



GRADUATE OUTCOMES SURVEY TECHNICAL REPORT

Prepared for:
Alberta Innovation and Advanced Education

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TABLE OF CONTENTS

TABLE OF CONTENTS	1
SECTION 1: Overview	2
SECTION 2: Survey Preparation	3
2.1 Survey Programming	3
2.2 Sample Preparation	3
2.3 Field Testing	5
SECTION 3: Survey Administration	7
3.1 Call Management System	7
3.2 Online Survey Management	7
3.3 Telephone Survey Administration	8
3.4 Survey Length	9
SECTION 4: Tracking, Tracing, and Directory Sourcing	11
4.1 Tracking and Tracing	11
4.2 Language Cases	11
4.3 Directory Sourcing	11
SECTION 5: Publicly Funded Post-Secondary Institution Survey Results	13
5.1 Final Call Dispositions	13
5.2 Response Rates by Institution	15
5.3 Response Rates by Institutional Sector and Field of Study	17
5.4 Response Rates by Program	19
SECTION 6: Private Vocational Training Institution Survey Results	20
6.1 Final Call Dispositions	20
6.2 Response Rates by Institution	22
6.3 Response Rates by Sector and Field of Study	24
SECTION 7: Data Cleaning and Validation and Data File Preparation	25
7.1 Cleaning and Upcoding	25
7.2 Weekly Validation Uploads	25
7.3 Preparation of the Final Dataset	25
SECTION 8: Initial Analyses	27
8.1 Non-Respondent Demographics	27
8.2 Telephone vs. Online Completions	31
8.3 Effects of Data Weighting	35

SECTION 1: OVERVIEW

The Graduate Outcomes Survey – Class of 2011/12 (GOS) was commissioned by Alberta Innovation and Advanced Education (IAE) in 2013, to take place in early 2014. R.A. Malatest & Associates Ltd. was contracted by IAE to conduct the survey and present the results. The purpose of the survey is to determine post-secondary graduates' satisfaction with their post-secondary education experiences, as well as their further education and employment outcomes approximately two years after graduation. The findings from the survey are provided both to IAE and to individual post-secondary institutions, and are used to inform strategic planning and results reporting.

This technical report describes the processes followed to prepare and administer the GOS as well as the overall outcomes of survey administration, including final call dispositions and a discussion of the representativeness of the data collected.

The survey population consisted of all 2011-12 academic year graduates from both credit parchment programs and private vocational institutions. In total, the survey population included 39,809 valid cases from publicly funded post-secondary institutions, and 2,958 valid cases from private vocational training institutions. Malatest drew random samples from institutions with more than 1,300 graduates, while conducting a census approach for institutions with fewer than 1,300 graduates. The total number of cases included in the final sampling frame was 33,787, with 30,893 cases coming from publicly funded post-secondary institutions and 2,894 cases coming from private vocational training institutions.

The GOS was administered as a mixed-mode survey, with survey interviews conducted by telephone and online using CallWeb, an integrated Computer-Assisted Telephone Interview (CATI)/Computer-Assisted Web Interview (CAWI) system. Field testing was conducted from January 21 to 24, 2014, between the hours of 5:00 PM and 9:00 PM. Full survey administration took place from February 12, 2014, through May 18, 2014.

A total of 15,119 survey completions were obtained, including 14,012 completions from public institutions and 1,107 completions from private institutions. This equated to a valid response rate¹ of 54.7% (54.7% for public institutions and 55.5% for private institutions) and a gross response rate² of 44.7% (45.4% for public institutions and 38.3% for private institutions). Survey interviews averaged 21.7 minutes per survey, with surveys averaging a length of 23.2 minutes over the telephone and 19.5 minutes online. Overall, 47.8% of completed surveys were conducted over the telephone, while 52.2% were completed online.

¹ Valid response rate reflects the proportion of cases within the sample with valid contact information who responded to the survey. Valid response rate is calculated as (Survey Completions + Nonqualifying Respondents) / Valid Sample. Cases for whom no valid telephone contact information was available are not included in the Valid Sample.

² Gross response rate reflects the proportion of cases within the entire sample who completed the survey. Gross response rate is calculated as Survey Completions / Complete Sample.

SECTION 2: SURVEY PREPARATION

Initial pre-survey activities undertaken by Malatest as part of the GOS included:

- Review and provision of feedback on survey instrument design;
- Translation of the provided Triple-S XML specification into a base CallWeb data structure;
- CallWeb programming of the survey instrument;
- Creation of a conversion processes for generating fixed-width data files for use with DCaR and FoxPro validation software;
- Compilation of available cohort files provided by public and private institutions;
- Preparation of the sample for upload to the CATI/CAWI system; and
- Field testing of the survey instrument.

2.1 Survey Programming

For the 2014 cycle of the survey, IAE implemented the Triple-S survey interchange standard for the data definitions used in the survey. The Triple-S specification language describes the survey metadata, including question text, response codes and response descriptions, the location of individual data items within the record, valid ranges for responses, and formats for variables. This specification language provides a definitional structure that allows data to be easily translated from one platform to another, while retaining important definitional metadata. Triple-S specifications are stored in XML format files.

IAE initially developed the Triple-S specification for the survey questions and data in a fixed-width data file format and provided it to Malatest for use in programming the survey. Malatest set up procedures to automatically translate the Triple-S specification to the programming language used in Malatest's CallWeb CATI/CAWI system. Additional programming work was conducted to adapt the survey structure to CallWeb's programming requirements that were not defined in the original Triple-S specification (e.g., complex skip patterns). IAE provided updated versions of the Triple-S specification when corrections to the specification or revisions to the survey instrument were undertaken. Any revisions were then translated into changes in the CallWeb programming.

