-secondary institution; and,
- School district and Ministry of Education.

An example of a strong support network was in the Greater Victoria region, where DC staff work with Camosun College through the South Island Partnership (SIP). Administrators noted the excellent support their students get at Camosun, which includes tutoring and liaising with the Center for Accessible Learning. These staff note that other institutions they partner with do not have the same resources to provide similar services and support. The types of supports provided by the SIP could be exemplars for other institutions.

While respondents noted that formal feedback opportunities were rare, some districts had students complete a self-evaluation at mid-term, and all reported hearing positive feedback from students.

## *Program Awareness and Influencers*

While ADC opportunities are available as early as Grade 10, administrators noted that this was also when students would typically show interest in ADC, likely as a result of their exposure to it through the Career and Life Education course in that grade. Most ADC courses are taken in Grades 11 and 12. Interviewees noted that an additional reason for students not starting ADC earlier were pre-requisites, such as a post-secondary course that requires English 12.

ADC opportunities are promoted in a variety of ways at both the district and school levels, including:

- on websites and social media;
- at events;
- in assemblies, announcements, notices, newsletters, and classroom presentations;
- as part of course selection information for grades 10-12;
- as part of the Career and Life Education course (grade 10);
- through advertising in school career centres;
- on campus tours and information sessions; and,
- through presentations at parent advisory councils.

The quantity and depth of promotional activity is related to whether there are dedicated staff for Dual Credit programs, such as in the South Island Partnership. Despite these formal efforts, administrators felt that counsellors, teachers, friends and parents were the strongest influencers of a student's decision to pursue ADC, a finding corroborated through the student survey (see **Appendix 1: Student Experience Online Survey**). These findings suggest that ADC programs should continue to market to teachers and counsellors.

Trades DC promotions use similar methods to promotions for ADC, but start as early as middle school. For example, in the Cowichan Valley SD, Trades DC programs are promoted in a coordinated campaign supported by Skills Canada funding. This campaign involves a gravity-car building program for Grade Six and Seven students.

# CASE STUDIES

Four case studies of BC PSIs were conducted as part of this research: The post-secondary institutions involved were Camosun, KPU, NIC, and TRU. The case studies utilize data from:

- An online survey gathering information on the experiences of ADC participants, and
- A student performance and demographic analysis, comparing grade point averages (GPA) of ADC participants and non-participants.

The intention of this report is not to compare institutions, but to better understand the overall experiences and performance of students participating in ADC in BC. The studies are presented separately because the participating institutions have different ways of measuring success and have provided similar but not identical data for this report. For example, Camosun uses a nine-point grading and GPA scale, while the other institutions use a 4.33 scale.

## Methodology and Limitations

This Methodology and Limitations section is applicable to each of the four case studies. This study was approved by research ethics boards at Camosun College and North Island College (see **Appendix 4**). Kwantlen Polytechnic University and Thompson Rivers University did not require ethics approval for the study as these institutions defined the research as falling under program improvement, as defined in the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (Government of Canada, 2019).

### *Student Performance and Demographic Analysis*

A student performance and demographics analysis used data from all four participating post-secondary institutions. Institutions were asked to provide two anonymized case-level datasets, as summarized in **Appendix 2: Student Performance Analysis Data Request**. The data included data on ADC participants and on a control group of direct-entry high school students. The ADC participant group includes students who enrolled in at least one ADC course in an academic area between Fall 2013 and Winter/Spring 2019. Students in trades and developmental studies were excluded, as were those who withdrew from their only ADC course. The students in the non-ADC control group enrolled in at least one for-credit course in an academic area during the same time period. Students were excluded if they withdrew from their only post-secondary course. Students with transfer credit or AP/IB credit were also excluded from the analysis.

The variables in the student performance dataset included an anonymous ID, an indicator for participation in ADC, high school graduation date, school district, gender, national status, admitted academic program, and, if available, indicators for AP/IB credits and transfer credits. This dataset also contained grade point averages, credits attempted (only Camosun and KPU provided this variable), and credits completed. Credits were calculated at the end of term 1 (15 credits completed), at the end of year 1 (30 credits completed), and at the end of year 2 (60 credits completed).

Data provided by the four participating institutions were combined into a single dataset to facilitate analysis. This process involved renaming fields to ensure common terminology across institutions, joining data to tables that contained further descriptive information (for example: to include Classification of Instructional Programs description), and adding information such as institutional grading scales to the data provided.

These data were then exported and used for two forms of analysis: *visual analysis* and *regression analysis.*

Visual analysis involved creating charts and tables in Tableau, and visually comparing differences in average GPA between ADC and non-ADC participants. Charts and tables were created to identify demographic differences between ADC participants and non-participants, using classification variables such as gender or admitted academic program.

Regression analysis calculates the estimated relationship between a dependent variable (GPA) and one or more independent variables. In the context of this study, the dependent variable was GPA, and the independent variables were ADC participation, English 12 grade, national status, gender, CIP classification of the program the student was admitted to, and high school district. Regression models include indicators of the strength of the regression results, such as $R^2$ and p-values, that indicate how well the model estimates the dependent variable (GPA).

We conducted a linear regression utilizing the ordinary least squares (OLS) method. The regression helps to determine which independent variables are significant predictors of average GPA, which then can determine whether ADC participation is a predictor of success as measured by GPA. The regression was run using data from three key time periods: end of term 1, year 1, and year 2. Controlling for the effects of these independent variables allows us to ensure that any inferences from the analysis are comparing data from students that are as similar as possible.

These analyses had several limitations.

- English 12 grades were missing for 13% of students at Camosun (568), 23% at KPU (987), 14% at NIC (580), and 50% at TRU (2,187). Grades were missing for both ADC and non-ADC participants. For analyses involving English 12 grades, including the regression analysis and charts showing English 12 grades, participants without these grades were excluded.

- Most institutions provided English 12 letter grades; TRU provided percentages. This affects the ability to correctly determine at what point on the grading scale a student grade actually sits. For TRU, the percentages provided were used to determine average course grades. For the other institutions, the midpoint of the provincial grading scale was used (for example, an "A" ranges from 86-100%, with the midpoint at 93%).

- Requesting data up to and including the Winter/Spring 2019 term meant that the most recent data may change (for example, if a grade is submitted late).

- English 12 grades were used as a proxy for academic performance at the high school level, as a post-secondary admission average based on a broader set of high school courses was not available.

- As the ADC population is relatively small, particularly when grouped according to program or term, any conclusions may be based on a small sample. While we have attempted to control for this through aggregation of data where appropriate, there are cases where the sample could still be small.

## Student Experience Survey

An online survey was conducted for KPU and TRU students between April 17 and May 8, 2019 and for Camosun and NIC students between May 15 and June 9, 2019, following Research Ethics Board approval. The survey was sent to a total of 4,146 post-secondary students identified as ADC participants in the last five years (Fall 2013 – Winter/Spring 2019 inclusive). 727 students (18%) responded to the survey.

Students were sent an email (see **Appendix 1**) encouraging them to participate in this research. A weekly reminder was sent out by the institution until the survey closed. Given that students had to opt in to participate in the survey, the sample is not random.

Respondents selected from a list of choices to answer quantitative questions on the survey. These types of questions constituted the majority of the survey questions. An example of this type of question is the post-secondary institution the student had their ADC experience at (see Q1 in **Appendix 1: Student Experience Online Survey**). Responses to quantitative questions were coded using Safe Software's FME data integration software and were analyzed and visualized using Tableau.

> *The survey was sent to a total of 4,146 post-secondary students identified as ADC participants in the last five years. 727 students (18%) responded to the survey.*

Qualitative questions on the survey required written responses. Examples of these questions included *[w]hat do you feel was most helpful about participating in Dual Credit* (see Q27 in **Appendix 1: Student Experience Online Survey**). Written responses were reviewed by a research analyst, who created written codes for themes in each comment. A different analyst performed a second review to check for codes that should be changed. A final review was made to consolidate similar codes. Certain responses elicited more than one code. For example, a response to *what do you feel could be improved about the dual credit experience* was *"Availability of more classes and knowledge about the dual credit courses among students and staff"*, which could be coded as both *"More course/program options"* and *"Awareness"*.

One limitation of the student experience survey was the recruitment of respondents. Students may have participated in ADC several years ago and the institution may not have had a reliable way to contact these students. The number of email addresses that were inactive was not available. Students may no longer feel the need to respond to a survey request from an institution they no longer attend.  Due to the timing of this study, the survey was launched during the exam period for many post-secondary students, which may have affected the number of responses. This timing was due to a combination of factors, including that research ethics approvals and institutional review of survey invitations took longer than expected.

We had planned on using a single survey for all four institutions, which became challenging when it became apparent the launch dates for the surveys would not be the same. This resulted in using one version of the survey for KPU and TRU, and a slightly different version for Camosun and NIC, following research ethics approval.

# Case Study: Camosun College

This section presents the case study of Camosun College. The intention of this report is not to compare institutions, but to better understand the overall experiences and performance of students participating in ADC in BC. The case study contains three components:

1.  Student Demographic Analysis: an analysis of demographic factors for ADC and non-ADC participants.

2.  Student Performance Analysis: an analysis of how ADC participants performed (as measured by grade point averages at the end of term 1, year 1, and year 2) in post-secondary compared to those who did not participate in ADC. The Student Performance Analysis presents two forms of analysis:

    a.  Visual analysis: a visual comparison of performance outcomes between the two groups overall. While this style of analysis is useful for seeing and understanding the actual performance of the two groups, it does not include statistical significance nor relationships between variables.

    b.  Regression analysis: a method for estimating the relationships between dependent variables (GPA) and independent variables (ADC participation, gender, national status, English 12 grade, and CIP cluster of the program the student was admitted to). This method effectively breaks the two study groups (ADC and non-ADC participants) down to the level of otherwise similar ADC and non-ADC participants and allows for more nuanced comparison.

3.  Student Experience Survey: this analysis uses responses to the online survey shown in **Appendix 1: Student Experience Online Survey**.

## Camosun: Student Demographic Analysis

This analysis compares the demographic details of ADC and non-ADC students at Camosun College.

**Figure 5** shows the breakdown of Camosun ADC and non-ADC students by gender. At Camosun, the ADC population has a similar gender composition to the non-ADC population.

**Figure 5:** Camosun: ADC and non-ADC Participants, by Gender

| Gender | ADC Participant? | |
|---|---|---|
| Female | ADC | 56.6% (430) |
| | Non-ADC | 58.1% (2,671) |
| Male | ADC | 43.4% (330) |
| | Non-ADC | 41.9% (1,926) |

**Figure 6** shows the ADC and non-ADC participants categorized by the CIP cluster of the academic program they were admitted to. There are fewer ADC than non-ADC participants enrolled in Arts and Sciences, and more ADC participants enrolled in Business and Management, Engineering and Applied Sciences, Health, and Human and Social Services. Visual and Performing Arts and Unknown have small numbers of ADC participants so these differences are likely insignificant.

**Figure 6:** Camosun: Subject Area of Academic Program of ADC and non-ADC Participants, by CIP Cluster



| | Arts and Sciences | Business and Management | Engineering and Applied Sciences | Health | Human and Social Services | Visual and Performing Arts | Unknown |
|---|---|---|---|---|---|---|---|
| ADC | 53.0% (402) | 16.3% (124) | 7.4% (56) | 8.4% (64) | 10.9% (83) | 2.0% (15) | 2.0% (15) |
| Non-ADC | 62.2% (2,847) | 11.2% (513) | 4.0% (184) | 6.5% (296) | 8.6% (395) | 2.3% (106) | 5.2% (236) |
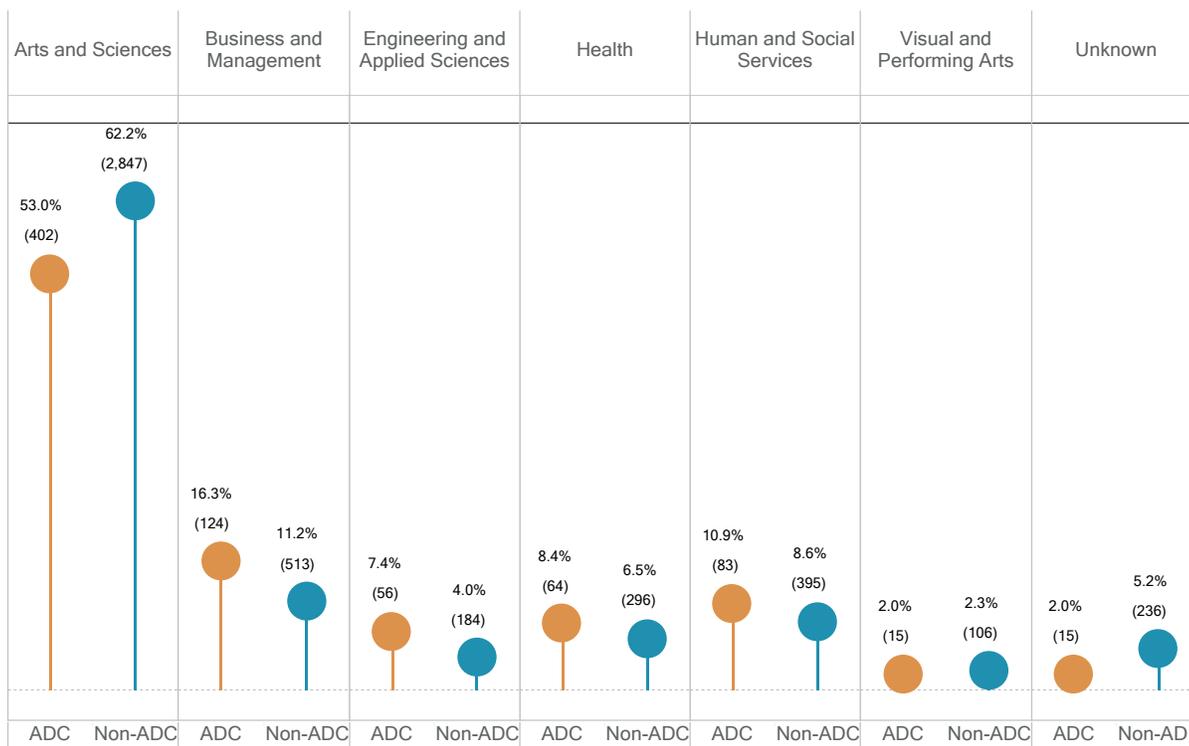
In terms of national status, 90.1% (4,144) of non-ADC students are domestic students while 9.9% (453) are international. For ADC students, 96.6% (734) are domestic students, while 3.4% (26) are international.

## Camosun: Student Performance Analysis

The student performance analysis focuses on aggregate student performance at Camosun, as measured by GPA at the end of term 1 (T1; 15 credits completed), year 1 (Y1; 30 credits completed), and year 2 (Y2; 60 credits completed).

The performance dataset for Camosun included data on 6,893 students – 5,858 (85%) who did not participate in ADC, and 1,035 (15%) who were ADC participants. We excluded students in programs listed as part of the CIP cluster of *Development* (626 for non-ADC, 75 for ADC) and Trades (406 non-ADC, 50 ADC) as these areas were outside of the scope of this study. A further 379 students (229 for non-ADC, 150 for ADC) were excluded as they did not attempt at least one credit in year 1. This resulted in an analysis dataset of 4,597 (86%) non-ADC participants and 760 (14%) ADC participants. Any data related to second year (Y2) was filtered to include only those students who attempted at least one credit in their second year.

**Table 4** displays the average GPA of Camosun ADC students compared to non-ADC students, overall and by gender, at the end of T1, Y1, and Y2, using a grade point scale of 0-9. ADC students received higher average GPAs than non-ADC students at each point. Females had higher GPAs than males, and males in ADC had higher GPAs their non-ADC counterparts. This table only includes data on Camosun students who attempted at least one PS credit in the time period identified. Statistical testing for significance was not performed for this analysis – for tests of significance, see the regression analysis in **Table 5** and **Appendix 6: Camosun Regression: Year 1 and Year 2 GPA Analysis**.

**Table 4:** Camosun: Average GPA at Term 1, and Year 2 of ADC and non-ADC Participants, by Gender

| | | Term 1 GPA | | Year 1 GPA | | Year 2 GPA | |
|---|---|---|---|---|---|---|---|
| | | ADC | Non-ADC | ADC | Non-ADC | ADC | Non-ADC |
| GPA | Female | 5.11 | 4.92 | 5.09 | 5.01 | 5.24 | 5.21 |
| | Male | 4.68 | 3.73 | 4.76 | 4.04 | 4.70 | 4.35 |
| Number of Students | Female | 430 | 2,671 | 430 | 2,671 | 230 | 1,499 |
| | Male | 330 | 1,926 | 330 | 1,926 | 184 | 1,073 |
| GPA | Total | 4.92 | 4.42 | 4.94 | 4.60 | 5.00 | 4.85 |
| Number of Students | Total | 760 | 4,597 | 760 | 4,597 | 414 | 2,572 |

While ADC students generally received higher GPAs than their counterparts, our regression analysis showed that, when the effects of gender, English 12 grade, national status, and CIP cluster were controlled, ADC participation was not found to have a significant effect on student GPA.

Regression analyses were run to determine which independent variables were statistically significant predictors of GPA, using the methods outlined in Methodology and Limitations. For Camosun, the regression that best predicted GPA included the independent variables of ADC participation, gender, national status, CIP cluster, and English 12 grade. These explained 19% of variance in T1 GPA, 20% in Y1 GPA, and 14% in Y2 GPA.

For T1 GPA (**Table 5)** these variables had a statistically significant effect:
- Gender;
- National status;
- English 12 grades of B, C+, C, C, and F, compared with A-; and,
- CIP clusters of Business and Management, Engineering and Applied Sciences, Health, Human and Social Services, and Visual and Performing Arts, as compared with Arts and Sciences.

This type of analysis allows us to compare *otherwise similar* students. For example, with this analysis, we can say that if males and females are both ADC participants, have similar English 12 grades, are admitted to an academic program coded with the same CIP cluster, and have the same national status, the males are expected to have T1 GPAs 0.521 points lower than the females.

Similar patterns are observed for Y1 and Y2 GPA. For further details on Camosun's regression analysis and its effect on Y1 and Y2 GPA, see **Appendix 6: Camosun Regression: Year 1 and Year 2 GPA Analysis**.

**Table 5:** Camosun: Term 1 GPA Regression Analysis

| Variable | Term 1 GPA R-Squared = 0.185 | | |
| --- | --- | --- | --- |
| | Coefficient | Standard Error | T-Value |
| Intercept | 6.319 | 0.093 | 68.147 |
| ADC Participant | 0.146 | 0.093 | 1.562 |
| Male *** | -0.521 | 0.069 | -7.517 |
| International *** | -0.419 | 0.141 | -2.975 |
| En12: A- | 1.546 | 1.592 | 0.971 |
| En12: B *** | -1.321 | 0.098 | -13.425 |
| En12: B+ | -0.304 | 1.592 | -0.191 |
| En12: C *** | -2.723 | 0.158 | -17.272 |
| En12: C- *** | -2.898 | 0.215 | -13.448 |
| En12: C+ *** | -2.440 | 0.112 | -21.859 |
| En12: D | 1.447 | 2.251 | 0.643 |
| En12: F * | -2.759 | 1.592 | -1.733 |
| CIP: Business and Management ** | 0.234 | 0.100 | 2.346 |
| CIP: Education | 0.431 | 0.493 | 0.874 |
| CIP: Engineering and Applied Sciences *** | 1.090 | 0.155 | 7.053 |
| CIP: Health *** | 1.269 | 0.130 | 9.779 |
| CIP: Human and Social Services *** | 0.380 | 0.112 | 3.386 |
| CIP: Visual and Performing Arts *** | 1.277 | 0.213 | 5.996 |

Significance: *** ($p<0.01$), ** ($p<0.05$), * ($p<0.10$)

**Figure 7** shows the distribution of English 12 grades earned by ADC and non-ADC participants. Seventy-two percent of ADC participants have an A or B in English 12, compared to 64% for non-ADC participants. This chart excludes students who did not have an English 12 grade (178 ADC, 60 non-ADC), where the grade didn't exist in BC (five non-ADC), and failing grades (N<5).

Camosun: English 12 Grade Distribution of ADC and non-ADC Participants

| English 12 Grade | ADC Participant? | |
| --- | --- | --- |
| A | ADC | 16% (111) |
| | Non-ADC | 13% (581) |
| B | ADC | 56% (390) |
| | Non-ADC | 51% (2,229) |
| C+ | ADC | 22% (152) |
| | Non-ADC | 26% (1,141) |
| C, C- | ADC | 7% (47) |
| | Non-ADC | 10% (461) |
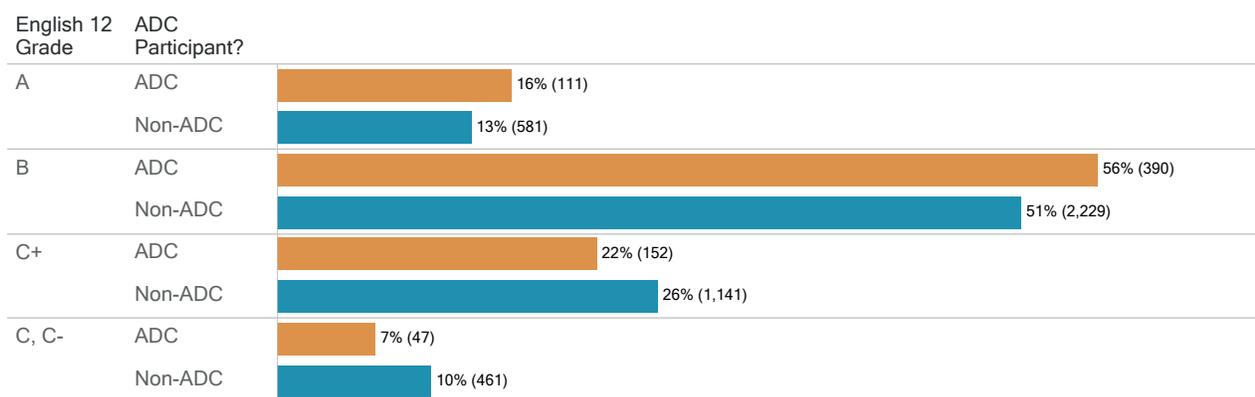
## Camosun: Student Experience Survey

The student experience survey was conducted online between May 15, 2019 and June 9, 2019. Camosun sent out 2,800 invitations (see **Appendix 1**) requesting voluntary participation in this research. Responses were received from 388 students, for a response rate of 14%.

Respondents were asked a set of questions about their academic history. These were:

- Have you graduated high school?
- If no, what grade are you currently in?
- If yes,
  - Are you currently attending post-secondary education?
  - How many years of post-secondary education have you completed?

While 79% of respondents (307) indicated that they had graduated from high school, 19% (73) indicated they have not. Eight respondents responded with *other*, with six saying they were going to graduate in June 2019, one pursuing upgrading, and one dropping out.

Of those who had not graduated from high school, the majority (71%, 52) were in grade 12, while 27% (20) were in grade 11.

For the respondents who had graduated from high school, 67% (212) were currently attending post-secondary education; 30% (94) were not attending; and 3% (seven) did not respond. Of these:

- 30% (92) had completed one year of post-secondary education;
- 23% (70) had completed two years;
- 20% (62) had not completed a full year;
- 18% (54) had completed three years; and,
- 9% (28) had completed four or more years.

A majority of respondents (203 of 306, 66%) had graduated high school and had taken one ADC course; 21% of respondents (66) had taken two ADC courses; 5% (15) had taken three ADC courses; 1% (1) had taken four ADC courses; 4% (13) had taken more than four courses; and 2% of respondents did not answer this question.

The vast majority of respondents (82%, 315) participated in ADC in only Grade 12, while 22% (84) participated in only Grade 11; a further 7% (25) participated in both grades. Only 5% (20) participated in Grade 10.

Similar responses were received from students who participated in ADC two, three, and four years ago: 25% (76) participated two years ago, 23% (71) participated three years ago, and 22% (69) participated four years ago. Four respondents said their ADC course was currently in progress, while 13% (40) participated one year ago, and 14% (43) more than four years ago. Four respondents did not answer this question.

The five most common ADC course subjects that students enrolled in were Psychology, Biology, Mathematics, Explorations in Technology, and Accounting.

Respondents were asked which school district (or districts) they were enrolled in when taking their ADC course/courses. This question allowed respondents to choose multiple districts. The responses were:

- Saanich: 36% (134);
- Sooke: 29% (110);
- Greater Victoria: 25% (95);
- Cowichan Valley: 8% (30); and,
- Gulf Islands: 2% (6).

The one respondent who selected *Other* said they went to a school on the West Shore, perhaps unaware that this area is a part of the Sooke School District.

**Table 6** compares responses to the questions *What post-secondary institution did you originally plan on attending when you first took an ADC course* (labelled as *Intended Institution*) and *What post-secondary institution(s) did you attend after high school?* (labelled as *Attended Institution*). Responses of "not applicable" (93) are excluded. The data in this chart indicate that Camosun is a top destination for ADC participants, with 124 attending Camosun for at least some of their PSE studies. The University of Victoria was also a popular destination for ADC participants (55). One interesting finding is that 13 students who initially intended to attend the University of Victoria opted instead to attend Camosun College.

**Table 6:** Camosun: Intended Institution versus Attended Institution(s)

| Intended Institution | Attended Institution | | | |
|---|---|---|---|---|
| | Camosun College | Multiple including Camosun College | Other | Grand Total |
| Camosun College | 90 | 23 | 12 | 125 |
| Other | 34 | 14 | 105 | 153 |
| Grand Total | 124 | 37 | 117 | 278 |

Respondents were asked whether any of the ADC courses they took were related to their intended area of study. Sixty-two percent (242) had taken courses related to their intended area of study; 30% of respondents (118) had not. Seven percent of respondents (28) did not answer this question.

Respondents typically started post-secondary studies soon after high school completion. 58% (177) attended immediately after high school; 18% (56) had a one-year gap; 7% (22) had a two-year gap; and 8% (26) had a gap of over two years. Eight percent of respondents (26) did not answer this question.

The survey also asked how students heard about ADC courses (**Figure 8**). 349 respondents provided one or more responses for this question.

How did you hear about Dual Credit?
349 unique respondents

| | |
|---|---|
| High school teacher | 72% (252) |
| High school counsellor | 40% (141) |
| Someone who had already taken a Dual Credit course | 17% (58) |
| Information session | 11% (37) |
| High school website | 9% (31) |
| Parent | 7% (25) |
| Post-secondary institution website | 2% (7) |
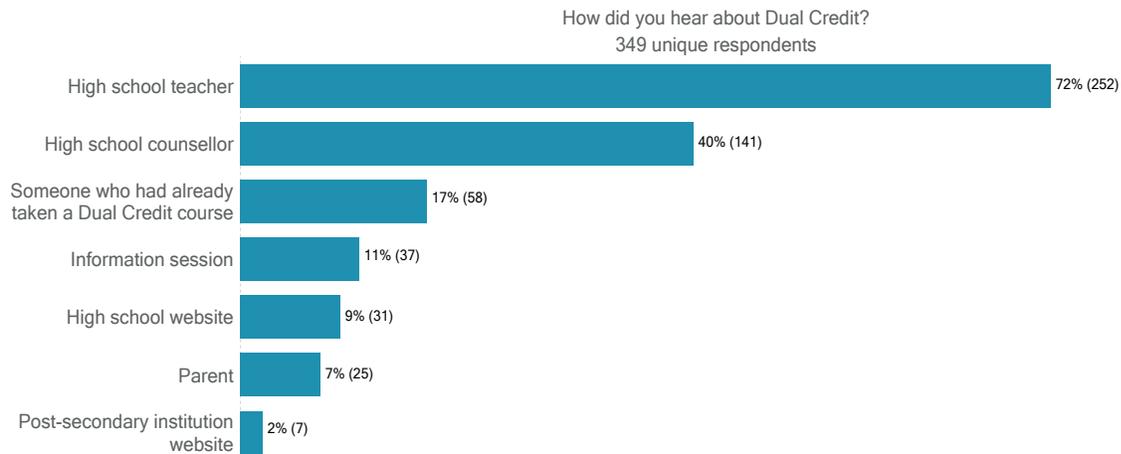
A question about people who influence students' decision to participate in ADC saw similar responses. Fifty-six percent (199) were influenced by their high school teacher; 27% (97) by their high school counsellor; 25% (91) by a parent; and 22% (76) by a friend. Self-motivation was cited by 44 of the 51 (14%) respondents who selected "Other".

**Figure 9** displays ratings of the experiences related to ADC. The majority of respondents agreed or strongly agreed that the enrolment process was clear (79%, 283); the workload was manageable (88%, 317); and that ADC helped prepare them for PSE (70%, 253).

**Figure 9:** Camosun: Student Experiences with ADC: Enrolment Process, Workload, and Preparation for Post-Secondary Education

Tell us about your experience taking Dual Credit

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|
| The enrolment process was clear. | | 18 / 5% | 48 / 13% | 157 / 44% | 126 / 35% |
| The workload was manageable. | | 12 / 3% | 27 / 8% | 151 / 42% | 166 / 46% |
| Taking a Dual Credit course helped prepare me for post-secondary education. | 23 / 6% | 22 / 6% | 61 / 17% | 109 / 30% | 144 / 40% |

Strongly disagree    Disagree    Neutral    Agree    Strongly agree
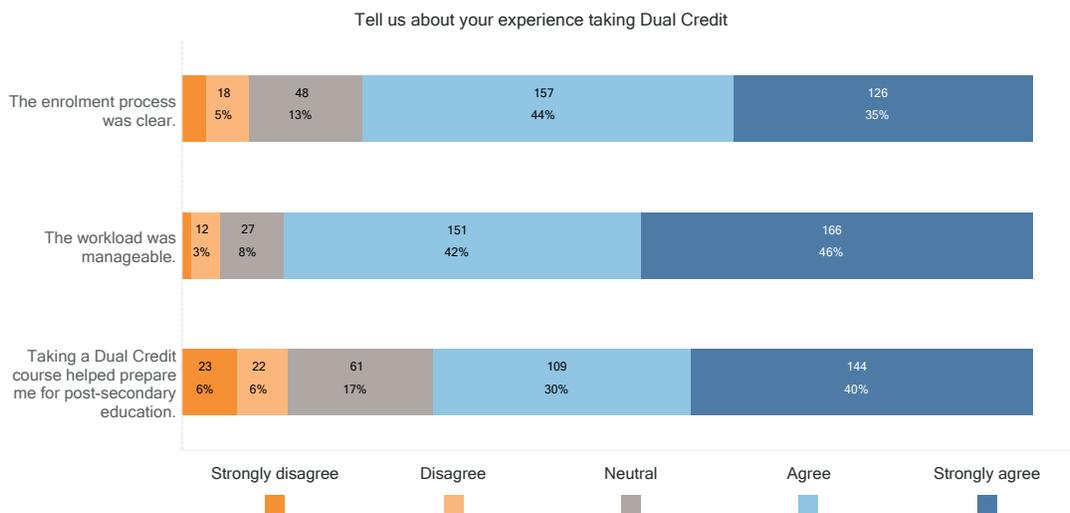
**Figure 10** displays how likely students were to recommend ADC course(s) to others. On a scale of 1-10, the average rating was 8.7 out of 10, with 50% of respondents rating the likelihood of recommendation as 10 out of 10.

**Figure 10:** Camosun: How Likely are Students to Recommend ADC to Others?
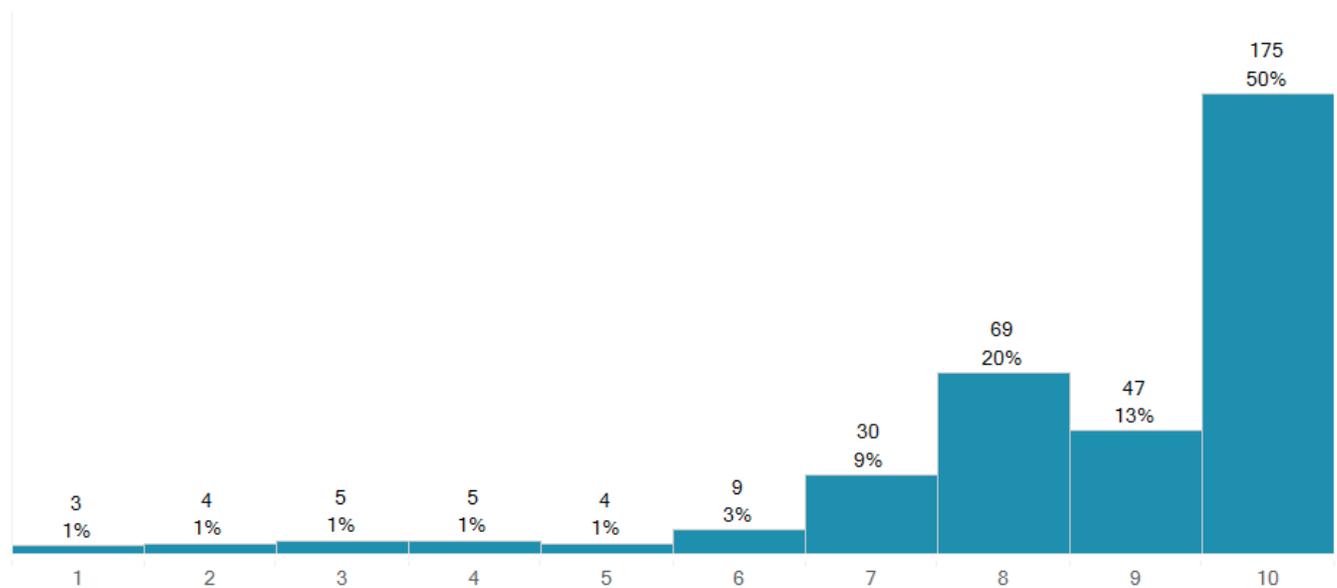


When asked to elaborate on the reasons for their score, respondents said ADC was:

- a good opportunity (73);
- a chance to experience PSE – from both an environmental and workload perspective (57);
- a help in preparing them for PSE (49);
- an opportunity to save money (38);
- an opportunity to get a head start (38);
- an opportunity to explore educational pathways (26); and,
- an opportunity to receive dual credits (22).

Among those who had a mixed experience (43), the most frequent reasons were sub-optimal experience with professors, instructors, or teachers; credits not being honoured for transfer at another institution; communication challenges between the PSI and high school; and workload. Some found the workload not challenging, but some found it too challenging, and some said that it didn't prepare them for PSE workloads.

**Figure 11** displays participants' identification of the most helpful aspects of participating in ADC. If a respondent selected more than one option, their responses were counted multiple times for the options, but only once in the total.

**Figure 11:** Camosun: Most Helpful Aspects of ADC Participation

What do you feel was most helpful about participating in Dual Credit?

| Category | Aspect | Value |
|---|---|---|
| Class / course / teaching | Academic rigour / expectations | 46 |
| | What classes are like | 23 |
| | Methods / style / format / structure | 15 |
| | Lab / studio / classroom | 12 |
| | Academic writing / presentations | 9 |
| | Assignments & exams | 8 |
| | Size | 2 |
| | **Total** | 107 |
| Insight / exposure | What PSE is like | 42 |
| | New knowledge / challenge | 19 |
| | On campus | 5 |
| | Differences - HS vs PSE | 5 |
| | Systems & Services | 3 |
| | Application / enrolment process | 1 |
| | **Total** | 75 |
| Dual / transfer credits | Earning credits (general) | 24 |
| | Head start / finish quicker | 16 |
| | Lessen course load | 4 |
| | Finish grade 12 on time | 1 |
| | **Total** | 45 |
| Self | Evaluation of institution / field / PSE | 23 |
| | Study skills | 10 |
| | Confidence | 3 |
| | Meet new people / classmates | 2 |
| | Changed perceptions | 2 |
| | Independence | 1 |
| | **Total** | 41 |
| Support | PSE professors / instructors | 22 |
| | Transition support / supportive environment | 9 |
| | HS teachers | 5 |
| | Structure | 3 |
| | **Total** | 38 |
| Financial | Affordability / save money | 6 |
| | **Total** | 6 |
| Career | Preparation | 2 |
| | Exposure | 2 |
| | **Total** | 4 |
| **Grand Total** | | 285 |

Figure 12 displays participants' ideas about what they felt could be improved about the ADC program.

**Figure 12:** Camosun: Areas of ADC That Could be Improved

What do you feel could be improved about the Dual Credit experience?

| Area | Percentage (Count) |
|------|--------------------|
| More course/program options | 23% (49) |
| Academic interest, grading, and transition support | 18% (39) |
| ADC application process, awareness, and timing | 17% (36) |
| Workload, scheduling, and stress | 12% (26) |
| Professor / Instructor (quality, consistency, engagement) | 7% (15) |
| Information / support for post-secondary admissions/transfer | 6% (13) |
| Resources (books, learning technology, transportation) | 5% (11) |
| Communication | 4% (8) |
| Self, effort, maturity | 4% (8) |
| Academic activities (labs, workshops, instructional options) | 2% (5) |
| 2 others | 1% (3) |

## *Camosun: Discussion*

Data from BC's Student Transitions Project show that Camosun operates the largest DC program in the province, with 1,211 students having participated between 2010/11 and 2016/17. The student experience survey saw a correspondingly large response: 388 students (14% of the 2,800 invited) responded to the survey and reported very favourable impressions of Camosun's ADC programming.

> *It was a great way to learn about post-secondary. Even though I did not go into the field of the dual credit class, I took a lot of value away from the course. I wasn't initially nervous about going to post-secondary but taking the dual credit and learning how manageable it was, it made me more confident and likely to attend post-secondary.*
> *- Survey respondent*

The vast majority of students felt that the enrolment process was clear, that the workload was manageable, and that ADC helped prepare them for PSE. Many respondents identified the early preparation for post-secondary studies as the best part of ADC for them.

Those who returned to Camosun for further study (55%, according to the STP data), earned higher grade point averages than non-ADC participants. However, our analysis reveals this difference in performance is primarily due to national status, English 12 grades, and taking courses in certain CIP clusters, rather than participation in ADC. Term 1 and year 1 predictions were strongest, with these factors explaining nearly 1/5 of the variance in these GPAs.

Students suggested that Camosun's ADC programming could be improved with additional course and program options, and with better awareness of the possibilities. They felt that they benefited from being able to explore educational pathways.

> *It made me realize that I didn't like psychology and that I should change what I want to do.- Survey respondent*

The South Island Partnership is one of the leading DC options in the province, and has a strong website with extensive information about dual credit options, both academic and trades. Yet up to 72% of Camosun's student survey respondents said that they heard about ADC from their teacher or counsellor; these same individuals were influential in the decision to enroll in ADC. This suggests that while ADC participants may be aware of school or PSI websites focused on ADC, these sites are not the primary drivers of enrolment. There may be an opportunity to increase the DC web presence and make it more accessible for students. It also suggests that ADC programs should continue to be promoted to teachers and counsellors.

An interesting finding is the number of individual qualitative responses indicating that ADC funding helped with affordability of post-secondary education. The phrasing of these responses stood out in comparison to those who viewed the tuition waiver as saving money, and suggests that for some students ADC provides an opportunity that might not otherwise be available to them. Camosun also stood out for the similar gender balance of its ADC population and non-ADC populations, which is discussed further in the Overall Discussion section.

# Case Study: Kwantlen Polytechnic University

This section focuses on the case study of Kwantlen Polytechnic University. The intention of this report is not to compare institutions, but to better understand the overall experiences and performance of students participating in ADC in BC. The case study contains three components:

1. **Student Demographic Analysis:** an analysis of demographic factors for ADC and non-ADC participants.

2. **Student Performance Analysis:** an analysis of how ADC participants performed (as measured by grade point averages at the end of term 1, year 1, and year 2) in PSE compared to those who did not participate in ADC. The Student Performance Analysis presents two forms of analysis:

    a. Visual analysis: a visual comparison of performance outcomes between the two groups overall. While this style of analysis is useful for seeing and understanding the actual performance of the two groups, it does not include statistical significance nor relationships between variables.

    b. Regression analysis: a method for estimating the relationships between a dependent variable (GPA) and independent variables (ADC participation, gender, national status, English 12 grade, and CIP cluster of the program the student was admitted to). This method effectively breaks the two study groups (ADC and non-ADC participants) down to the level of *otherwise similar ADC and non-ADC participants* and allows for more nuanced comparison.

3. **Study Experience Survey:** this section of analysis illustrates responses to the online survey questions in **Appendix 1: Student Experience Online Survey**.

## *KPU: Student Demographic Analysis*

Breaking the dataset down by gender reveals that ADC participation at KPU is mostly female: 79.5% (93) of ADC participants were female, and 20.5% (24) were male (we note that this ratio is likely different in Trades DC, which is outside the scope of this report).

| Gender | ADC Participant? | |
|---|---|---|
| Female | ADC | 79.5% (93) |
| | Non-ADC | 53.4% (6,100) |
| Male | ADC | 20.5% (24) |
| | Non-ADC | 46.6% (5,325) |
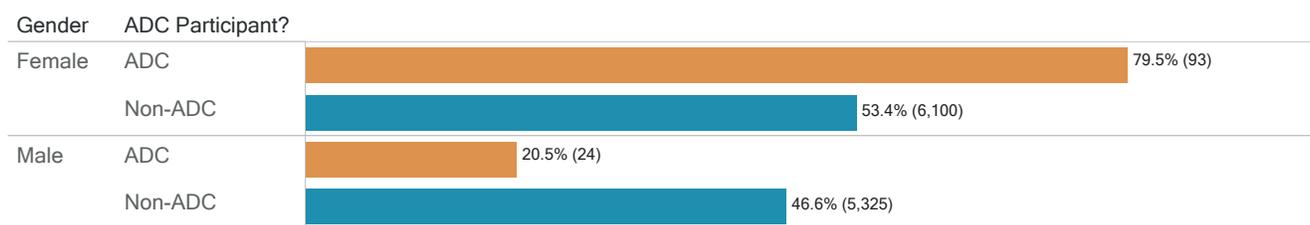
## KPU: Student Performance Analysis

The student performance analysis focuses on aggregate student performance at KPU, as measured by GPA at the end of term 1 (T1; 15 credits completed), year 1 (Y1; 30 credits completed), and year 2 (Y2; 60 credits completed).

The performance dataset for Kwantlen Polytechnic University included data on 13,769 students – 13,144 (95.5%) who did not participate in ADC, and 625 (4.5%) who were ADC participants. Students who received transfer credit were excluded (19 for ADC, 1,599 for non-ADC), as were students with credit for Advanced Placement or International Baccalaureate studies (0 for ADC, 138 for non-ADC). For this part of the study, only those who subsequently registered at KPU after their ADC studies were included. Thus, the resulting dataset contains 11,425 (99%) non-ADC participants, and 117 (1%) ADC participants.

**Table 7** displays the average GPA of ADC students compared to non-ADC students, overall and by gender, at the end of T1, Y1, and Y2. Second-year results are not shown as there is data on less than 10 males. ADC students have higher GPAs in both time periods, with similar differences in term 1 and year 1. Females have higher GPAs than males; however, male ADC participants had slightly lower term 1 GPAs than non-ADC participants, but higher year 1 GPAs than non-ADC participants. Female ADC participants had higher GPAs than non-participants for both measures. Statistical significance testing was not performed for this analysis – for tests of significance, see the regression analysis in **Table 8** and **Appendix 7: KPU Regression: Year 1 and Year 2 GPA Analysis.**

**Table 7:** KPU: Average GPA at Term 1 and Year 1 of ADC and non-ADC Participants, by Gender

| | | Term 1 GPA | | Year 1 GPA | |
|---|---|---|---|---|---|
| | | ADC | Non-ADC | ADC | Non-ADC |
| GPA | Female | 2.89 | 2.57 | 2.93 | 2.67 |
| | Male | 2.17 | 2.19 | 2.56 | 2.33 |
| Number of Students | Female | 93 | 6,100 | 93 | 6,100 |
| | Male | 24 | 5,325 | 24 | 5,325 |
| GPA | Total | 2.74 | 2.39 | 2.85 | 2.51 |
| Number of Students | Total | 117 | 11,425 | 117 | 11,425 |

While ADC students generally received higher GPAs than their counterparts, our regression analysis showed that when the effects of gender, English 12 grade, national status, and CIP cluster were controlled, ADC participation did not have a significant effect on student GPA.

Regression analyses were conducted to determine which independent variables were statistically significant predictors of GPA. For KPU, the variables that best predicted GPA were ADC participation, gender, national status, CIP cluster, and English 12 grade. These collectively explained 19% of variance in T1 GPA, 20% in Y1 GPA, and 14% in Y2 GPA.

For T1 GPA (**Table 8**), the following variables had statistically significant effects on GPA:

- Gender;
- English 12 grades of B, C+, C- when compared with A; and,
- CIP cluster.

This type of analysis allows us to compare *otherwise similar* students. For example, with this analysis, we can say if males and females are both ADC participants, have similar English 12 grades, are admitted to an academic program in the same CIP cluster, and have the same national status, the males are expected to have T1 GPAs 0.172 points lower than the females.

**Table 8:** KPU: Term 1 GPA Regression Analysis

| Variable | Term 1 GPA R-Squared = 0.145 | | |
|---|---|---|---|
| | Coefficient | Standard Error | T-Value |
| Intercept | 3.050 | 0.025 | 121.308 |
| ADC Participant | 0.113 | 0.095 | 1.193 |
| Male *** | -0.172 | 0.020 | -8.407 |
| International | -0.108 | 0.080 | -1.345 |
| En12: B *** | -0.500 | 0.027 | -18.750 |
| En12: C- *** | -1.089 | 0.083 | -13.128 |
| En12: C+ *** | -0.897 | 0.030 | -29.828 |
| En12: P | -0.424 | 1.068 | -0.396 |
| CIP: Business and Management *** | -0.154 | 0.023 | -6.718 |
| CIP: Education *** | 1.529 | 0.080 | 19.196 |
| CIP: Engineering and Applied Sciences *** | 0.332 | 0.047 | 7.121 |
| CIP: Health *** | 0.484 | 0.042 | 11.387 |
| CIP: Human and Social Services *** | 0.828 | 0.091 | 9.053 |
| CIP: Visual and Performing Arts *** | 0.588 | 0.065 | 9.074 |

Significance: *** ($p<0.01$), ** ($p<0.05$), * ($p<0.10$)

Similar patterns are observed for Y1 and Y2 GPA. For further details on KPU's regression analysis and its effect on Y1 and Y2 GPA, see **Appendix 7:** KPU Regression: Year 1 and Year 2 GPA Analysis.

**Figure 14** displays differences in English 12 grades. ADC participants generally had higher English 12 grades, with 92% having an A or B, compared with 70% of non-ADC participants. The average English 12 grade was 83.4% for ADC students, and 78.1% for non-ADC students. Three ADC and 404 non-ADC students were excluded from this analysis as they did not have an English 12 grade in the dataset provided.

**Figure 14:** KPU: English 12 Grade Distribution of ADC and non-ADC Participants
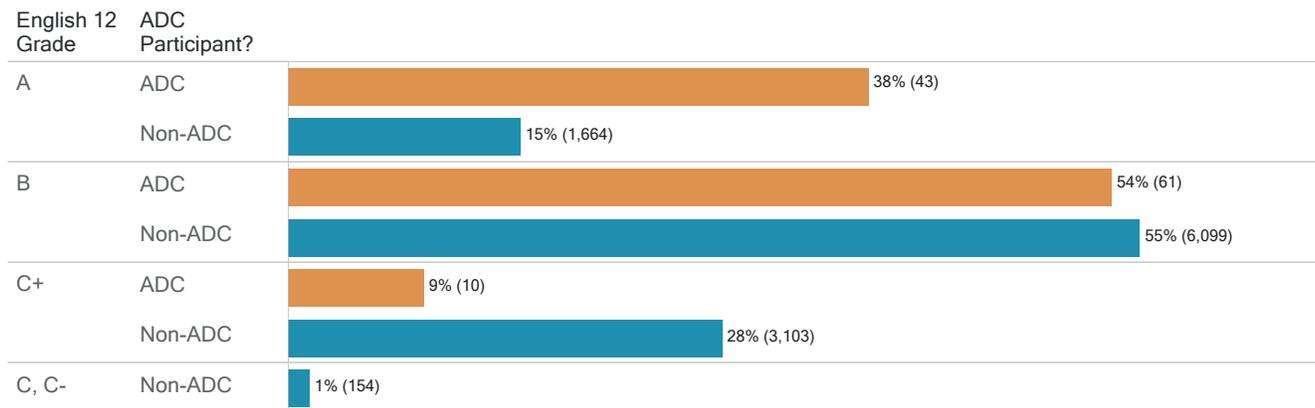
| English 12 Grade | ADC Participant? | |
|---|---|---|
| A | ADC | 38% (43) |
| | Non-ADC | 15% (1,664) |
| B | ADC | 54% (61) |
| | Non-ADC | 55% (6,099) |
| C+ | ADC | 9% (10) |
| | Non-ADC | 28% (3,103) |
| C, C- | Non-ADC | 1% (154) |

## KPU: Student Experience Survey

The student experience survey was administered online between April 17, 2019 and May 8, 2019. KPU sent out 650 invitations (see **Appendix 1**) requesting voluntary participation in this research. Responses were received from 197 students, for a response rate of 30%.

Respondents were asked a series of questions about their academic experience:

- Have you graduated high school?
- If no, what grade are you currently in?
- If yes,
  - Are you currently attending post-secondary education?
  - How many years of post-secondary education have you completed?

While 68% of respondents (133) indicated that they have graduated high school, 31% (61) indicated they have not. One respondent selected "Other", noting that they will graduate in June 2019.

Of those who had not graduated from high school, the majority (84%, 51) were in grade 12, while 15% (nine) were in grade 11.

For the respondents who had graduated from high school, 83% (113) were currently attending post-secondary education, 14% (19) were not attending, and 3% (4) did not respond. Of these:

- 27% (36) said they had completed one year of post-secondary education;
- 25% (33) had completed two years;
- 19% (25) had not completed a full year;
- 14% (19) had completed three years; and
- 13% (18) had completed four or more years.

A majority of respondents (83, 62%) had taken one ADC course; 34% of respondents (45) had taken two ADC courses; 1% (1) had taken 3 ADC courses; and 1% (1) had taken four ADC courses. 2% (3) of respondents did not answer this question.

The vast majority of respondents (86%, 164) participated in ADC in only Grade 12, while 18% (34) participated in only Grade 11; eight respondents participated in both grades.

Similar patterns of responses came from students who participated in ADC two, three, and four years ago: 20% (26) participated two years ago, 19% (25) participated three years ago, and 19% (25) participated four years ago. More students (30%, 40) took their most recent ADC one course year ago; 11% (14) took their course more than four years ago; 2% of respondents (three) did not answer this question.

The five most common ADC course subjects that students enrolled in ADC were Psychology, Criminology, Sociology, Business, and Fine Arts.

Respondents were asked which school district (or districts) they were enrolled in when taking their ADC course(s) at Kwantlen Polytechnic University. This question allowed respondents to choose multiple districts. The responses were: Surrey (66%, 123); Langley (30%, 56); and Richmond (4%, eight).

**Table 9** compares responses to the questions *What post-secondary institution did you originally plan on attending when you first took an ADC course* (labelled as *Intended Institution*) and *What post-secondary institution(s) did you attend after high school?* (labelled as *Attended Institution*). Responses of "Not applicable" (51) were excluded. The data in this chart indicate that KPU is the top destination for respondents, with 49 indicating they attended KPU, and 12 of those initially intending to study at a different institution. A further 10 attended KPU for at least some of their studies. Simon Fraser University was also a popular destination for ADC participants (17 respondents).

**Table 9:** KPU: Intended Institution versus Attended Institution(s)

| | Attended Institution | | | |
|---|---|---|---|---|
| Intended Institution | Kwantlen Polytechnic University | Multiple including Kwantlen Polytechnic University | Other | Grand Total |
| Kwantlen Polytechnic Un.. | 37 | 4 | 5 | 46 |
| Other | 12 | 6 | 67 | 85 |
| Grand Total | 49 | 10 | 72 | 131 |

Respondents were asked whether any of the ADC courses they took were related to their intended area of study. Fifty-six percent of respondents (111) had taken courses related to their intended area of study; 37% (72) had not. Seven percent of respondents (14) did not reply to this question.

Respondents typically started post-secondary studies soon after high school completion. 81% (108) attended immediately after high school; 11% (15) had a one-year gap; and 4% (five) had a gap of two or more years. Four percent of respondents (five) did not answer this question.

The survey also asked how students heard about ADC courses (**Figure 15**). 175 respondents provided one or more responses for this question.

**Figure 15:** KPU: How Did You Hear About ADC?

How did you hear about Dual Credit?
175 unique respondents

| | |
|---|---|
| High school counsellor | 68% (119) |
| High school teacher | 39% (69) |
| Information session | 14% (24) |
| Someone who had already taken a Dual Credit course | 11% (20) |
| High school website | 7% (12) |
| Parent | 3% (6) |
| Post-secondary institution website | 3% (6) |
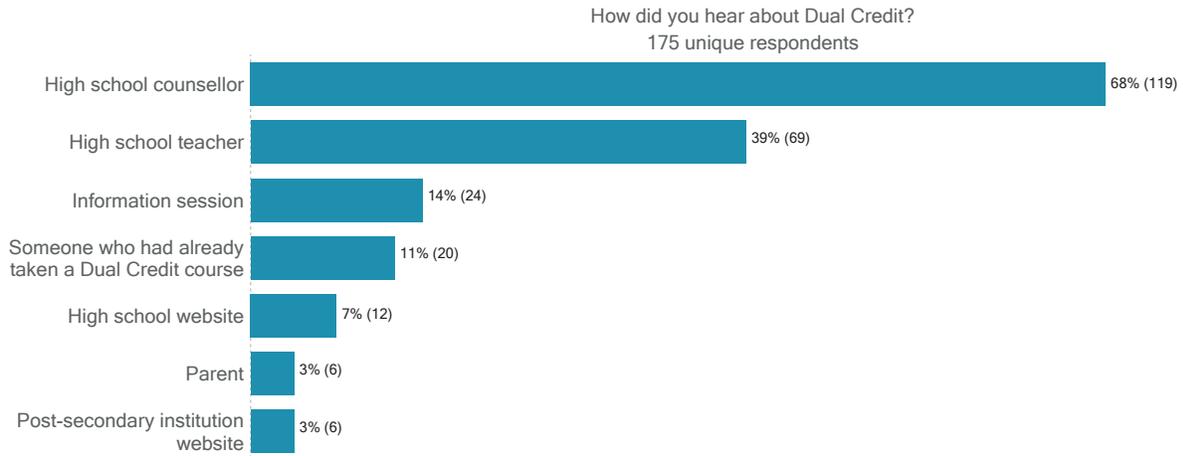
A question about people who influenced students' decision to participate in ADC saw similar responses. Fifty-three percent (93) were influenced by their high school teacher; 34% (59) by their high school counsellor; 24% (59) by a parent; and 23% (41) by a friend. Self-motivation was cited most frequently within the "Other" category selected by 14% (24) of respondents.

**Figure 16** displays ratings of the experiences related to ADC. The majority of respondents agreed or strongly agreed that the enrolment process was clear (89%, 158); that the workload was manageable (87%, 154); and that ADC helped prepare them for PSE (83%, 148).

**Figure 16:** KPU: Student Experiences with ADC: Enrolment Process, Workload, and Preparation for Post-Secondary Education

Tell us about your experience taking Dual Credit

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|
| The enrolment process was clear. | | 6 / 3% | 11 / 6% | 80 / 45% | 78 / 44% |
| The workload was manageable. | | | 16 / 9% | 87 / 49% | 67 / 38% |
| Taking a Dual Credit course helped prepare me for post-secondary education. | | | 21 / 12% | 55 / 31% | 93 / 52% |
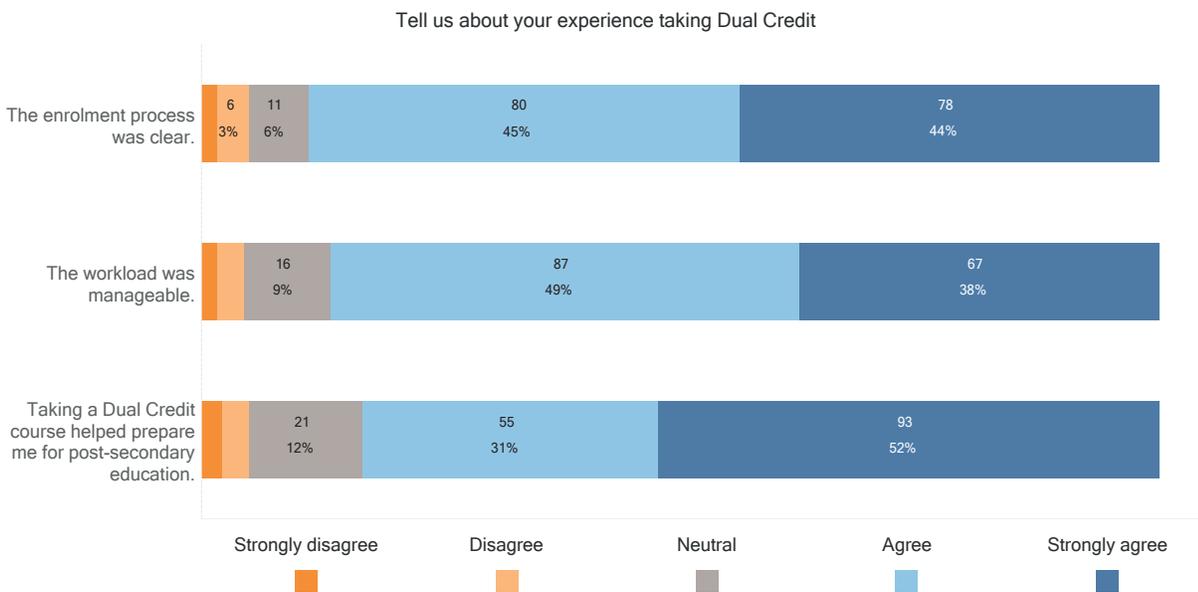
**Figure 17** displays how likely students were to recommend ADC course(s) to others on a scale of 1 to 10.

**Figure 17:** KPU: How Likely are Students to Recommend ADC?
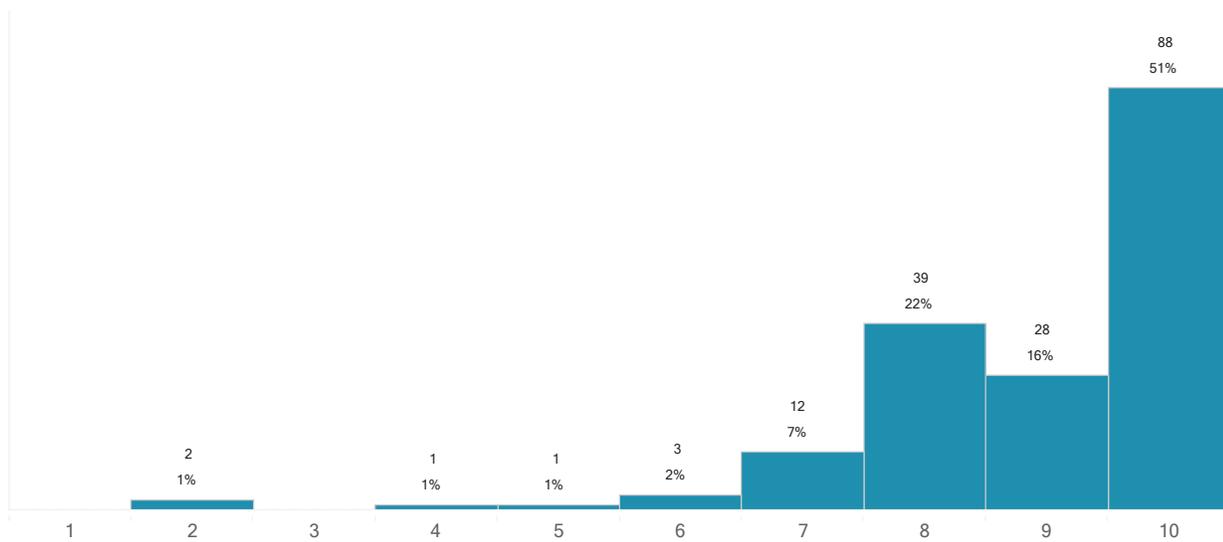


When asked to elaborate on why they selected their score, respondents said ADC was:

- a good way to experience PSE (52);
- a good way to prepare for PSE (42);
- a good opportunity or experience (41);
- a helpful head start to PSE studies (14);
- an opportunity to save money (13);
- an opportunity to explore educational pathways (12); and,
- an opportunity to receive dual credits (seven).

Among the 14 who reported a mixed experience, the most frequent reasons were juggling high school and post-secondary workloads; requests for more course offerings; poor interactions with professors, instructors or teachers; and a lack of Indigenous content.

**Figure 18** displays participants' identification of the most helpful aspects of participating in ADC. If a respondent selected more than one option, their responses were counted multiple times for the options, but only once in the total.

What do you feel was most helpful about participating in Dual Credit?

| Category | Aspect | Value |
|---|---|---|
| Insight / exposure | What PSE is like | 54 |
| | New knowledge / challenge | 3 |
| | Differences - HS vs PSE | 3 |
| | Application / enrolment process | 3 |
| | Workload | 2 |
| | Systems & Services | 2 |
| | **Total** | **64** |
| Class / course / teaching | Academic rigour / expectations | 26 |
| | What classes are like | 11 |
| | Assignments & exams | 4 |
| | Academic writing / presentations | 4 |
| | Variety | 3 |
| | Methods / style / format / structure | 3 |
| | Size | 1 |
| | Lab / studio / classroom | 1 |
| | **Total** | **52** |
| Self | Study skills | 16 |
| | Evaluation of institution / field / PSE | 12 |
| | Meet new people / classmates | 4 |
| | Independence | 4 |
| | Confidence | 2 |
| | Changed perceptions | 1 |
| | **Total** | **37** |
| Dual / transfer credits | Head start / finish quicker | 6 |
| | Earning credits (general) | 4 |
| | Lessen course load | 1 |
| | **Total** | **11** |
| Support | Transition support / supportive environment | 5 |
| | PSE professors / instructors | 3 |
| | **Total** | **8** |
| Financial | Affordability / save money | 5 |
| | **Total** | **5** |
| **Grand Total** | | **151** |

Figure 19 displays participants' ideas for what they felt could be improved about the ADC program. This chart shows the top six recommendations; the recommendations in the "others" category has not been included due to small sample sizes.

The most common recommendation for improvement was to provide more course and program options (39%, 42). This was followed by academic interest, grading, and transition support (17%, 18), which included collaboration between ADC students; integration between high school and PSE curricula; improvements to online learning; and transition support. The recommendations around the ADC application process and awareness (16%, 17) included recommendations that ADC start earlier, that requirements and processes should be clarified, and that the program needs more promotion and marketing.

**Figure 19:** KPU: Areas of ADC That Could be Improved

What do you feel could be improved about the Dual Credit experience?

| | |
|---|---|
| More course/program options | 39% (42) |
| Academic interest, grading, and transition support | 17% (18) |
| ADC application process, awareness, and timing | 16% (17) |
| Professor / Instructor (quality, consistency, engagement) | 7% (8) |
| Information / support for post-secondary admissions/transfer | 7% (7) |
| Communication | 5% (5) |
| 5 others | 9% (10) |
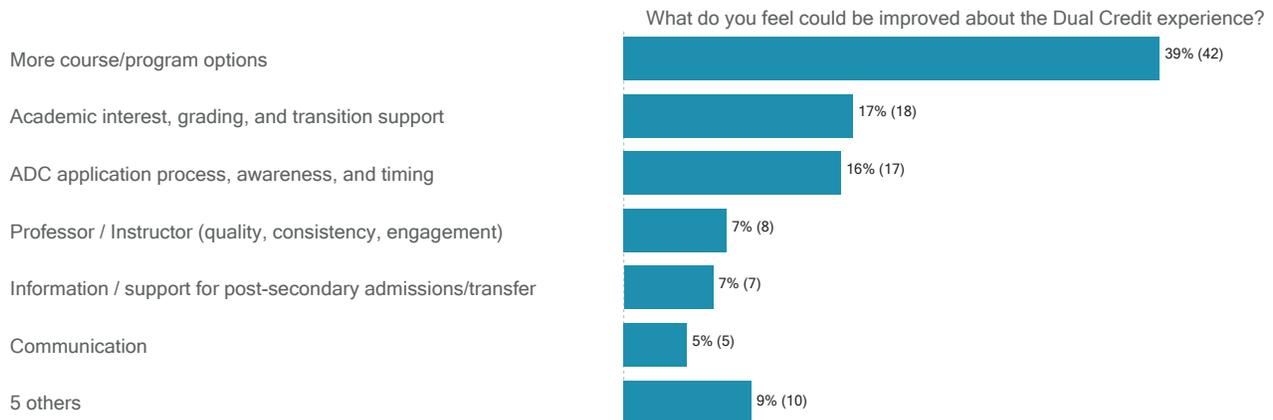
## KPU: Discussion

Data from BC's Student Transitions Project show that KPU had the fourth largest ADC program in BC, with 621 students participating between 2010/11 and 2016/17. 197 of 650 students completed the online student participant survey (a 30% response rate). Students report very favourable impressions of KPU's ADC programming.

> *I got to experience a real university class, and it helped me feel more comfortable when I actually attended post-secondary after high school* – Survey respondent

The vast majority of students felt that the enrolment process was clear, that the workload was manageable, and that ADC helped prepare them for PSE. In contrast, some respondents suggested that the enrolment process could be clearer, including making all requirements transparent. Many respondents identified the chance to experience post-secondary, and better understand the expectations of university classes and faculty, as the best part of ADC for them.

On the surface, ADC participants were strong performers at KPU, earning higher grade point averages in term 1, year 1, and year 2 than non-ADC participants. However, our analysis reveals this difference in performance is primarily due to gender, English 12 grade, and taking courses in certain CIP clusters. These variables accounted for up to 20% of the variance in students' GPA. As ADC participants tended to have higher English grades than non-participants, we posit that ADC students may be high achievers when they join the program.

*It is definitely a selective group of people that can manage the work load, and have the dedication to education required to attend, especially on attendance optional classes. Secondly, the courses allowed for selection were not exceptionally beneficial for certain fields, for example no engineering classes were available because they understandably required their high school prerequisites. But I still strongly enjoyed my time there and learned things* – Survey respondent

Students suggested that KPU's ADC programming could be improved with additional course and program options and better awareness of the possibilities. As most students indicated that they heard of the program through word of mouth – through a teacher, high school counsellor, friend, or parent – building additional web and social media resources could help KPU reach audiences that are currently unaware of these opportunities.

We also discuss the gender balance of KPU's ADC participants relative to the other institutional participants in the Overall Discussion section.

# Case Study: North Island College

This section focuses on the case study of North Island College. The intention of this report is not to compare institutions, but to better understand the overall experiences and performance of students participating in ADC in BC. The case study contains two major components:

1. Student Demographic Analysis: an analysis of demographic factors for ADC and non-ADC participants.

2. Student Performance Analysis: an analysis of how ADC participants performed (as measured by grade point averages at the end of term 1, year 1, and year 2) in post-secondary compared to those who did not participate in ADC. The Student Performance Analysis presents two forms of analysis:

    a. Visual analysis: a visual comparison of performance outcomes between the two groups overall. While this style of analysis is useful for seeing and understanding the actual performance of the two groups, it does not include statistical significance nor relationships between variables.

    b. Regression analysis: a method for estimating the relationships between dependent variables (GPA) and independent variables (ADC participation, gender, and national status). This method effectively breaks the two study groups (ADC and non-ADC participants) down to the level of otherwise similar ADC and non-ADC participants and allows for more nuanced comparison.

3. Study Experience Survey: this section of the analysis examines responses to the online survey shown in **Appendix 1: Student Experience Online Survey**.

## *NIC: Student Demographic Analysis*

**Figure 20** shows the ADC and non-ADC participants in the CIP cluster of the academic program they were admitted to. Proportionally, there are more ADC participants than non-ADC participants enrolled in Arts and Sciences, and fewer ADC participants enrolled in Business and Management and Engineering and Applied Sciences.

**Figure 20:** NIC: CIP Codes for Academic Programs Entered by ADC and non-ADC Participants
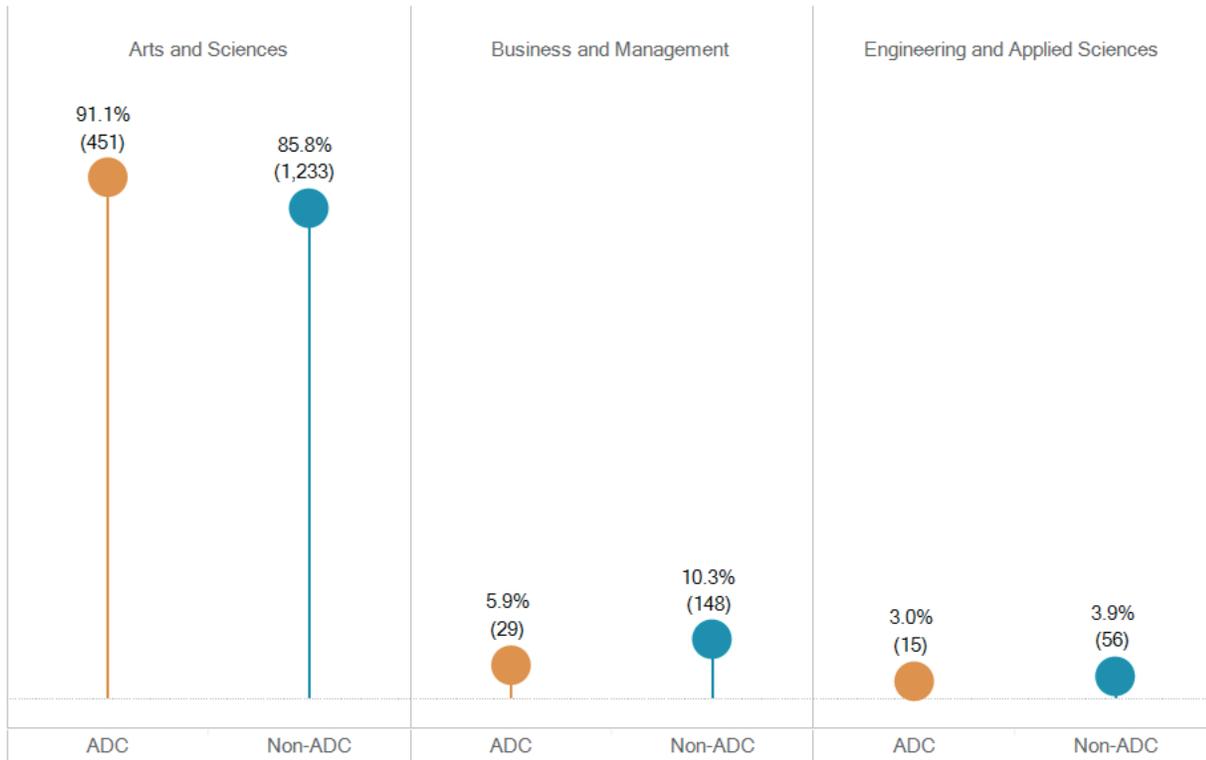


Figure 21 displays the ratio of male and female ADC and non-ADC students. Among ADC students 75.5% (382) were female, while 24.5% (124) were male.

**Figure 21:** NIC: ADC and non-ADC Participants, by Gender
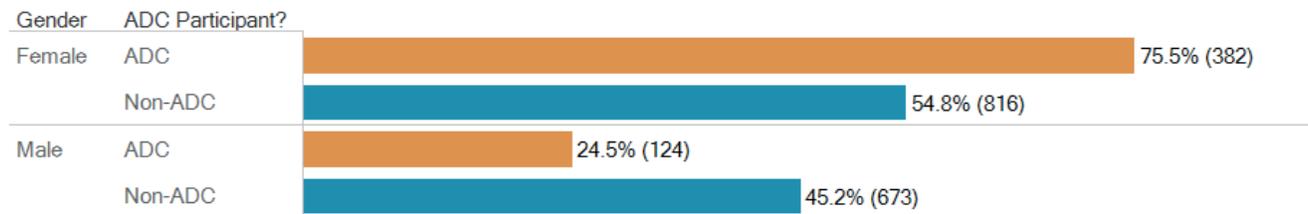
## NIC: Student Performance Analysis

The student performance analysis focuses on aggregate student performance at NIC, as measured by GPA at the end of term 1 (T1; 15 credits completed), year 1 (Y1; 15 credits completed), and year 2 (Y2; 15 credits completed).

The student performance dataset for North Island College contained data on 2,031 students. We excluded students who did not attempt at least one credit in their first year (2 ADC, 2 non-ADC), and transfer students (9 ADC, 23 non-ADC). This reduced our dataset to 1,995 students (506 ADC, 1,489 non-ADC). Any figures related to second year (Y2) are filtered to include only those who attempted at least one credit in second year.

**Table 10** displays average ADC versus non-ADC grade point averages, overall and by gender, at the end of T1, Y1, and Y2. ADC participants had universally higher GPAs, with the difference between ADC and non-ADC students most pronounced in term 1. Statistical testing for significance was not performed for this analysis – for tests of significance, see the regression analysis results in **Table 11** and **Appendix 8: NIC Regression: Year 1 and Year 2 GPA Analysis**.

**Table 10:** NIC: Average GPA at Term 1, Year 1, and Year 2 of ADC and non-ADC Participants, by Gender

| | | Term 1 GPA | | Year 1 GPA | | Year 2 GPA | |
|---|---|---|---|---|---|---|---|
| | | ADC | Non-ADC | ADC | Non-ADC | ADC | Non-ADC |
| GPA | Female | 2.90 | 2.53 | 2.79 | 2.52 | 2.89 | 2.65 |
| | Male | 2.94 | 2.28 | 2.83 | 2.24 | 2.84 | 2.32 |
| Number of Students | Female | 382 | 816 | 382 | 816 | 108 | 305 |
| | Male | 124 | 673 | 124 | 673 | 30 | 216 |
| GPA | Total | 2.91 | 2.42 | 2.80 | 2.39 | 2.88 | 2.51 |
| Number of Students | Total | 506 | 1,489 | 506 | 1,489 | 138 | 521 |

While ADC students generally had higher GPAs than non-ADC students, our regression analysis showed that when the effects of gender and national status were controlled, ADC participation had a significant effect on student GPA.

Regression analyses were run to determine which independent variables were statistically significant predictors of GPA. For NIC, the regression that best predicted GPA included the independent variables of ADC participation, gender, and national status. These explained 10% of variance in T1 GPA, 9% in Y1 GPA, and 9% in Y2 GPA.

For T1 GPA (**Table 11**) the effect of the following variables was statistically significant:

- ADC participation
- Gender
- National status

We note that for the other institutions in this report, English 12 grades were significant predictors of GPA. At NIC, this was not the case. We posit that English 12 grades did not significantly affect performance because NIC's ADC and non-ADC participant groups had nearly identical English 12 grades. At other institutions ADC participants had higher English 12 grades than non-ADC participants.

This type of analysis allows us to compare *otherwise similar* students. For example, with this analysis, we can say if domestic and international students are both ADC participants, the males are expected to have T1 GPAs 0.119 points lower than the females.

**Table 11:** NIC: Term 1 GPA Regression Analysis

| Variable | Term 1 GPA R-Squared = 0.096 | | |
| --- | --- | --- | --- |
| | Coefficient | Standard Error | T-Value |
| Intercept | 2.608 | 0.035 | 75.197 |
| ADC Participant *** | 0.330 | 0.054 | 6.162 |
| Male ** | -0.119 | 0.047 | -2.528 |
| International *** | -0.718 | 0.069 | -10.437 |

Significance: *** ($p<0.01$), ** ($p<0.05$), * ($p<0.10$)

Similar patterns are observed for Y1 and Y2 GPAs. For further details on NIC's regression analysis and the variables' effect on Y1 and Y2 GPA, see **Appendix 8: NIC Regression: Year 1 and Year 2 GPA Analysis.**

**Figure 22** shows the distribution of English 12 grades. English 12 grades earned by ADC and non-ADC participants at NIC tend to be in the B-range, while non-ADC participants' grades are more in the C-range. This analysis excludes students who did not have an English 12 grade (196 for ADC, 376 for non-ADC).

**Figure 22:** NIC: English 12 Grade Distribution of ADC and non-ADC Participants
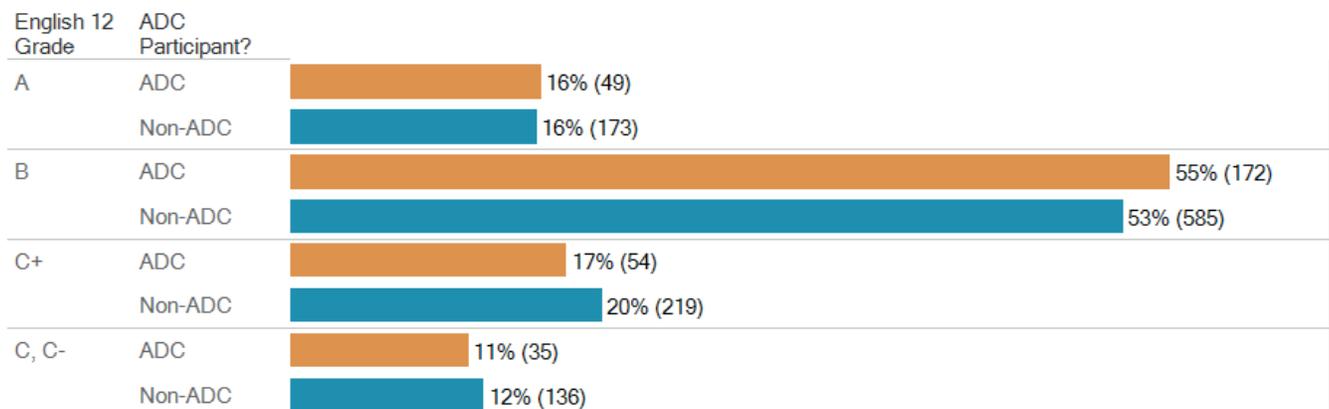
## NIC: Student Experience Survey

The student experience survey was administered online between May 15, 2019 and June 9, 2019. NIC sent out 473 invitations (see **Appendix 1**) requesting voluntary participation in this research. Responses were received from 100 students, for a response rate of 21%.

Respondents were asked a series of questions about their academic experience:

- Have you graduated high school?
    - If no, what grade are you currently in?
    - If yes,
        - Are you currently attending post-secondary education?
        - How many years of post-secondary education have you completed?

While 81% of respondents (81) had graduated high school, 17% (17) had not. Of those who had not graduated from high school, all were in grade 12.

For the respondents who had graduated from high school, 55% (55) were currently attending post-secondary education; 26% (26) were not attending; and 19% (19) did not respond. Of these:

- 15% (12) had not completed a full year of post-secondary education;
- 17% (14) had completed one year;
- 31% (25) had completed two years;
- 20% (16) had completed three years; and,
- 17% (14) had completed four or more years.

Respondents were also asked which grade(s) they were in when they participated in ADC. 98% of respondents (98) took ADC course(s) in Grade 12; and 4% of respondents (four) took ADC course(s) in Grade 11.

There were various amounts of time since students' most recent ADC course. One respondent was currently completing the course; 10% (eight) took their most recent ADC course one year ago; 21% (17) two years ago; 21% three years ago; 27% (22) four years ago; and 20% (16) over four years ago.

The five most common ADC course subjects were English, Psychology, Criminology, Sociology, and Mathematics. Fewer ADC students (one or two each) were enrolled in French, Geography, Business, or Religion.

Respondents were asked which school district (or districts) they were enrolled in when taking their ADC course/courses. Respondents could choose multiple districts. The responses were:

- Comox Valley: 38% (38);
- Alberni: 31% (31);
- Campbell River: 18% (18); and,
- Another school district: 13% (13).

**Table 12** shows responses to the questions *What post-secondary institution did you originally plan on attending when you first took an ADC course* (labelled as *Intended Institution*) and *What post-secondary institution(s) did you attend after high school?* (labelled as *Attended Institution*). Responses of "Not applicable" (18) are excluded. North Island College is the top destination for respondents, with 21 indicating they attended NIC. Eight of these had initially intended to study at a different institution, which suggests that ADC may serve a recruitment purpose. A further 18 attended NIC for at least some of their studies. Vancouver Island University and the University of Victoria were also popular post-secondary destinations for ADC participants.

**Table 12:** NIC: Intended Institution versus Attended Institution(s)

| | Attended Institution | | | |
|---|---|---|---|---|
| Intended Institution | North Island College | Multiple including North Island College | Other | Grand Total |
| North Island College | 13 | 9 | 1 | 23 |
| Other | 8 | 9 | 42 | 59 |
| Grand Total | 21 | 18 | 43 | 82 |

Respondents were asked whether any of the ADC courses they took were related to their intended area of study. Sixty-one percent (61) had taken courses related to their intended area of study, while 37% of respondents (37) said their courses had not. Two percent of respondents (two) did not reply to this question.

Respondents typically started post-secondary studies soon after high school completion. 68% (55) attended immediately after high school; 15% (12) had a one-year gap; 7% (six) had a two-year gap; and 6% (five) had a gap of over two years. Four percent of respondents (three) did not respond to this question

The survey also asked how students heard about ADC courses (**Figure 23**). 95 respondents provided one or more responses for this question.

**Figure 23:** NIC: How Did You Hear About ADC?



How did you hear about Dual Credit?
95 unique respondents

| | |
|---|---|
| High school counsellor | 65% (62) |
| High school teacher | 52% (49) |
| Someone who had already taken a Dual Credit course | 16% (15) |
| Information session | 14% (13) |
| High school website | 6% (6) |
| Parent | 6% (6) |
| Post-secondary institution website | 4% (4) |
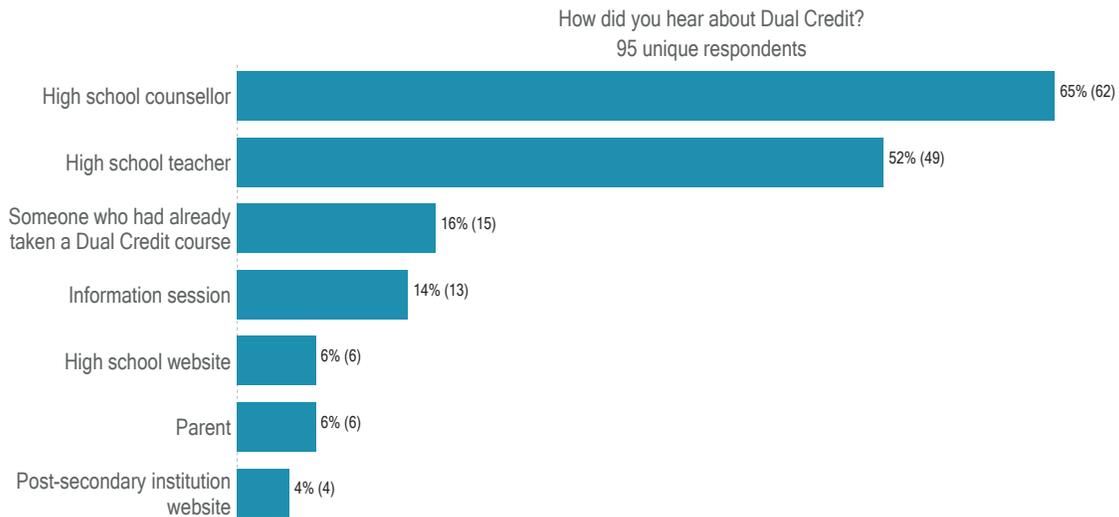
A question on who influenced students' decision to participate in ADC saw similar responses. 46% (45) were influenced by their high school counsellor; 41% (40) by their high school teacher; 27% (26) by a parent; 22% (22) by a parent; 22% (22) cited a friend; and 14% (14) indicated "other", with most citing self-motivation.

Figure 24 displays respondents' ratings of the experiences related to ADC. The majority of respondents agreed or strongly agreed that the enrolment process was clear (89%, 88); that the workload was manageable (88%, 88); and that ADC helped prepare them for PSE (80%, 79).

**Figure 24:** NIC: Student Experiences with ADC: Enrolment Process, Workload, and Preparation for Post-Secondary Education



Tell us about your experience taking Dual Credit
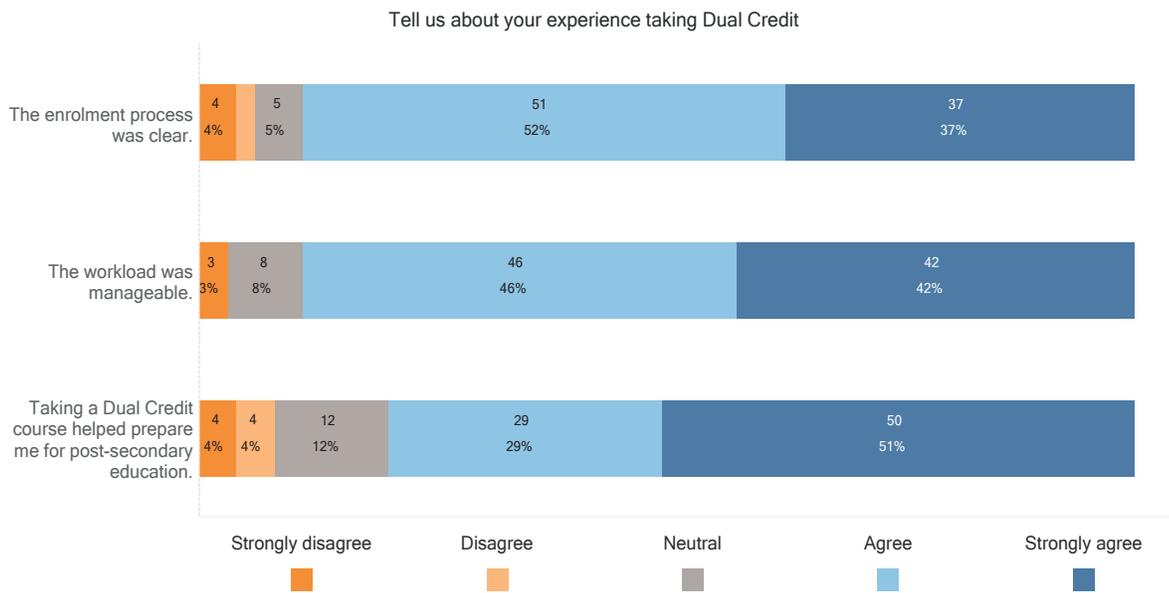
**Figure 25** displays respondents' ratings of the likelihood they would recommend ADC course(s) to others, on a scale of 1 to 10.

**Figure 25: NIC:** How Likely are Students to Recommend ADC?
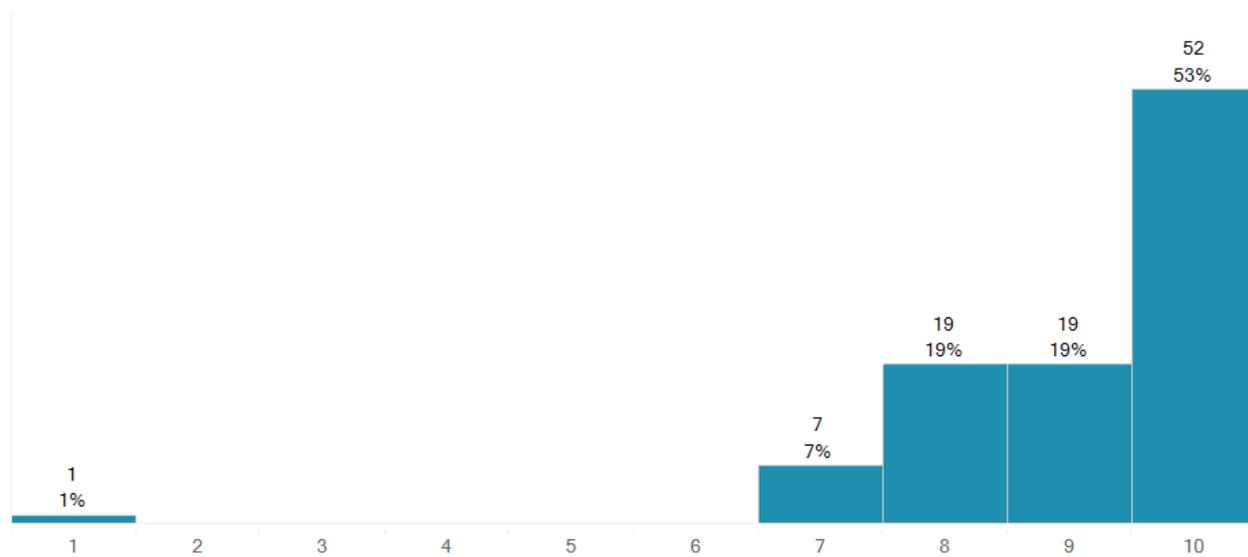
When asked to elaborate on why they selected this score, respondents said ADC was:

- a good opportunity or experience (21);
- a helpful head start to PSE studies (19);
- a help in preparing them for post-secondary (15);
- an opportunity to save money (14);
- a chance to experience PSE (13);
- an opportunity to explore educational pathway (four); and
- an opportunity to receive dual credits (three).

The eight (of 100) who reported a mixed experience noted poor interactions with instructors, lack of course offerings, and disconnects with the PSI application process. For example, one respondent said they had to apply as a non-credential-seeking post-secondary student rather than as a high school direct entry student.

**Figure 26** displays participants' identification of the most helpful aspects of participating in ADC. If a respondent selected more than one option, their response was counted multiple times for the options, but only once in the total.

**Figure 26:** NIC: Most Helpful Aspects of ADC Participation?



What do you feel was most helpful about participating in Dual Credit?

| | | |
|---|---|---|
| Class / course / teaching | Academic rigour / expectations | 13 |
| | Academic writing / presentations | 8 |
| | What classes are like | 4 |
| | Methods / style / format / structure | 4 |
| | Total | 26 |
| Dual / transfer credits | Head start / finish quicker | 11 |
| | Lessen course load | 7 |
| | Earning credits (general) | 6 |
| | Flexibility | 1 |
| | Total | 25 |
| Insight / exposure | What PSE is like | 19 |
| | Differences - HS vs PSE | 2 |
| | Systems & Services | 1 |
| | Total | 22 |
| Financial | Affordability / save money | 9 |
| | Total | 9 |
| Support | Transition support / supportive environment | 4 |
| | PSE professors / instructors | 3 |
| | Structure | 1 |
| | HS teachers | 1 |
| | Total | 9 |
| Self | Study skills | 6 |
| | Independence | 1 |
| | Changed perceptions | 1 |
| | Total | 8 |
| Grand Total | | 85 |

Figure 27 displays participants' ideas for what could be improved in the ADC program. This chart displays the four areas mentioned most often, and suppresses the others mentioned due to small numbers of respondents.

**Figure 27:** NIC: Areas of ADC That Could be Improved

What do you feel could be improved about the Dual Credit experience?

| | |
|---|---|
| More course/program options | 38% (25) |
| Academic interest, grading, and transition support | 12% (8) |
| ADC application process, awareness, and timing | 12% (8) |
| Communication | 9% (6) |
| 7 others | 28% (18) |
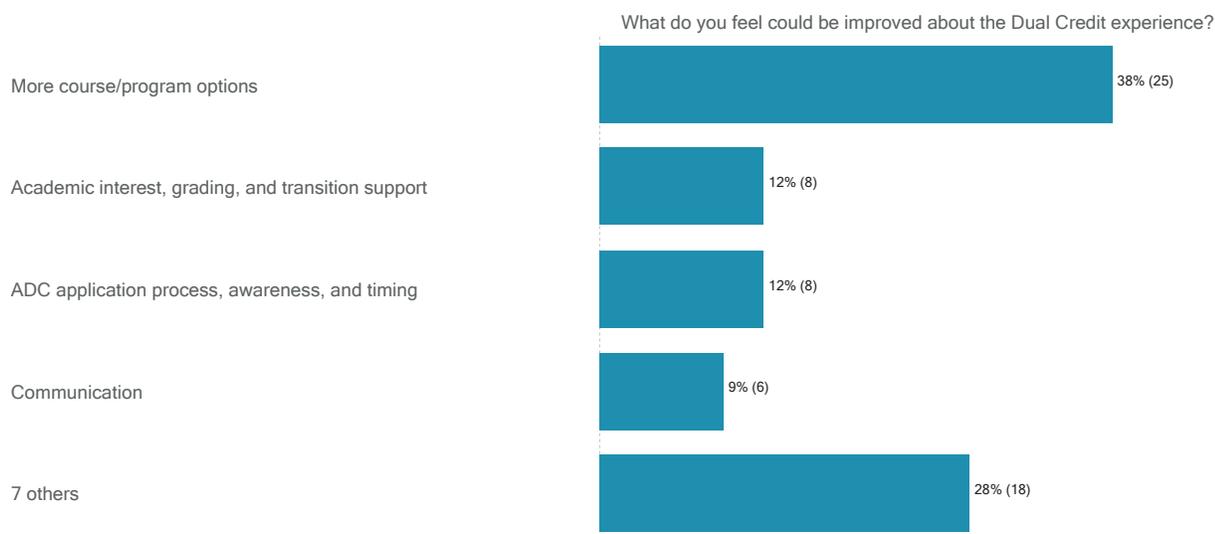
## NIC: Discussion

NIC offers the sixth-largest ADC program in the province, according to data from the BC's Student Transitions Project, with 563 participants from 2010/11 to 2016/17. 100 of the 473 students invited to participate in the online survey completed the survey, a 21% response rate. Students report very favourable impressions of NIC's ADC programming.

> *It makes first year a lot easier if you take classes in [high school] when the workload isn't as harsh. This way the transition from [high school] to [post-secondary] is one class easier.-* Survey respondent

The majority of students felt that the enrolment process was clear, that the workload was manageable, and that ADC helped prepare them for PSE. Many respondents identified the early preparation for post-secondary studies as the best part of ADC for them.

> *It showed me that a lot of my preconceptions about post-secondary were wrong. It's not scary, it's not very difficult compared to some high school courses, and it's much more involved in thoughtful work and classroom discussion in your area of interest than high school courses are - before I participated in Dual Credit, I was apprehensive and unsure about all of this. -* Survey respondent

On the surface, students who completed ADC courses performed better, in aggregate, than students who had not completed ADC courses. This gap persists over time, with a narrowed but still substantial performance gap in students' second year of PSE. However, when controlling for ADC participation, gender, and national status, only between 9% and 15% of the variance in GPA across the first two years of study was explained, suggesting there are other factors that influence performance. Unlike the analyses of data from other institutions that participated in this study, adding English 12 grade and/or CIP cluster reduced the explained amount of variance in GPA of NIC students. We posit that English 12 grades did not significantly affect performance for NIC students because NIC's ADC and non-ADC participants had nearly identical English 12 grades.

Students suggested that NIC's ADC programming could be improved with additional course and program options, with several respondents asking for a wider variety of courses. Some also noted that leveraging their ADC courses as transfer credit was not always as straightforward as they had expected.

> *It was a really great opportunity, and I'm glad I took the course, but declaring it while applying to universities was difficult, as I had to declare I was a post-secondary student, but was not working towards a degree, and there weren't options that represented my post-secondary education well.* - Survey respondent

Among NIC's survey respondents, 65% said they learned of ADC from a high school counsellor, and 52% from a teacher. High school and PSI websites were only identified as information sources by 6% and 4% of respondents respectively, suggesting that there is room to grow the use of websites and social media as recruitment and communication tools. This also suggests that ADC programs should continue promotions to teachers and counsellors.

We also discuss the gender balance of NIC's ADC participants relative to the other institutional participants in the Overall Discussion section.

# Case Study: Thompson Rivers University

This section focuses on the case study of Thompson Rivers University. The intention of this report is not to compare institutions, but to better understand the overall experiences and performance of students participating in ADC in BC. The case study contains three components:

1. Student Demographic Analysis: an analysis of demographic factors for ADC and non-ADC participants.

2. Student Performance Analysis: an analysis of how ADC participants performed (as measured by grade point averages at the end of term 1, year 1, and year 2) in post-secondary compared to those who did not participate in ADC. The Student Performance Analysis presents two forms of analysis:

   a. Visual analysis: a visual comparison of performance outcomes between the two groups overall. While this style of analysis is useful for seeing and understanding the actual performance of the two groups, it does include statistical significance nor relationships between variables.

   b. Regression analysis: a method for estimating the relationships between dependent variables (GPA) and independent variables (ADC participation, gender, national status, English 12 grade, and high school district). This method effectively breaks the two study groups (ADC and non-ADC participants) down to the level of otherwise similar ADC and non-ADC participants, and allows for more nuanced comparison.

3. Study Experience Survey: this section of analysis illustrates responses to the online survey shown in **Appendix 1: Student Experience Online Survey**.

## *TRU: Student Demographic Analysis*

In the analyses for other institutions in this study, we compared the CIP clusters for the programs that participants were admitted to. However, because ADC students' programs are listed as "unclassified" at TRU, this comparison is omitted.

**Figure 28** displays the ratio of female to male ADC and non-ADC students. 80.1% (165) of ADC students were female, while 19.9% (41) were male.
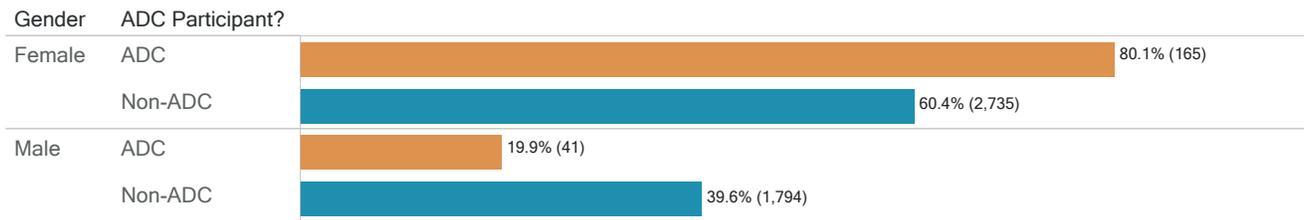
| Gender | ADC Participant? | | |
|--------|------------------|---|---|
| Female | ADC | | 80.1% (165) |
| | Non-ADC | | 60.4% (2,735) |
| Male | ADC | | 19.9% (41) |
| | Non-ADC | | 39.6% (1,794) |

## Student Performance Analysis

The student performance analysis focuses on aggregate student performance at TRU, as measured by GPA at the end of term 1 (T1; 15 credits completed), year 1 (Y1; 30 credits completed), and year 2 (Y2; 60 credits completed).

The student performance dataset for Thompson Rivers University included data on 5,015 students, 209 of which were ADC participants and 4,806 of which did not participate in ADC. We excluded students with programs listed as part of the CIP cluster *Development* (two for ADC, 156 for non-ADC) and *Trades* (72, all non-ADC), and students who did not attempt at least one credit in their first year (one for ADC, 28 for non-ADC). This reduced our dataset to 4,533 (95.7%) non-ADC participants and 206 (4.3%) ADC participants. Any figures related to second year study (Y2) are filtered to include only those who attempted at least one credit in second year.

**Table 13** shows GPA over time for ADC and non-ADC participants, overall and divided by gender, at the end of term 1 (T1), year 1 (Y1), and year 2 (Y2). T1 is based on 15 credits completed, Y1 is based on 30 credits completed, and Y2 is based on 60 credits completed. Females who participated in ADC outperformed males who participated in ADC, but both groups had higher GPAs than non-ADC participants of the same gender. Statistical significance was  not tested in this analysis – for tests of significance, see the regression analysis shown in **Table 14** and **Appendix 9: TRU Regression: Year 1 GPA Analysis.**

**Table 13:** TRU: Average GPA at Term 1, Year 1, and Year 2 of ADC and non-ADC Participants, by Gender

| | | Term 1 GPA | | Year 1 GPA | | Year 2 GPA | |
|---|---|---|---|---|---|---|---|
| | | ADC | Non-ADC | ADC | Non-ADC | ADC | Non-ADC |
| GPA | Female | 3.02 | 2.71 | 2.94 | 2.68 | 2.93 | 2.84 |
| | Male | 2.96 | 2.47 | 2.85 | 2.41 | 2.94 | 2.63 |
| Number of Students | Female | 165 | 2,735 | 165 | 2,735 | 97 | 1,622 |
| | Male | 41 | 1,794 | 41 | 1,794 | 23 | 992 |
| GPA | Total | 3.00 | 2.61 | 2.93 | 2.57 | 2.93 | 2.76 |
| Number of Students | Total | 206 | 4,529 | 206 | 4,529 | 120 | 2,614 |

While ADC students generally received higher GPAs than their counterparts, our regression analysis showed that when the effects of gender, English 12 grade, national status, and school district were controlled, ADC participation did not have a significant effect on TRU students' GPA.

Regression analyses were run to determine which independent variables were statistically significant predictors of GPA. For TRU, the independent variables of ADC participation, gender, national status, CIP cluster, and English 12 grade explained 23% of variance in T1 GPA and 25% in Y1 GPA. Y2 GPA was not analyzed due to insufficient data.

For T1 GPA (**Table 14**), the following variables had statistically significant effects:
- National status;
- English 12 grades of B, C+, C, C-, and F; and,
- School districts of Coquitlam and Kootenay-Columbia.

This type of analysis allows us to compare otherwise similar students. For example, with this analysis, we can say if males and females are both ADC participants, have similar English 12 grades, are from the same school district, and have the same gender, international students are expected to have T1 GPAs 0.481 higher than domestic students.

Similar patterns are observed for Y1 and Y2 GPA. For further details on TRU's regression analysis and the independent variables' effect on Y1 and Y2 GPA, see **Appendix 9: TRU Regression: Year 1 GPA Analysis**.

**Table 14:** TRU: Term 1 GPA Regression Analysis

| Variable | Term 1 GPA R-Squared = 0.225 | | |
| --- | --- | --- | --- |
| | Coefficient | Standard Error | T-Value |
| Intercept | 3.439 | 0.042 | 82.641 |
| ADC Participant | -0.005 | 0.076 | -0.072 |
| Male | -0.045 | 0.037 | -1.229 |
| International *** | 0.481 | 0.151 | 3.190 |
| En12: B *** | -0.667 | 0.045 | -14.958 |
| En12: C *** | -1.646 | 0.082 | -19.997 |
| En12: C- *** | -1.693 | 0.115 | -14.751 |
| En12: C+ *** | -1.219 | 0.063 | -19.482 |
| En12: F *** | -3.627 | 0.694 | -5.226 |
| SD: Coquitlam ** | -0.815 | 0.365 | -2.231 |
| SD: Kootenay-Columbia ** | -1.769 | 0.894 | -1.979 |

Significance: *** ($p<0.01$), ** ($p<0.05$), * ($p<0.10$)

**Figure 29** shows the distribution of English 12 grades earned by ADC and non-ADC students. 90% of ADC participants have an A or B in English 12, compared to 78% of non-ADC participants in the same range. In the B and C range, there are more non-ADC participants. ADC participants' average English 12 grade was nearly five percentage points higher than their non-ADC peers. This analysis excludes failing grades (N<5), as well as participants without an English 12 grade (44 for ADC, 1,928 for non-ADC).

| English 12 Grade | ADC Participant? | |
|---|---|---|
| A | ADC | 40% (64) |
| | Non-ADC | 20% (511) |
| B | ADC | 50% (81) |
| | Non-ADC | 58% (1,515) |
| C+ | ADC | 8% (13) |
| | Non-ADC | 13% (339) |
| C, C- | ADC | 2% (4) |
| | Non-ADC | 9% (237) |
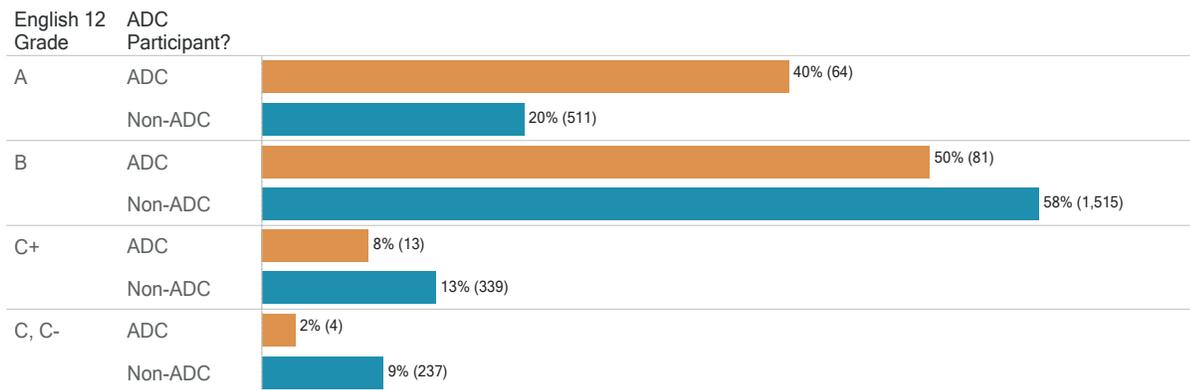
## TRU: Student Experience Survey

The student experience survey was administered online between April 17, 2019 and May 8, 2019. TRU sent out 223 invitations (see **Appendix 1**) requesting voluntary participation in this research. Responses were received from 42 students, for a response rate of 19%.

Respondents were asked a series of questions about their academic experience:

- Have you graduated high school?
- If no, what grade are you currently in?
- If yes,
  - Are you currently attending post-secondary education?
  - How many years of post-secondary education have you completed?

Two-thirds of respondents (28) indicated that they had graduated from high school, while 24% (10) indicated they were currently in grade 12.

For the respondents who had graduated from high school, 62% (26) were currently attending post-secondary education; 7% (three) were not attending, and 31% (13) did not respond. Of these:

- 21% (6) had completed one year of post-secondary education;
- 11% (3) had completed two years;
- 18% (5) had completed three years; and,
- 50% (14) had completed four or more years.

A majority of respondents (57%, 16) had taken one ADC course; 39% of respondents (11) had taken two ADC courses. One respondent did not answer this question. 14% (four) took their most recent ADC course one year ago; 11% (three) two years ago; 14% (four) three years ago; 25 (seven) four years ago; and 32% (nine) over four years ago.

The five most common course subjects that students enrolled in for ADC were English, Sociology, Psychology, Economics, and Academic/Creative Writing.

All 37 respondents in this survey were enrolled in the Kamloops/Thompson Rivers School District at the time of their ADC participation.

Table 15 compares responses to the questions *What post-secondary institution did you originally plan on attending when you first took an ADC course* (labelled as *Intended Institution*) and *What post-secondary institution(s) did you attend after high school?* (labelled as *Attended Institution*). Eight responses of "Not applicable" are excluded. This analysis indicates that TRU is the top destination for respondents, with 17 indicating they attended TRU for at least part of their studies.

**Table 15:** TRU: Intended Institution versus Attended Institution(s)

| | Attended Institution | | | |
|---|---|---|---|---|
| Intended Institution | Thompson Rivers University | Multiple including Thompson Rivers University | Other | Grand Total |
| Thompson Rivers Univer.. | 13 | 4 | 2 | 19 |
| Other | 2 | 2 | 6 | 10 |
| Grand Total | 15 | 6 | 8 | 29 |

Respondents were asked whether any of the ADC courses they took were related to their intended area of study. 64% of respondents (27) had taken courses related to their intended area of study, while 24% of respondents (10) had not. Twelve percent of respondents (five) did not reply to this question.

Nearly all respondents (89%, 25) began their post-secondary studies immediately after high school.

The survey also asked how students heard about ADC courses (Figure 30). 37 respondents provided one or more responses for this question.

**Figure 30:** TRU: How Did You Hear About ADC?



How did you hear about Dual Credit?
37 unique respondents

| | |
|---|---|
| High school counsellor | 68% (25) |
| High school teacher | 30% (11) |
| Someone who had already taken a Dual Credit course | 19% (7) |
| Information session | 8% (3) |
| Parent | 8% (3) |
| High school website | 3% (1) |
| Post-secondary institution website | 3% (1) |
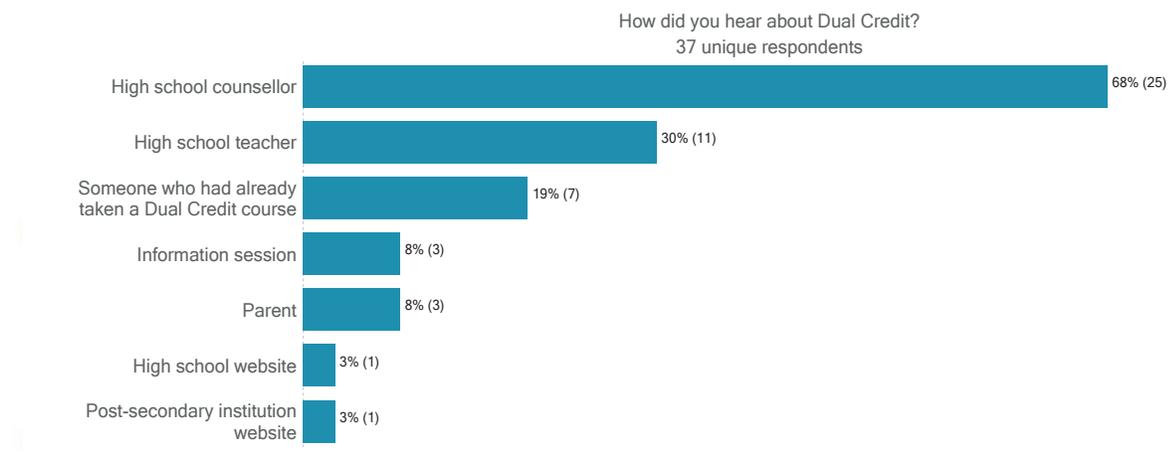
Figure 31 displays respondents' ratings of the experiences related to ADC. The majority of respondents agreed or strongly agreed that the enrolment process was clear (78%, 28); the workload was manageable (89%, 32); and that ADC helped prepare them for PSE (94%, 34).

Figure 31: TRU: Student Experiences with ADC: Enrolment Process, Workload, and Preparation for Post-Secondary Education



Tell us about your experience taking Dual Credit

| | Disagree | Neutral | Agree | Strongly agree |
| --- | --- | --- | --- | --- |
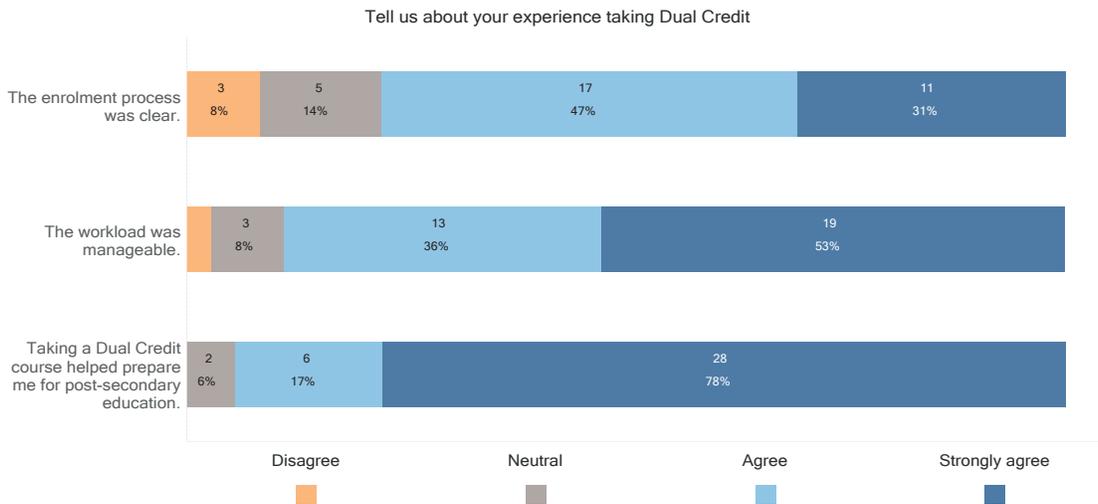
Figure 32 displays ratings of how likely respondents were to recommend ADC course(s) to others. On a scale of 1 to 10, all respondents indicated a score of at least 6/10, and 57% (20) of respondents selected a perfect 10.

Figure 32: TRU: How Likely are Students to Recommend ADC?
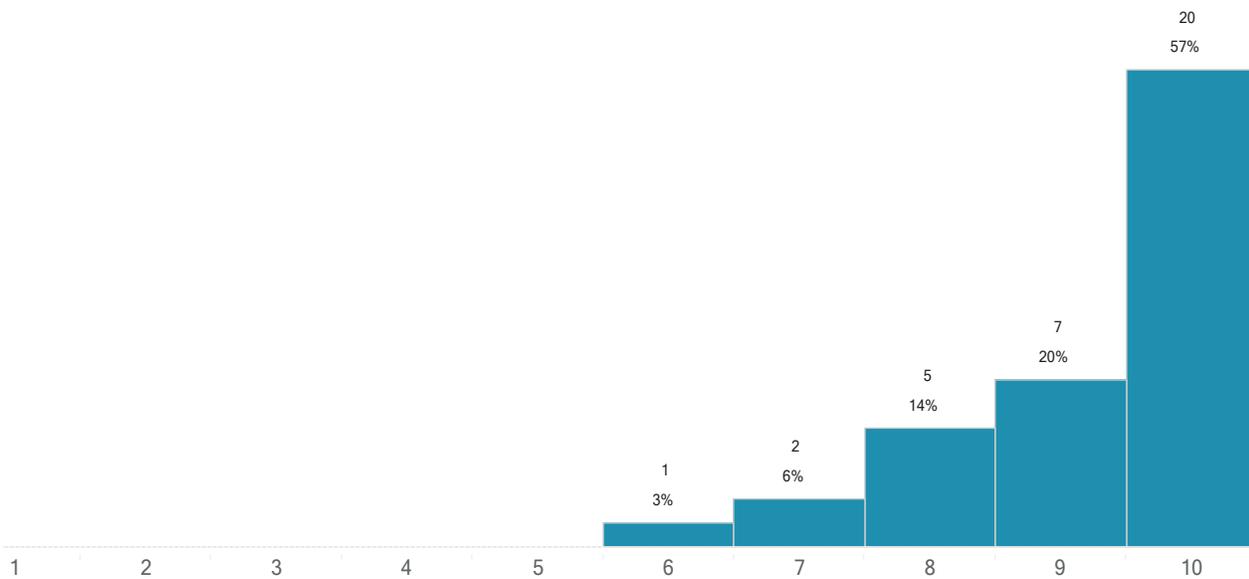
When asked to elaborate on why they selected this score, respondents said ADC was:

- a help in preparing for post-secondary education (14);
- an opportunity to get a head start (nine);
- a chance to experience PSE (four);
- an opportunity to save money (four); and
- a good experience in general (three).

**Figure 33** displays participants' identification of the most helpful aspects of participating in ADC. If a respondent selected more than one option, their responses was counted multiple times for the options, but only once in the total.

**Figure 33:** TRU: Most Helpful Aspects of ADC Participation



What do you feel was most helpful about participating in Dual Credit?

| Category | Aspect | Value |
|---|---|---|
| Class / course / teaching | Academic rigour / expectations | 6 |
| | What classes are like | 2 |
| | Methods / style / format / structure | 1 |
| | Assignments & exams | 1 |
| | **Total** | 10 |
| Insight / exposure | What PSE is like | 7 |
| | Systems & Services | 1 |
| | Differences - HS vs PSE | 1 |
| | **Total** | 9 |
| Self | Study skills | 3 |
| | Meet new people / classmates | 1 |
| | Evaluation of institution / field / PSE | 1 |
| | **Total** | 5 |
| Support | Transition support / supportive environment | 2 |
| | PSE professors / instructors | 2 |
| | HS teachers | 1 |
| | **Total** | 5 |
| Dual / transfer credits | Head start / finish quicker | 2 |
| | Lessen course load | 1 |
| | **Total** | 3 |
| Financial | Affordability / save money | 1 |
| | **Total** | 1 |
| Grand Total | | 28 |

**Figure 34** displays participants' suggestions of what could be improved in the ADC program.

**Figure 34:** TRU: Areas of ADC That Could be Improved

What do you feel could be improved about the Dual Credit experience?

| | |
|---|---|
| More course/program options | 28% (7) |
| Academic interest, grading, and transition support | 24% (6) |
| ADC application process, awareness, and timing | 20% (5) |
| 3 others | 28% (7) |
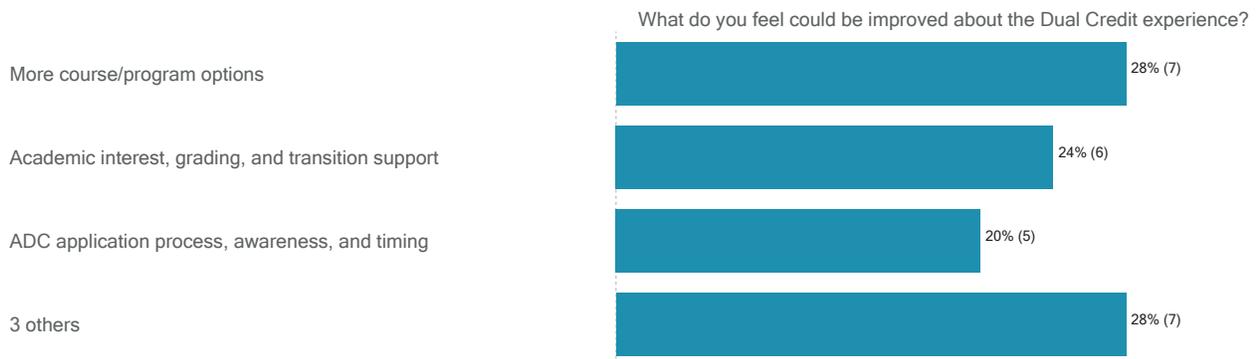
## TRU: Discussion

TRU has a relatively small ADC program, with 223 students taking ADC courses at TRU between Fall 2013 and Winter/Spring 2019. Respondents have very favourable impressions of TRU's ADC programming.

> *Dual credit allowed me to get into university and experience first-hand what it would actually be like to attend a university course. Prior to taking Sociology, I had not [been] introduced to what it would be like to attend a university course, and this really opened my eyes.* - Survey respondent

The vast majority of students felt that the enrolment process was clear, that the workload was manageable, and that ADC helped prepare them for PSE. Many students identified understanding the rigour and expectations of post-secondary, and experiencing what university really feels like, as the best parts of ADC for them.

> *I got blindsided by my first [university] midterm while still in [high school], which was helpful.* - Survey respondent

Of those who returned to pursue PSE at TRU, ADC participants had term 1, year 1, and year 2 GPAs noticeably higher than non-participants. However, our analysis reveals that this difference in performance is primarily due to national status, English 12 grade, and school district, rather than to ADC participation on its own.

Students suggested that TRU's ADC programming could be improved with additional course and program options, and better awareness of the possibilities.

We also discuss the gender balance of TRU's ADC participants relative to the other institutions' participants, in the Overall Discussion section.

# OVERALL DISCUSSION

A number of themes emerged from the student experience survey, the student performance analysis, provincial-level ADC data, and the school district administrator survey. This study has attempted to address several of the future research suggestions made by Drover-Davidson et al (2017) by comparing the post-secondary performance of ADC and non-ADC students, and exploring students' experiences and perceptions of their ADC program and future pathways. We frame the discussion of the results of the current study around benefits, motivations and participation, keys to success, and challenges.

## Benefits of Participation in Academic Dual Credit

Students and administrators agreed that ADC allowed for educational pathway exploration. Administrators noted that ADC experience allowed students to return to their high school classrooms with additional skills, knowledge, confidence, and maturity, and the ability to talk to other students about PSE. For students, the chance to earn post-secondary credits was seen as an opportunity, with some using these credits to lighten their first-year course load, and others viewing it as a way to get ahead. While financial support was not frequently cited by students as the most helpful aspect of ADC, it was seen as a benefit by some and a way to address affordability challenges by others.

> *I appreciated having the opportunity to experience a post-secondary professor and how the work load would look like when I graduated. As well, it has given me 2 credits towards my college credits which I love having. I hope that this dual-credit system becomes broader to different fields of study so that students can experience this throughout high school in an area that they are truly interested in!* - Survey respondent

Analysis of student performance following ADC shows that ADC participants are strong students, often outperforming students who did not participate in ADC on measures such as term 1, year 1, and year 2 grade point average. However, participation in ADC ceased to be a significant predictor of success at Camosun, KPU, and TRU once the effects of variables such as national status, English 12 grade, taking courses/programs in specific CIP clusters, or school district were controlled. This suggests that ADC students were already strong performers, as shown by their higher than average English 12 grades, but also by their individual post-secondary course performance. NIC ADC and non-ADC students had nearly identical English 12 grades, which meant that in their case ADC experience was a stronger predictor of post-secondary performance.

> *My teacher was lovely and the material of the subject was interesting. Instead of being so broad like most high school courses it was nice to learn about something that focuses on a certain topic.* - Survey respondent

Respondents were likely to continue studying at the same institution where they took their ADC courses, with 54% returning to their ADC institution. This included 17% who had intended to go to a different PSI. Comparatively, only four percent of students that had intended to attend the same PSI ultimately went elsewhere. This suggests that there is a recruitment advantage for post-secondary institutions in offering ADC courses.

## Academic Dual Credit as a Predictor of Post-Secondary Success

Our findings indicated that students who had participated in ADC and gone on to post-secondary studies maintained higher GPAs than their non-ADC counterparts. However, the regression analyses using English 12 grades, gender, national status, CIP cluster, and school district as independent variables show that the effect of ADC participation on GPA disappears when the effect of these independent variables is controlled.

*Respondents to the student survey stated that ADC supported them in their transition to post-secondary by allowing them to gain a better understanding of what to expect, should they choose to attend a post-secondary school after high school graduation.*

## Motivations for Participating in Academic Dual Credit

District administrators felt that students taking ADC courses were motivated by the appeal of free tuition and the ability to lighten their first-year PSE course load, with the experiential aspect of attending PSE further down the list of perceived motivations. Most students, in contrast, emphasized the experiential learning opportunity as motivation for taking ADC courses. Financial support was cited by only about three percent of student respondents as being the most helpful aspect. While a small number of students cited financial benefits as among their motivations, some respondents noted that this was helpful for low-income families:

> *[P]erhaps more availability for low income families. It helps with tuition but a program to help poor families also buy books would make a big difference.* - Survey respondent

The results of our analysis of provincial ADC participation align with the results from previous reports on dual credit participation. This study showed that 68% of ADC participants had continued to study in public post-secondary within BC; in comparison, Drover-Davidson et al (2017) reported a 59% continuance rate. The 2017 study looked at all dual credit courses, while the current study focused on ADC. This focus may explain some of the differences in subsequent post-secondary participation rates.

School district representatives noted that their districts' strongest motivators for participating in ADC were to support student pathway exploration and post-secondary transition.

## Post-Secondary Transition

Respondents to the student survey stated that ADC supported them in their transition to post-secondary by allowing them to gain a better understanding of what to expect, should they choose to attend a post-secondary school after high school graduation. While the majority of the participants in our study acquired a positive perception of post-secondary education from their ADC experiences, it should be noted that using individual courses to form an understanding of post-secondary study may lead students to misunderstand post-secondary education as a whole. An atypically heavy workload may lead a student to believe all courses will be equally rigorous; a single professor who is difficult to reach may lead a student to believe they will have a hard time finding support in post-secondary studies.

Among the students who pursued post-secondary studies, 60% attended the same institution for at least some of their PSE studies. Among ADC participants, Camosun had 55% return for further study, KPU had 44%, NIC had 58%, and TRU had 81% over seven years. Drover-Davidson et al (2017) reported similar rates for DC transitions in general, with 62% returning to Camosun for further study. However, STP data show a five-year transition rate of 72%, and a ten-year transition rate of nearly 80%. STP research shows that students with higher grades have higher transition rates (Heslop, 2019); our analysis shows that ADC students tend to have higher grades. In turn, we would expect them to have higher transition rates than the general population. This may suggest that ADC students go elsewhere for their PSE. We note here that we compare summary data from different sources over different time periods; a more detailed analysis of transition rates could help illuminate reasons for these different rates. We recommend investigating these discrepancies in future research.

Student mobility is also highlighted by the number of PSIs attended by ADC participants. About 20% of ADC students at colleges and research-intensive universities attended both their ADC institution and at least one other. We were somewhat surprised to see that 55% of students who participated in ADC at institutes chose to pursue PSE elsewhere. This may reflect relatively small numbers of academic programs at these institutions, or regional effects related to students' other post-secondary opportunities.

## Gender

Another surprising finding was the gender distribution within ADC programs across institutions. At Camosun, 56% of ADC participants were female, compared with 58% of non-ADC participants. KPU, NIC, and TRU had 80%, 76%, and 80% female ADC participants, compared with 47%, 45%, and 39% female non-ADC participants. Camosun has the most dual credit students in BC, so its range of offerings may appeal to a broader range of students.Other institutions may be able to learn from how Camosun has achieved a comparable gender distribution among ADC participants and non-ADC participants.

## Communication

Administrators noted that they perceived the most robust ADC programs as being in school districts where staff at both the SD and PSI were dedicated to the success of the partnership. These programs were seen as being better at promoting ADC to students, and having strong communication between the PSI and high school teachers.

> *It was very helpful for my transition to post-secondary to take the dual credit course as I had the benefit of taking a rigorous course at a post-secondary level but with the added assistance of a secondary school teacher.  It made the transition to university much smoother.* - Survey respondent

A small number of survey participants noted that their professors were not aware that they were ADC students.

## Challenges and Areas for Improvement

While nearly all who participated in this research said that ADC was beneficial, some areas were noted as potentially needing improvement.

Student respondents identified a need for more ADC course/program options. Administrators noted that students often didn't possess either the necessary pre-requisites for some post-secondary courses, or the maturity to succeed in post-secondary courses earlier than grade 11 (occasionally mentioned) or grade 12 (most commonly mentioned). This could pose a barrier to significantly expanding post-secondary ADC offerings.

Students and administrators agreed that the ADC enrolment process was clear, and that ADC helps prepare students for PSE. There were some contrasts, however, within the student responses. Though 88% of student survey respondents agreed or strongly agreed that the ADC workload was manageable, some indicated that the workload was challenging or stressful.

> *Encourage people to not take a 3-hour course and maybe register for one that is more spread out. Offer an opportunity for us to learn some study techniques and stress management before we start the course. Because I had a full high school course load as well, it was hard at first to figure out time for it all.* - Survey respondent

An additional area of concern for administrators was the Ministry of Education compliance requirements for school districts. Administrators noted that the Ministry of Education compliance and audit teams can be very strict on districts meeting requirements such as an ADC course relating to a learner's intended career path. An example from one school district was a student who intended to be a lawyer taking a first-year English course: a requirement for most law programs, but not in itself directly linked to the career this particular student wanted to pursue. Not meeting these compliance requirements can jeopardize a district's funding for ADC opportunities, leaving a school district to cover any shortfall. Fears about funding not materializing have led some districts to limit their ADC opportunities, or to suggest students apply for federal student loans or grants to cover tuition fees for ADC courses, rather than the school district arranging for or providing funding for those fees.

Administrators also expressed concern about a potential change in the Ministry of Education's ADC funding model. The existing model provides funds for each ADC course a student enrols in, but the proposed change would provide funding for each student who participates in ADC. Conversation on this topic is ongoing, but administrators fear that this change could reduce ADC options for students by effectively reducing available DC funding.

Students also expressed a desire for increased awareness of ADC options, and preferably receiving information on ADC earlier in their academic career. However, school district administrators noted that there are a wide variety of types of ADC promotions, including classroom visits, announcements, information on course planning, and websites and social media. In spite of these efforts, both students and administrators identified teachers and counsellors as the biggest influencers of participation in ADC, followed by friends and family. Strengthening ADC-related websites and promotional presences for schools, districts, and PSIs may reach students who may not be well connected to teachers or counsellors, or who feel more comfortable consuming information in written form. Canadians between the ages of 18 and 34 spend more than two hours per day on mobile devices, returning to them every half-hour (Forum Research, 2018). Providing information in a web- and mobile-friendly form could help reach mobile users and increase awareness of ADC options. However, our research also suggests that ADC should continue to be promoted to teachers and counsellors, as these individuals are influential to students' opting to enrol in ADC.

# FUTURE RESEARCH SUGGESTIONS

This research into experiences and performance of ADC students has indicated several directions for future study. These include:

- An analysis of the potential effects of a switch by the Ministry of Education from the existing *per-course* DC funding model to a *per-student* funding model.

- An assessment of how Ministry of Education compliance and audit requirements affect opportunities for ADC support or enrollment.

- An exploration of the differences between the long-term transition rates reported by STP and ADC students' transition rates, since the transition rates indicated in STP data appear to be higher than ADC transition rates indicated in our analysis.

- An analysis of regional differences in ADC opportunities and participation rates, particularly differences between urban and rural communities, and between different BC regions.

- A longer-term study on pathways of ADC students from high school through to post-secondary completion, as the current analysis was limited to transitions up to the end of the second year of post-secondary study, and there was not enough provincial-level in-depth data to identify pathways.

- A qualitative analysis comparing perceptions of the post-secondary transition process for ADC participants with the process for non-ADC participants, with a focus on understanding how ADC may have helped the ADC participants' transition.

# ACKNOWLEDGEMENTS

This research has been supported by numerous stakeholders across British Columbia. We would like to express our sincerest thanks to many who have been involved with this process.

- To the student respondents of the survey for this project: we were overwhelmed by the high quality of your feedback of your ADC experience, and hope that we have represented your perspective in providing insights and suggestions for improvement.

- To the institutional research and registrarial teams who were able to provide appropriate anonymous data to support the case study: thank you for helping us understand your institutional context and providing data that enabled this study, as well as for your willingness to answer questions and review the analyses.

- To the Student Transitions Project and Ministry of Education: thank you for digging deep into the data to help us appropriately understand ADC enrolment behavior, as well as the limitations surrounding how best to define ADC.

- To administrative leaders in schools and school districts throughout BC: thank you for your keen insight into perceptions of the ADC program and future directions.

- To the British Columbia Council on Admissions and Transfer: thank you for sponsoring this important research, and your review of our work, your key questions, and your guidance when things were difficult.

# REFERENCES

British Columbia Ministry of Education (2019). *2019/2020 K-12 Regular Enrolment Audit Program.* Retrieved from https://www2.gov.bc.ca/assets/gov/education/administration/resource-management/compliance-audits/1920/1920_k12_re_audit_program.pdf

British Columbia Ministry of Education (2018). *Earning credit through equivalency, challenge, external credentials, post-secondary credit and independent directed studies.* Retrieved from https://www2.gov.bc.ca/gov/content/education-training/k-12/administration/legislation-policy/public-schools/earning-credit-through-equivalency-challenge-external-credentials-post-secondary-credit-and-independent-directed-studies

British Columbia Ministry of Education (2005). *Recognition of post-secondary transition programs for funding purposes.* Retrieved from https://www2.gov.bc.ca/gov/content/education-training/k-12/administration/legislation-policy/public-schools/recognition-of-post-secondary-transition-programs-for-funding-purposes

British Columbia Ministry of Education (2002). *Compliance Program.* Retrieved from https://www2.gov.bc.ca/gov/content/education-training/k-12/administration/legislation-policy/public-schools/compliance-program

British Columbia Ministry of Education (2019). *Regular Enrolment Audit Program.* Retrieved from https://www2.gov.bc.ca/assets/gov/education/administration/resource-management/compliance-audits/1920/1920_k12_re_audit_program.pdf

Drover-Davidson, C., Betts, K., Bennett, M., & Hodgson, D. (2017). *Dual credit programs: Exploring dual credit student transition and post-secondary academic success.* Vancouver: British Columbia Council on Admissions & Transfer. Retrieved from https://www.bccat.ca/pubs/DualCredit_May2017.pdf

FitzGibbon, J. (2015). *Secondary to post-secondary transitions: Dual credit policy and practice in BC and elsewhere.* Vancouver: British Columbia Council on Admissions & Transfer. Retrieved from: https://www.bccat.ca/pubs/dualcredit_summary.pdf

Forum Research (2018). *Almost half say smartphone makers not doing enough to fight addiction.* Retrieved from: https://poll.forumresearch.com/data/8e9fd4d8-bba3-4e6f-92cc-4dc81b31699cSmartphone%20usage%20and%20addiction.pdf

Heslop, J. (2019). *STP research results: Student transitions & enrolment trends.* Retrieved from: https://www2.gov.bc.ca/assets/gov/education/post-secondary-education/data-research/stp/stp_research_results.pdf

Government of Canada (2019). *Tri-Council policy statement.* Retrieved from http://www.pre.ethics.gc.ca/eng/tcps2-eptc2_2018_chapter2-chapitre2.html#5

North Island College (2019a). *Dual credit.* Retrieved from https://www.nic.bc.ca/student-services/admissions/high-school-students/dual-credit/

North Island College (2019b). *Youth train.* Retrieved from https://www.nic.bc.ca/student-services/admissions/high-school-students/youth-train/

School District No. 22 (Vernon). *Academic dual credit application package.* Retrieved from http://www.sd22.bc.ca/Documents/Academic%20Dual%20Credit%20Package%202019.pdf#search=dual%20credit

# APPENDIX 1:
# Student Experience Online Survey and Participant Solicitation Email

This version of the student survey was administered to students who had participated in an ADC course between Fall 2013 and Spring/Winter 2019 at Camosun and NIC. It is generally the same as the survey used by students from KPU and TRU. However, Camosun and NIC respondents were directed to a completely separate survey for the prize draw, as recommended by these institutions' Research Ethics Boards, and to allow for a "Currently in progress" option on question 8.

The British Columbia Council on Admissions and Transfer (BCCAT) has contracted Plaid Consulting (https://plaid.is) to conduct a study on the experiences of Dual Credit students. Dual Credit refers to post-secondary programs or courses offered to secondary students while they are still in high school. Dual Credit students are both secondary and post-secondary students simultaneously, and they earn credits toward high school graduation as well as post-secondary credits, many of which are transferable between BC post-secondary institutions.

This survey aims to learn more about your experience in the Dual Credit program so that future improvements can be made. The survey will take approximately 10 minutes to complete. After completing the survey you may opt in to the draw to win one of ten gift cards (value $25).

We appreciate your time and thank you in advance for contributing to this project.

For more information about this project please contact:

Plaid Consulting at dualcredit@ca.plaid.is

BCCAT at info@bccat.ca

Survey responses will be encrypted and stored securely in Canada; following completion of the study they will be destroyed. Survey responses will not be linked to performance data.

Publishing will be at the discretion of the BC Council on Admissions and Transfer. Often their work is published on their website at bccat.ca.

Your completion of the survey implies informed consent.

If you wish to revoke your consent, you can either not participate in the survey, or fill in the option provided on the final survey page.

**Q1: Our records indicate that you participated in Dual Credit with the institution shown below. Is this correct? If not, please change the response below.**

○ Camosun College
○ Kwantlen Polytechnic University
○ North Island College
○ Thompson Rivers University
○ Other (please specify)
If other, please let us know which institution you participated in Dual Credit with.

**Q2: Have you graduated high school?**
○ Yes
○ No
○ Other (please specify)

**Q3: Are you currently attending post-secondary education?**
○ Yes
○ No

**Q4: What grade are you currently in?**
○ Grade 10
○ Grade 11
○ Grade 12

**Q5: How many years of post-secondary education have you completed?**
○ 0
○ 1
○ 2
○ 3
○ 4 or more

**Q6: How many Dual Credit courses are you taking / have you taken?**
○ 1
○ 2
○ 3
○ 4
○ More than 4

**Q7: What grade were you in when you took Dual Credit course(s)? Select all that apply if you took Dual Credit courses in more than one grade.**
○ Grade 10
○ Grade 11
○ Grade 12

**Q8: How many years ago did you take your most recent Dual Credit course?**
○ Currently in progress
○ 1
○ 2
○ 3
○ 4
○ More than 4

**Q9 (Camosun only): What Dual Credit course subjects did you enroll in at Camosun College?**

**Q10 (Camosun only): What school district(s) were you in when you took the Dual Credit course(s)? Select all that apply.**
○ Cowichan Valley School District (#79)
○ Greater Victoria School District (#61)
○ Gulf Islands School District (#64)
○ Saanich School District (#63)
○ Sooke School District (#62)
○ Other (please specify)

**Q11 (KPU only): What Dual Credit course subjects did you enroll in at Kwantlen Polytechnic University?**

**Q12 (KPU only): What school district(s) were you in when you took the Dual Credit course(s)? Select all that apply.**
○ Abbotsford School District (#34)
○ Coquitlam School District (#43)
○ Delta School District (#37)
○ Fraser-Cascade School District (#78)
○ Langley School District (#35)
○ Maple Ridge-Pitt Meadows School District (#42)
○ Richmond School District (#38)
○ Sea to Sky School District (#48)
○ Surrey School District (#36)
○ Other (please specify)

**Q13 (NIC only): What Dual Credit course subjects did you enroll in at North Island College?**

**Q14 (NIC only): What school district(s) were you in when you took the Dual Credit course(s)? Select all that apply.**
○ Alberni School District (#70)
○ Campbell River School District (#72)
○ Comox Valley School District (#71)
○ Other (please specify)

**Q15 (TRU only): What Dual Credit course subjects did you enroll in at Thompson Rivers University?**

**Q16 (TRU only): What school district(s) were you in when you took the Dual Credit course(s)? Select all that apply.**
○ Kamloops/Thompson School District (#73)
○ Other (please specify)

**Q17: What post-secondary institution did you originally plan on attending when you first took a Dual Credit course?**
O <List of all public BC post-secondary institutions>
O Other (please specify)
O Unknown
O N/A - I did not plan to attend post-secondary education

**Q18: What post-secondary institution(s) did you attend after high school? Select all that apply.**
O <List of all public BC post-secondary institutions>
O Other (please specify)
ONot applicable

**Q19: If you are currently attending a different institution than the one where you originally took the Dual Credit course(s), please elaborate on the reason why you did not attend the institution where you originally took the Dual Credit course(s).**

**Q20: Were any of your Dual Credit courses related to your intended study area?**
O Yes
O No
Which courses related to your intended study area?

**Q21: What length of time was there between when you completed your last Dual Credit course and when you started a post-secondary program?**
O I went to post-secondary immediately after high school
O There was a gap of 1 year
O There was a gap of 2 years
O There was a gap of more than 2 years

**Q22: How did you hear about Dual Credit? Select all that apply.**
OParent
O High school teacher
O High school counsellor
O Someone who had already taken a DC course
O High school website
O Post-secondary institution website
O Information session
O Other (please specify)

**Q23: Who was influential in your decision to take Dual Credit courses? Select all that apply.**
O Parent
O High school teacher
O High school counsellor
O Friend
O Other (please specify)

**Q17: What post-secondary institution did you originally plan on attending when you first took a Dual Credit course?**
O <List of all public BC post-secondary institutions>
O Other (please specify)
O Unknown
O N/A - I did not plan to attend post-secondary education

**Q18: What post-secondary institution(s) did you attend after high school? Select all that apply.**
O <List of all public BC post-secondary institutions>
O Other (please specify)
O Not applicable

**Q19: If you are currently attending a different institution than the one where you originally took the Dual Credit course(s), please elaborate on the reason why you did not attend the institution where you originally took the Dual Credit course(s).**

**Q20: Were any of your Dual Credit courses related to your intended study area?**
O Yes
O No
Which courses related to your intended study area?

**Q21: What length of time was there between when you completed your last Dual Credit course and when you started a post-secondary program?**
O I went to post-secondary immediately after high school
O There was a gap of 1 year
O There was a gap of 2 years
O There was a gap of more than 2 years

**Q22: How did you hear about Dual Credit? Select all that apply.**
OParent
O High school teacher
O High school counsellor
O Someone who had already taken a DC course
O High school website
O Post-secondary institution website
O Information session
O Other (please specify)

**Q23: Who was influential in your decision to take Dual Credit courses? Select all that apply.**
O Parent
O High school teacher
O High school counsellor
O Friend
O Other (please specify)

**Q24: Tell us about your experience taking Dual Credit.**

| | Please rate each of the following: | | | | |
| --- | --- | --- | --- | --- | --- |
| | Strongly Agree | Disagree | Neutral | Agree | Strongly agree |
| The enrolment process was clear | O | O | O | O | O |
| The workload was manageable | O | O | O | O | O |
| Taking a Dual Credit course helped prepare me for post-secondary education | O | O | O | O | O |

**Q25: On a scale of 0-10, with 1 being "would not recommend", and 10 being "would highly recommend", how likely are you to recommend taking Dual Credit course(s) to others?**

Please elaborate on why you selected this score.

**Q26: How helpful was Dual Credit as part of your preparation for post-secondary studies?**
O Not very helpful
O Slightly helpful
O Neutral
O Somewhat helpful
O Very helpful

**Q27: What do you feel was most helpful about participating in Dual Credit?**

**Q28: What do you feel could be improved about the Dual Credit experience?**

Thanks very much for completing this survey!
Your feedback will help to improve the Dual Credit program for future students. Please remember to hit the Submit button below.

For more information about this project please contact:
- Plaid Consulting at dualcredit@ca.plaid.is
- BCCAT at info@bccat.ca

To learn more about Plaid's privacy policy click here.

To enter the prize draw, please hit submit below; you will be automatically redirected to a page where you can sign up for the draw.

Survey responses will be encrypted and stored securely in Canada; following completion of the study they will be destroyed. Survey responses will not be linked to performance data. Your completion of the survey implies informed consent. Revoking permission will render you ineligible for the prize draw.  Optional - If you wish to revoke your informed consent, please type the word "Revoke" into the box below, and click Submit. If you still wish to be included in the study, please leave this box blank, and click Submit.  Due to the anonymous nature of this survey, once you hit Submit and have not typed "Revoke", your data cannot be removed.

**(Separate Survey)**

Thanks very much for completing this survey! Your feedback will help to improve the Dual Credit program for future students. Optional – Please provide your contact information below if you would like to be entered in the draw to win one of ten gift cards (value $25).

This email is the text of the survey invitation sent to students who had participated in an ADC course between Fall 2013 and Spring/Winter 2019. This version was sent to students enrolled at North Island College, with similar wording used in the emails sent to students enrolled at Camosun, KPU, and TRU. These emails were sent at the start of the survey period, with a reminder sent approximately one week later.

---

Dear ___,


You are receiving this message because while you were a high school student you took one or more courses at North Island College. Because these courses can be used for credit at both NIC and at your high school, we call this Dual Credit studies.

The BC Council on Admissions and Transfers (BCCAT) is conducting a survey of Dual Credit students to learn more about your experience in the Dual Credit program so that future improvements can be made.

To participate in the survey, click here: https://plaid.is/nic-dc

The survey will take approximately 10 minutes to complete. Participation is voluntary. Your responses will be anonymous and no one at NIC or your high school will see what you say.

We appreciate your time and thank you in advance for contributing to this project.

After completing the survey you may opt in to the draw to win one of ten gift cards (value $25).

For more information about this project please contact:

Plaid Consulting at dualcredit@ca.plaid.is
BCCAT at info@bccat.ca

Survey responses will be encrypted and stored securely in Canada; following completion of the study they will be destroyed. Survey responses will not be linked to performance data.

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# APPENDIX 2:
# Student Performance Analysis Data Request

This data request was sent to Camosun College in May 2019. A similar version was used for the other three participating institutions, with minor variations to allow for institutional differences.

**Table 16: TRU: Data Request**

There are two groups of students who should be included for the purposes of this study:

| Dual Credit Participants | Comparison Group: Direct-entry high school |
|---|---|
| Enrolled in at least 1 DC course in an academic area between Fall 2013-Spring/Winter 2019* inclusive.<br><br>- In the event that the student enrolled in only 1 DC course and withdrew from that course, please exclude them.<br><br>- Exclude any students who participated in DC exclusively in a Trades area. | Enrolled in at least 1 for-credit course in an academic area between Fall 2013-Spring/Winter 2019* inclusive.<br><br>- In the event that the student enrolled in only 1 course and withdrew from that course, please exclude them. |
| A Dual Credit participant can be identified using the institution's existing tracking for DC students. If a reliable indicator is not available, DC can be defined as having completed post-secondary level courses prior to high school graduation.<br><br>- If a student completed Advanced Placement or International Baccalaureate credits, a flag indicating this experience should be included. | A direct-entry student is defined as one who was admitted to the institution on the basis of their high school grades, graduated from high school less than 2 years prior to starting post-secondary at your institution, and does not have transfer credits.<br><br>- If a student completed Advanced Placement or International Baccalaureate credits, a flag indicating this experience should be included. |

* Students admitted within the last year will not have had an opportunity to complete the year 2 milestones and will be filtered out as appropriate. They may provide additional insight for term 1 / year 1 milestones.

## Data Elements

For each of the groups identified above, we request the following information. We're comfortable with any format you're able to provide data.

We request two datasets:

1. Aggregate student information and performance.
2. Course-specific performance.

## Dataset 1: Aggregate student information and performance

- Anonymous identification number.
- Flag indicator for DC participant (Y/N).
- High school graduation date/year.
- High school district.
- Gender.
- Domestic/International Status at entry to institution (whether as DC or as full admit).
- Admitted Academic Program (or intended program).
- Flag for AP/IB credits (Y/N).
- Flag for other transfer credits (Y/N).

The following elements are expected to only be available for students who participated in DC while in high school and subsequently enrolled at your institution. These values can be null or blank for students who did not enroll, or have not yet enrolled at your institution.

- Admission term and year.

- Admission average, if available.

- Academic performance indicator, such as grade point average, at the following times:
    - End of term 1
    - End of year 1
    - End of year 2

- Progress indicator, such as number of credits attempted and completed, at the following times:
    - End of term 1
    - End of year 1
    - End of year 2

## Dataset 2: Course-specific performance

We note that for those DC participants who have finished DC but not subsequently enrolled at your institution that this dataset will only contain information on their DC enrolments.
- Term
- Faculty/division/school
- Subject
- Course number
- Course grade (or percentage)
- Student academic program and faculty/division/school at time of course enrolment

# APPENDIX 3:
# School District Administrator Telephone Survey

## Introduction

The British Columbia Council on Admission and Transfer (BCCAT) has contracted Plaid Consulting (https://plaid.is) to conduct a study on the experiences of Dual Credit students.

The four post-secondary institutions participating in this study are Camosun College, Kwantlen Polytechnic University, North Island College, and Thompson Rivers University.

We are reaching out to school districts partnering with these four institutions to learn more about your experience administering the Dual Credit program.

The project also includes separate components to survey participants in Dual Credit at the participating institutions, as well as a student performance analysis to help determine how participating in Dual Credit may impact student participation and success in post-secondary studies.

The goal of this interview is to learn more about your experience administering the Dual Credit program so that future improvements can be made.

**Question 1: What institutions do you have Dual Credit partnerships with?**

**Question 2: What grade do you find students first express an interest in Dual Credit?**

**Question 3: Does your school or district promote dual credit opportunities? How is this done?**

**Question 4: What subject areas or types of dual credit courses do your students participate in?**

**Question 5: What are the motivators for students participating in Dual Credit?**

**Question 6: What are the motivators for school districts to have students participating in Dual Credit?**

**Question 7: What are important characteristics of students most suited to be successful in Dual Credit?**

**Question 8: Who are important influencers for a student's decision to participate in Dual Credit?**
- ○ Parent
- ○ High school teacher
- ○ High school counsellor
- ○ Friend
- ○ Other (please specify)

**Question 9: Do you find that students who participate in Dual Credit bring additional skills or knowledge back to their other secondary school classes? Please elaborate.**
- ○ Yes
- ○ No

**Question 10: Do your students who participate in Dual Credit at <PSI> plan on attending there or do some plan on transferring the credit to another institution?**

**Question 11: Do their plans change as a result of participating in Dual Credit?**

**Question 12: Please rate each of the following:**

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| 12.1: The enrolment process is clear for students | | | | | |
| 12.2: The workload is manageable for students | | | | | |
| 12.3: Taking a Dual Credit course helps prepare my students for post-secondary education | | | | | X |

**Question 13: What are the biggest benefits for students participating in Dual Credit?**
- ◯ Exposure to post-secondary education
- ◯ Understanding what post-secondary workload is like
- ◯ Credits towards post-secondary education
- ◯ Save on tuition costs
- ◯ Better understand / exposure to new fields
- ◯ Enroll in courses not available in high school
- ◯ Other (please specify)

**Question 14: What sort of regular feedback does your school/district get on how well their dual credit arrangements work for students both immediately (as a learning experience) and in terms of credit recognition later?**

**Question 15: What could be improved about the Dual Credit experience?**

**Question 16: Do you feel that Dual Credit is equally accessible for all school districts in BC, or are opportunities greater in some areas than others?**

# APPENDIX 4:
## Research Ethics Board Approvals

**CAMOSUN COLLEGE**

Camosun College Research Ethics Board
c/o Camosun Innovates

February 9, 2019

**VIA EMAIL**
(andrew@plaid.is)

Andrew Drinkwater
Director & Co-Founder
Plaid Consulting Inc.
809 – 1500 Howe Street
Vancouver, BC  V6Z 2N1

Dear Andrew:

### RE: Application Number 2019-02

On behalf of the Camosun College Research Ethics Board, I am pleased to inform you that your research project entitled **"Experiences and Performance of Dual Credit Students in the BC Post-Secondary System"** has been granted ethics approval.  In reaching their decision, reviewers took note of the revised documentation addressing issues raised during review of your original application.

Please note that:

1.  Approvals are granted for a one year period and any extension of the project beyond this time requires reapplication to the Research Ethics Board.

2.  Any significant modifications to the proposal, even after commencement of the research project, require approval from the Research Ethics Board.

3.  Principal investigators are required to promptly notify the Research Ethics Board of completion of the research project.

Please quote the above application number on any further correspondence.  We wish you success with your project.

(Signatures suppressed)

- Karen Shirley
Chair, Research Ethics Board
Camosun College
REBChair@camosun.bc.ca

3100 Foul Bay Road, Victoria, B.C. V8P 5J2 **LANSDOWNE CAMPUS** **INTERURBAN CAMPUS** 4461 Interurban Road, Victoria, B.C. V9E 2C1

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**NORTH ISLAND COLLEGE**

# NIC

## Certificate of Approval for Use of Human Subjects in Research

| Principal Investigator: | Andrew Drinkwater | **Certificate No:** | **19-02** |
|---|---|---|---|
| Department: | External – Plaid Consulting Inc. | **Approval Date:** | 5/3/2019 |
| | | **Approval Expiry:** | 5/3/2020 |
| Co-Investigator(s): | Patrick Lougheed, Plaid Consulting Inc. | **Project End Date:** | 12/31/2019 |
| | | **Report Due:** | 5/3/2020 |
| Project Title: | **Experiences and Performance of Dual Credit Students in the BC Post-Secondary System** | | |

## Certificate

This certifies that the North Island College Research Ethics Board has examined this research protocol and concludes that, in all respects, the proposed research meets appropriate standards of ethics as outlined by the North Island College Policy 1-12 Research Involving Humans.

(Signatures suppressed)

Antonie Scholtz, PhD
Chair, NIC Research Ethics Board

This Certificate of Approval is valid for the above term provided there is no change in the procedures. Researchers shall report to the REB any unanticipated issue or event that may increase the level of risk to participants, or has ethical implications that may affect participants' welfare.

Extensions or minor amendments may be granted by contacting the North Island College Research Ethics Board Chair.

REB approval of this research proposal indicates that it is ethically acceptable in accordance with TCPS 2. However, this approval does not, in itself, constitute authorization for the research to proceed. North Island College may disallow research from proceeding on other grounds according to its internal policies. Depending upon institutional policy or other regulatory requirements, proposed research may need to be approved by other authorities in addition to an REB.

# LETTER OF AGREEMENT

## Between

## Plaid Consulting Inc.

## And

## North Island College (NIC)

This letter of agreement (LOA) constitutes an agreement between Plaid Consulting Inc. and North Island College (NIC) for the Dual Credit (DC) project sponsored by the BC Council of Admissions and Transfer.

### Purpose of the LOA

The purpose of this LOA is to outline the Dual Credit project which aims to improve understanding of the experiences and performance of students completing at least one Dual Credit (DC) course in an academic area and transitioning to post-secondary studies.

### Objective

The Dual Credit project will consist of the following:

- Phase one: Student experience survey
- Phase two: Student performance analysis

### Reporting, Analysis, and Data Storage Principles

1. Small populations: Plaid Consulting Inc. will follow the Ministry of Education's policy on the protection of personal information when reporting on small populations, in particular suppressing values associated with a population that is one through nine individuals.

2. Basis of comparison: Plaid Consulting Inc. will endeavour to compare "like to like" - that is, for reporting they will endeavour to compare otherwise similar students. For example, "for students with an admission average in range x, students who participated in Dual Credit had <lower / the same / higher> grade point averages at the end of year 1 versus similarly qualified direct entry students". Plaid Consulting Inc. will work with North Island College to ensure the comparisons made are logical and fair. Plaid Consulting Inc. will provide North Island College with a draft for review.

3. Data: Data will be stored in Canada on secure, encrypted, devices, accessible only to the project researchers. Data will only be accessible to the researchers, including Andrew Drinkwater, Patrick Lougheed, Lynne Jamieson, and Anya Goldin. Plaid will notify NIC if there are any changes to the research team. Following the project, Plaid Consulting Inc. will delete associated project data and provide North Island College with a compliance certificate.

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## Data Sharing

North Island College will provide Plaid Consulting Inc. data using one of the following options:

1. Upload to Plaid Consulting Inc's secure share at
   https://ln.sync.com/dl/a7deaf7e0/mnkdwu32-7zwj5t9u-d5ke5gbm-2dajaqnw

2. Use North Island College secure sharing service and send Plaid Consulting Inc. a link to download.

## Timeline

*Pending REB approval for the survey

|  | **Phase One:**<br>**Student experience survey** | **Phase Two:**<br>**Student performance analysis** |
|---|---|---|
| **April, 2019** | Send outreach to students who participated in DC.<br><br>April 17, 2019<br><br>Target date for message to students<br><br>Survey open - April 17 to May 1, 2019 | Request institutional data |
| **May, 2019** | Survey analysis | Receive STP data |
| **June, 2019** |  | Received anonymized institutional data<br><br>(by June 28, 2019) |
| **July, 2019** |  | Performance analysis |
| **August, 2019** | Write report | Write report |
| **September, 2019** | Report revisions | Report revisions |
| **October 2019** | Final report | Final report |

(signature blocks suppressed)

# APPENDIX 5:

# Ministry of Education Dual Credit Funding Model

**Post-Secondary Transition Programs (school-age only)**
*Post-secondary transition programs are educational programs that combine secondary and post-secondary courses, and that lead to Grade 12 graduation as well as to help students make smooth transitions **to further education or training**. (Ref. Recognition of Post-Secondary Transition Programs for Funding Purposes policy).*
**NOTE:** All school age students may be eligible for this elective option if *the course is taken for credit towards grade 12 graduation.* (Ref. K-12 Funding-General Policy).
**Audit Steps:** use the detailed PSI audit steps document – criteria is based on Ministry directives verifying Post-Secondary Transition Program course claims:
- Students begin taking the post-secondary courses that are **part of their transition program during their Grade 11 or Grade 12 year;**
- Post-secondary courses lead to a post-secondary credential from a district partnered post-secondary institution, which is a member of the BC Transfer System;
- District has a current agreement with the post-secondary institution(s);
- Course(s) is/are part of a school district program that is an educational option for school-age students, and aligns with planning for student's **specific occupation;**
- School district pays tuition costs for post-secondary courses reported for funding;
- Student annually updates and signs a planned program of courses, **listing the transition program course**(s) including when and where student takes the post-secondary course(s); and
- There is evidence the purchased educational services are under the general supervision of an employee of the board who is a certificate holder per Sec.86 *School Act.*

| English Language Learning-ELL (Apprentissage de la langue anglaise-ALA) | | | | |
|---|---|---|---|---|
| Criteria | We are looking for: | What the analysis will allow us to say: | Audit Program | Auditors' Initials |
| • *For a school district to receive ELL Supplemental Funding from the Ministry for an ELL student in a particular school year, all of the following must be met and documented. (Ref: ELL Policy and Guidelines P.7).*<br>• ***A plan for the delivery** of ELL/ALA support services must be in evidence at the time of the September 30, 2019 claim. Service that is deferred entirely to a later time (i.e., there is no support or planning in evidence at September 30) will not be funded.*<br>• *Speech Language Pathology services and other non-ELL/ALA specific services are not considered to be additional services. (Ref: Form 1701 Instructions, P.8-9)* | Assurance that students claimed for ELL/ALA supplemental funding receive additional services in accordance with Ministry policies and Form 1701 Instructions. | Whether student claims for ELL/ALA supplementary funding meet the requirements. | **Key Documents:** As Above, and<br>• ELL Policy and Guidelines (P.7, 12, 15 and 21)<br>• K-12 Funding – English Language Learning Policy<br>• Auditor's ELL Info Sheet<br><br>**Audit Steps:**<br>Interview the appropriate staff to determine the process for identification and placement of ELL/ALA students according to their English language proficiency and document this process.<br>Using Ministry generated sample of students reported as receiving ELL/ALA supplemental funding, perform the following audit procedures: | |

(Government of British Columbia, 2019)

# APPENDIX 6:
# Camosun Regression: Year 1 and Year 2 GPA Analysis

We ran a series of regressions to better understand whether ADC participation impacts post-secondary performance. We ultimately kept the regression with the highest R2 values. R2 measures how much variance in GPA is explained by the independent variables. For Camosun, the regression that best explained GPA included the variables of ADC participation, gender, national status, CIP cluster of the program the student was admitted to, and English 12 grade. After controlling for these factors, the percentage of variance explained was 19% for term 1 GPA, and 20% for year 1 GPA. This means that 19% of the variance in term 1 GPA can be explained by ADC participation, gender, national status, CIP cluster, and English 12 grade, leaving 81% of the variance due to factors not accounted for in this analysis. The predictive power of the regression declined to 15% for year 2 GPA.

The following tables show the regressions for year 1 and year 2 GPA. Term 1 regressions can be found in Table 5.

The independent variables that are significant predictors of success include:

- Gender

- English 12 grades of B, C+, C, and C-; and,

- CIP clusters of Business and Management (Year 2 only), Engineering and Applied Sciences, Health, Human and Social Services (Year 1 only), and Visual and Performing Arts.

These variables explained approximately 19% of variance in year 1 GPA (R2 = 0.195), and 14% of variance in year 2 GPA (R2=0.142).

**Table 17:** Camosun: Year 1 GPA Regression Analysis

| Variable | Year 1 GPA R-Squared = 0.195 | | |
| --- | --- | --- | --- |
| | Coefficient | Standard Error | T-Value |
| Intercept | 6.324 | 0.089 | 71.050 |
| ADC Participant | 0.132 | 0.090 | 1.476 |
| Male *** | -0.576 | 0.067 | -8.656 |
| International * | -0.224 | 0.135 | -1.661 |
| En12: A- | 1.629 | 1.528 | 1.066 |
| En12: B *** | -1.355 | 0.094 | -14.349 |
| En12: B+ | -0.771 | 1.528 | -0.504 |
| En12: C *** | -2.819 | 0.151 | -18.626 |
| En12: C- *** | -3.016 | 0.207 | -14.583 |
| En12: C+ *** | -2.441 | 0.107 | -22.783 |
| En12: D | 1.182 | 2.160 | 0.547 |
| En12: F | -2.436 | 1.528 | -1.595 |
| CIP: Business and Management | 0.095 | 0.096 | 0.990 |
| CIP: Education | 0.473 | 0.473 | 0.999 |
| CIP: Engineering and Applied Sciences *** | 1.122 | 0.148 | 7.564 |
| CIP: Health *** | 1.194 | 0.125 | 9.583 |
| CIP: Human and Social Services *** | 0.394 | 0.108 | 3.660 |
| CIP: Visual and Performing Arts *** | 1.192 | 0.204 | 5.829 |

Significance: *** ($p<0.01$), ** ($p<0.05$), * ($p<0.10$)

**Table 18:** Camosun: Year 2 GPA Regression Analysis

| Variable | Year 2 GPA R-Squared = 0.142 | | |
| --- | --- | --- | --- |
| | Coefficient | Standard Error | T-Value |
| Intercept | 6.548 | 0.124 | 52.761 |
| ADC Participant | -0.039 | 0.122 | -0.320 |
| Male *** | -0.628 | 0.092 | -6.853 |
| International | -0.295 | 0.189 | -1.560 |
| En12: A- | 1.852 | 2.222 | 0.833 |
| En12: B *** | -1.107 | 0.132 | -8.417 |
| En12: B+ | 0.300 | 1.575 | 0.191 |
| En12: C *** | -2.596 | 0.218 | -11.928 |
| En12: C- *** | -2.495 | 0.290 | -8.605 |
| En12: C+ *** | -2.118 | 0.150 | -14.085 |
| En12: D | 0.222 | 2.225 | 0.100 |
| En12: F | -0.548 | 2.222 | -0.247 |
| CIP: Business and Management ** | -0.270 | 0.129 | -2.095 |
| CIP: Education | 0.800 | 0.674 | 1.187 |
| CIP: Engineering and Applied Sciences *** | 0.804 | 0.206 | 3.899 |
| CIP: Health *** | -0.497 | 0.182 | -2.727 |
| CIP: Human and Social Services | 0.105 | 0.144 | 0.727 |
| CIP: Visual and Performing Arts *** | 0.871 | 0.286 | 3.052 |

Significance: *** ($p<0.01$), ** ($p<0.05$), * ($p<0.10$)

# APPENDIX 7:
# KPU Regression: Year 1 and Year 2 GPA Analysis

We ran a series of regressions to better understand whether ADC participation impacts post-secondary performance. We ultimately kept the regression with the highest R2 values. R2 measures how much variance in GPA is explained by the independent variables. For KPU, the regression that best explained GPA included the variables ADC participation, gender, national status, CIP cluster of the program the student was admitted to, and English 12 grade.

After controlling for these factors, the percentage of variance explained was 15% for term 1 GPA, and 19% for year 1 GPA. This means that 15% of the variance in term 1 GPA, for example, can be explained by ADC participation, gender, national status, CIP cluster, and English 12 grade, leaving 85% of the variance explained by factors not accounted for in this analysis. The predictive power declined slightly to 16% for year 2 GPA.

 The following tables show the regressions for year 1 and year 2 GPA. Term 1 can be found in Table 8.

Significant predictors of success include:

- Gender;
- English 12 grades of B, C+, and C-; and,
- CIP cluster: all clusters for year 1: all listed; for year 2: all except Human and Social Services

These variables explained approximately 19% of variance in year 1 GPA (R2 = 0.192), and 17% of variance in year 2 GPA (R2=0.166).

**Table 19:** KPU: Year 1 GPA Regression Analysis

| Variable | Year 1 GPA R-Squared = 0.192 | | |
| --- | --- | --- | --- |
| | Coefficient | Standard Error | T-Value |
| Intercept | 3.118 | 0.020 | 154.040 |
| ADC Participant | 0.113 | 0.076 | 1.488 |
| Male *** | -0.163 | 0.017 | -9.838 |
| International | 0.005 | 0.066 | 0.071 |
| En12: B *** | -0.483 | 0.021 | -22.502 |
| En12: C- *** | -0.957 | 0.069 | -13.851 |
| En12: C+ *** | -0.866 | 0.024 | -35.491 |
| En12: P | -0.332 | 0.847 | -0.392 |
| CIP: Business and Management *** | -0.110 | 0.019 | -5.911 |
| CIP: Education *** | 1.415 | 0.063 | 22.380 |
| CIP: Engineering and Applied Sciences *** | 0.260 | 0.038 | 6.895 |
| CIP: Health *** | 0.507 | 0.034 | 14.908 |
| CIP: Human and Social Services *** | 0.731 | 0.073 | 10.007 |
| CIP: Visual and Performing Arts *** | 0.489 | 0.052 | 9.468 |

Significance: *** (p<0.01), ** (p<0.05), * (p<0.10)

**Table 20:** KPU: Year 2 GPA Regression Analysis

| Variable | Year 2 GPA R-Squared = 0.166 | | |
| --- | --- | --- | --- |
| | Coefficient | Standard Error | T-Value |
| Intercept | 3.285 | 0.022 | 148.343 |
| ADC Participant * | 0.156 | 0.089 | 1.755 |
| Male *** | -0.066 | 0.019 | -3.458 |
| International | -0.047 | 0.077 | -0.606 |
| En12: B *** | -0.379 | 0.024 | -16.044 |
| En12: C- *** | -0.625 | 0.098 | -6.389 |
| En12: C+ *** | -0.585 | 0.029 | -20.495 |
| CIP: Business and Management *** | -0.062 | 0.021 | -2.912 |
| CIP: Education *** | 0.701 | 0.100 | 6.979 |
| CIP: Engineering and Applied Sciences ** | 0.088 | 0.040 | 2.225 |
| CIP: Health *** | 0.493 | 0.051 | 9.686 |
| CIP: Human and Social Services | 0.069 | 0.113 | 0.610 |
| CIP: Visual and Performing Arts *** | 0.315 | 0.048 | 6.517 |

Significance: *** (p<0.01), ** (p<0.05), * (p<0.10)

# APPENDIX 8:
# NIC Regression: Year 1 and Year 2 GPA Analysis

We ran a series of regressions to better understand whether ADC participation impacts post-secondary performance. We ultimately kept the regression with the highest R2 values. R2 measures how much variance in GPA is explained by the independent variables. For NIC, the regression that best explained GPA included the variables of ADC participation, gender, and national status.

After controlling for these factors, the percentage of variance explained was 8.6% in year 1 GPA, and 15.1% in year 2 GPA. This means that 15% of the variance in year 1 GPA, can be explained by ADC participation, gender, and national status, leaving 90% of the variance due to factors not accounted for in this analysis.

The following tables show the regressions for year 1 and year 2 GPA. Term 1 GPA analysis can be found in Table 11.

Significant predictors of success include:

- ADC participation;
- Gender; and,
- National status.

While ADC participation was initially identified as a significant predictor, this analysis shows that only a small amount of the variance in performance is accounted for by the independent variables, suggesting there are other factors differentiating performance not accounted for in this analysis.

**Table 21:** NIC: Year 1 GPA Regression Analysis

| Variable | Year 1 GPA R-Squared = 0.086 | | |
|---|---|---|---|
| | Coefficient | Standard Error | T-Value |
| Intercept | 2.586 | 0.033 | 78.541 |
| ADC Participant *** | 0.241 | 0.051 | 4.743 |
| Male *** | -0.149 | 0.045 | -3.331 |
| International *** | -0.664 | 0.065 | -10.167 |

Significance: *** (p<0.01), ** (p<0.05), * (p<0.10)

**Table 22:** NIC: Year 2 GPA Regression Analysis

| Variable | Year 2 GPA R-Squared = 0.151 | | |
|---|---|---|---|
| | Coefficient | Standard Error | T-Value |
| Intercept | 2.752 | 0.043 | 64.150 |
| ADC Participant ** | 0.147 | 0.073 | 2.004 |
| Male *** | -0.176 | 0.062 | -2.846 |
| International *** | -0.705 | 0.081 | -8.727 |

Significance: *** (p<0.01), ** (p<0.05), * (p<0.10)

# APPENDIX 9:
# TRU Regression: Year 1 and Year 2 GPA Analysis

We ran a series of regressions to better understand whether ADC participation impacts post-secondary performance. We ultimately kept the regression with the highest R2 values. R2 measures how much variance in GPA is explained by the independent variables. For KPU, the regression that best explained GPA included the variables ADC participation, gender, national status, school district, and English 12 grade.

After controlling for these factors, the percentage of variance explained ranged from 23% for term 1 GPA, to 25% for year 1 GPA. This means that 23% of the variance in term 1 GPA can be explained by ADC participation, gender, national status, school district, and English 12 grade, leaving 77% of the variance explained by factors not accounted for in this analysis.

The following tables show the regressions for year 1 GPA. Term 1 can be found in Table 14. Year 2 GPA was analyzed but contained too few samples to report.

Significant predictors of success at the p<0.01 level for year 1 GPA include:

- National status;
- English 12 grades of B, C+, C, C- and F; and,
- School districts of Coquitlam and Vernon.

These variables explained approximately 25% of variance in year 1 GPA (R2 = 0.252).

**Table 23:** TRU: Year 1 GPA Regression Analysis

| Variable | Year 1 GPA R-Squared = 0.252 | | |
| --- | --- | --- | --- |
| | Coefficient | Standard Error | T-Value |
| Intercept | 3.419 | 0.040 | 86.262 |
| ADC Participant | -0.062 | 0.072 | -0.859 |
| Male | -0.056 | 0.035 | -1.607 |
| International *** | 0.538 | 0.142 | 3.787 |
| En12: B *** | -0.676 | 0.042 | -15.920 |
| En12: C *** | -1.677 | 0.078 | -21.441 |
| En12: C- *** | -1.820 | 0.109 | -16.746 |
| En12: C+ *** | -1.252 | 0.059 | -21.056 |
| En12: F *** | -3.600 | 0.661 | -5.444 |
| SD: Coquitlam *** | -0.974 | 0.348 | -2.795 |
| SD: Vernon ** | -0.651 | 0.323 | -2.014 |

Significance: *** (p<0.01), ** (p<0.05), * (p<0.10)

# APPENDIX 10:
# Student Transitions Project Data Request

This appendix shows the data request submitted to the Student Transitions Project and the resulting agreement.
Signature blocks from Part E (Agreement to the Terms and Conditions) and Part H (Ministry Authorization) have been suppressed.

**Student Transitions Project Research Agreement**

**Purpose:** Academic Researchers and contractors working on behalf of a British Columbia education ministry, public post-secondary institution or institutional consortia may access data from the Student Transitions Project (STP) for research purposes in accordance with the STP Data Access Policy. This Research Agreement formalizes the terms and conditions under which these users are authorized to access STP data, in accordance with the *Freedom of Information & Protection of Privacy Act*, RSBC 1996, c. 165. The Research Agreement becomes a legally binding agreement upon being signed by the ministries responsible for education and advanced education (the Ministries) and the user(s).

**Instructions:** Completed agreements shall be submitted to:

STP SECRETARIAT
Ministry of Advanced Education, Skills and Training
AEST.STPContact@gov.bc.ca

**Date:** May 13, 2019

**Project:** Experiences and Performance of Dual Credit Students in the B.C. Post-Secondary System

## PART A: Identification of Users

Please provide the following information for each individual that requires access to STP data for research purposes.

| | |
|---|---|
| **Researcher Name:** | Patrick Lougheed |
| **Organization:** | Plaid Consulting Inc. |
| **E-mail:** | pat@plaid.is |
| **Phone Number:** | 1-604-306-0199 |

| | |
|---|---|
| **Researcher Name:** | Andrew Drinkwater |
| **Organization:** | Plaid Consulting Inc. |
| **E-mail:** | andrew@plaid.is |
| **Phone Number:** | 1-604-328-8376 |

## PART B: Scope of the Research Project

1. **Describe the research project being undertaken, including research question(s), objectives and deliverables of the project:**

The B.C. Council on Admissions and Transfer (BCCAT) seeks a stronger understanding of the experiences and performance of students completing at least one Dual Credit (DC) course in an academic area and transitioning to post-secondary studies. Following up on a 2017 BCCAT study on Dual Credit Programs focused on the South Island Partnership (SIP), a partnership

1

between Camosun College and five school districts on southern Vancouver Island, this project will:

1. Describe the performance of students who completed at least one DC course in an academic area and transition to post-secondary.
2. Compare the above students with a comparison group who did not complete a DC course.
3. Gather information from students about their experience with DC and how it affected their transition to post-secondary studies.
4. Identify areas for future research.

The STP-related component of this research is to understand the prevalence of DC enrolment across post-secondary institutions and Classification of Instructional Programs (CIP) codes in B.C. The intention is to use aggregate STP data to answer the following key questions:

1. How many students participate in DC on an annual basis?
2. At which post-secondary institutions do DC students participate?
3. Do these students pursue further post-secondary education following their DC experience? If so,
   a. At the same PSI as they attended for DC?
   b. At a different PSI as they attended for DC?
4. Did these students complete at least one credential in years following their Dual Credit experience? If so, when did they complete?

This research will help post-secondary institutions better understand the experiences and performance of Dual Credit participants.

## 2. Describe how the STP will be used to achieve the objectives of the research project.

The STP data will be used to achieve two objectives:

A. Quantify a known gap in our cohort identification process: estimating the number of DC students who ultimately pursue their post-secondary studies at a different institution than the one they completed their DC at.
   o For example, the 2017 study focused on the South Island Partnership found that about 1 in 3 DC participants pursued post-secondary studies at an institution other than Camosun College.
B. Provide for an understanding of DC prevalence at all B.C. post-secondary institutions.

## 3. Identify any stakeholders and/or partners involved, and what role they will have in the research project.

This project is being performed on behalf of and under contract to BCCAT. BCCAT will be performing a review of the analysis performed by Plaid, providing feedback, and ensuring that their questions are being answered. BCCAT will not have access to the underlying data provided from the STP.

2

Plaid additionally has a part-time employee and a part-time contractor who will work on this project. Their focus is an environmental scan of policies, and they will be involved in the writing and editing process of the final results. They will not have access to the underlying data provided from the STP.

**PART C: Scope of Data**

**Data Elements Requested, including time period from (year) to (year)**

Students in scope include those who enrolled in DC from **Fall 2010 to Spring/Winter 2019 inclusive**.

DC is defined, for this project, as post-secondary enrolment <= grade 12 graduation date at the secondary and post-secondary level. At minimum, this longer time range provides an opportunity for 3 cohorts to have enrolled in DC for one year, and then post-secondary studies for up to 6 years. Additional cohorts will have enrolled for a shorter period of time. We note that this will limit analysis of completion rates, which may ultimately need to be suppressed if the sample is too small.

**Continuing Education Only students should be excluded. Students who return to the K-12 system after graduation (such as for upgrading) should be flagged as K-12 returnees** (see below).

The STP is the only reliable way to link K-12 data with post-secondary data, both of which are necessary to determine DC participation and subsequent post-secondary enrolment and completion. As we are requesting aggregate data, we also request that the STP staff or their delegate conduct any data linking necessary to create the research dataset.

1) Aggregated records in **STP Enrolment File** where **SCHOOLYEAR from 2010/2011 to 2017/2018** (if available, **preferably 2018/2019**) for all PSI_REG_TERMS for the time period(s) in which the student was enrolled in DC.

- Necessary dimensional fields are:
  - PSI_CODE
  - PSI_SCHOOL_YEAR
  - PSI_REG_TERM
  - PSI_CIP_CODE
  - PSI_FULL_NAME
  - PSI_GENDER
  - PSI_STUD_POSTAL_CODE_FIRST_CONTACT (As Forward Sortation Area, that is first 3 characters only.)
  - PSI_STUDY_POSTAL_CODE_CURR (As Forward Sortation Area, that is first 3 characters only.)
  - PSI_MIN_START_DATE
  - PSI_BASIS_OF_ADMISSION
  - PSI_NEW_STUDENT_FLAG
  - PSI_VISA_STATUS

3

- Necessary measure fields are:
  - Count of PSI_PEN
  - Distinct Count of PSI_PEN

2) **The above fields need to then be joined** with information about the student's post-secondary studies following participation in DC, based on both the **STP Enrolment File (EF)** and the **STP Credential File (CF)**, linked based on the PSI_PEN field:

- Post-DC EF.PSI_CODE (if they did not attend further PSE, label as NULL)
- Post-DC Min(EF.PSI_SCHOOL_YEAR)
- Post-DC Max(EF.PSI_SCHOOL_YEAR)
- Post-DC Min(EF.PSI_REG_TERM)
- Post-DC Max(EF.PSI_REG_TERM)
- Post-DC EF.PSI_CIP_CODE
- Post-DC EF.PSI_CREDENTIAL_CATEGORY
- Post-DC Min(CF.PSI_SCHOOL_YEAR / Graduation Year)
- Post-DC Max(CF.PSI_SCHOOL_YEAR / Graduation Year)
- Post-DC Min(CF.PSI_CREDENTIAL_AWARD_DATE)
- Post-DC Max(CF.PSI_CREDENTIAL_AWARD_DATE)

3) In addition, the following information from the **Secondary School submission:**
- School District
- High school grade level at time of DC enrolment
- K-12 Returnee flag (for students who return to the K-12 system following their graduation date)

**Type of Data:**

Note: Per the STP Data Access Policy, institutional contractors are authorized to access aggregate data; Academic Researchers may be granted access to case-level data for projects certified by an ethics board, upon approval of the STP Steering Committee.

☐ anonymized case-level    ☐ case-level identifiable    ☒ aggregate

If access to case-level data is requested, please provide rationale below:

N/A
- Notwithstanding the above, access will be given **only** to data elements approved for access by the STP Steering Committee.

**PART D:  Duration of Access Requested**

Access to STP data is being requested from: May 31, 2019 to December 31, 2019.

Note: Access to the data will be limited to a term decided on a case-by-case basis. Any request for extension of the duration of access will be made in writing to the STP Secretariat.

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## PART F: Terms and Conditions of Access and Use

Access and use of STP data is authorized for the individuals identified in Part A under the following terms and conditions:

- Use is to be limited to research described in Part B.
- Use of STP data must be consistent with the purpose for which it was collected – to understand, improve and plan for K-12 to post-secondary student transitions. STP data will not be used to make decisions about an individual.
- Users will not attempt to identify an individual through STP data by any means, whether by personal identifier (e.g. Provincial Education Number or student number) or by other known characteristics of an individual.
- STP data must be stored and accessed only within Canada.
- Reports, papers or any other works will be written and/or presented in such a way that no individual can be identified in accordance with government policy for reporting on small populations https://www2.gov.bc.ca/gov/content/education-training/k-12/administration/legislation-policy/public-schools/protection-of-personal-information-when-reporting-on-small-populations
- Users intending to publish a report utilizing STP data will provide a copy of the draft report to the Steering Committee, along with a description of how STP data has been used in the report. Where the report identifies individual post-secondary institutions, the user publishing the report will also provide a copy of the draft report, along with a description of how the STP data was used, to each of the Registrars of the post-secondary institutions identified in the report. The Steering Committee and Registrars will have at least 14 calendar days to review the draft report and methodology and provide comments before the final report is published.
- All published reports utilizing STP data must indicate the source of the data; the date upon which the data was obtained and details about how the data was used; and the name of the organization responsible for the report.
- The Steering Committee reserves the right to require that a disclaimer be inserted into the published final report indicating that the interpretation of the data and the views expressed in the report do not necessarily reflect those of the Steering Committee.
- The user is responsible for ensuring that only those individuals specified in Part A will have access to STP data.
- Storage media on which STP data resides, and account information that enables access to the data, will be sufficiently safeguarded to prevent unauthorized users from accessing the data.
- Any copies of the requested data will be kept, in a secure manner, at the following address(es):
- Physical security at the above premises will be maintained by ensuring that the premises are securely locked, except when the user(s) identified in Part A are present.
- Storage media on which STP data resides, and account information that enables access to the data, must meet government security standards as outlined http://www2.gov.bc.ca/gov/content/governments/services-for-government/information-management-technology/information-security

- The Ministries may carry out on-site visits and other inspections or investigations that it deems necessary to ensure compliance with the terms and conditions of this agreement. Such measures may include, but are not limited to:
  - On-site inspection of premises or computer databases to confirm that adequate security measures are being utilized;
  - Requesting and obtaining copies of any reports, papers or other works utilizing STP data.
- Upon the expiry of the time period in Part D, users will delete the STP data from all storage media and submit a Compliance Certificate (Schedule A) to the STP Secretariat certifying that the data have been deleted.

## PART G: Agreement to the Terms and Conditions

I understand and agree that I am responsible for ensuring complete compliance with these terms and conditions. In the event that I become aware of a breach of any of the terms and conditions of this agreement, I will immediately notify the Ministries in writing. I also understand and agree that a breach of any of the terms and conditions of this agreement may result in termination of my authorization to access STP.

(signature blocks suppressed)

## PART H: Ministry Authorization

The Ministry authorizes the individuals identified in Part A of this agreement to be authorized users with access to STP under the terms and conditions identified in Part F. This agreement will be in force from the date signed by both Ministries until December 31, 2019 unless terminated sooner in accordance with Part G.

(signature blocks suppressed)

# BCCAT

*Your guide through post-secondary education.*