The programming of the survey was tested and verified at multiple levels to identify any programming errors, including improperly functioning skip patterns. Testing was conducted by Malatest's programming staff and by multiple members of Malatest's project team. Minor programming corrections were made where necessary in preparation for the survey field test.

Malatest developed procedures for extracting survey data from CallWeb into the format and structure defined by the Triple-S specifications. This allowed for regular validation of the dataset using IAE's FoxPro and DCaR validation software packages.

2.2 Sample Preparation

The sampling frame for the Graduate Outcomes Survey was based on a full initial cohort of 40,497 students who graduated in 2011/12 from 25 publicly funded institutions and 2,973 students who graduated in 2011/12 from 39 private institutions, for a total of 43,470 students. Cohort files were provided to Malatest by IAE in full. Malatest then drew a sample from the full survey cohort for use in survey administration.

Survey cohort files included student names, contact information, institution attended, program completed, and various identifiers and administrative fields. The contact information provided included, where available, a street address with city and postal code, up to two email addresses, and up to two telephone numbers.

Upon removal of duplicate cases, the full cohort was reduced to 42,767 cases (39,809 from public institutions and 2,958 from private institutions). From this cohort, Malatest drew an initial sample of 31,270 cases (28,376 from public institutions and 2,894 from private institutions).³ This involved taking a census approach to all institutions with 1,000 or fewer graduates and taking a sampling approach to institutions with more than 1,000 graduates.

For institutions where a sampling approach was taken, cases were selected based on anticipated response rates and targeted margins of error at the sector by field of study level and the program level. To do this, the following steps were taken:

1. The entire sample was stratified by institution, by institutional sector by field of study, and by program, resulting in 1,126 unique substrata.
2. For each substratum, the highest sampling rates from each of the three stratifications was determined. The highest rate determined the minimum sample required to meet the desired sampling targets. Based on this, the minimum sample required for the stratum was calculated.
3. Based on an optimistic gross response rate of 51%, the number of cases in the cohort to draw for survey administration was determined. If the number of cases needed to obtain the sample required was larger than the valid cohort, the full cohort was drawn.

In early April, IAE approved adopting a census approach to institutions with up to 1,300 graduates. This led to the inclusion of 327 additional cases from public institutions in the sampling frame, increasing the size of the sample to 31,270. See Table 2.1 for the sampling approach taken for each public post-secondary institution. All private vocational training institutions were treated with a census approach.

Table 2.1: Sampling Approach by Institution

Institution	Sampling Approach
Alberta College of Art and Design	Census
Ambrose University College	Census
Athabasca University	Sampled
Bow Valley College	Sampled Initially; Modified to Census
Canadian University College	Census
Concordia University College of Alberta	Census
Grande Prairie Regional College	Census
Grant MacEwan University	Sampled
Keyano College	Census
King's University College, The	Census
Lakeland College	Sampled Initially; Modified to Census
Lethbridge College	Sampled Initially; Modified to Census
Medicine Hat College	Census

³ Cases which were provided without any contact information were excluded from uploading to CallWeb, resulting in slightly fewer cases being uploaded than were available in the full cohort.

Institution	Sampling Approach
Mount Royal University	Sampled
NorQuest College	Sampled
Northern Alberta Institute of Technology	Sampled
Northern Lakes College	Census
Olds College	Census
Portage College	Census
Red Deer College	Census
Southern Alberta Institute of Technology	Sampled
St. Mary's University College	Census
University of Alberta	Sampled
University of Calgary	Sampled
University of Lethbridge	Sampled

On April 25, an additional 2,518 cases from sampled public institutions were added to the sampling frame. These cases were drawn from institutions, sectors by field of study, and programs which had not yet reached their margin of error targets. The number of new cases added, and the institutions, sectors by field of study, and programs from which they were drawn, was determined by balancing the desired increases in margins of error with the ability to maintain high response rates. The addition of this sample was successful in reducing the margins of error for several institutions and sectors by field of study, and did not noticeably reduce the overall survey response rates.

Upon the conclusion of surveying, the sampling frame included a total of 33,787 cases (30,893 from public institutions and 2,894 from private institutions).

2.3 Field Testing

Field-testing activities included:

- Training and monitoring of survey interviewers;
- Two "mock surveys" with IAE representatives;
- Field testing of the questionnaire;
- Preparation of field test data and generation of fixed-width data file for DCaR and FoxPro validation;
- Review of surveyor feedback; and
- Preparation of a Field Test Report.

A field test cohort of graduates from eight institutions, distributed according to the guidelines provided in the RFP, was randomly selected from the available samples for each institution. The institutions included in the field test were:

Table 2.2: Institutions Included in the Field Test

Requirement	Institution(s) Selected
One of University of Alberta or University of Calgary	University of Alberta
One other university	University of Lethbridge
One baccalaureate and applied studies institution (Grant MacEwan or Mount Royal)	Grant MacEwan University
One northern comprehensive community college	Keyano College
One independent academic college	Concordia University College of Alberta
One polytechnical institute	Northern Alberta Institute of Technology (NAIT)
Two private vocational institutions	Academy of Learning – Red Deer Reeves College

From each of these institutions, 85 cases were randomly selected for inclusion in the field test sample.

An experienced team of 11 surveyors was trained from Malatest's Edmonton call centre to perform the field test. Extensive survey training was conducted to ensure surveyors' understanding of the nature of the research and the survey instrument, including key concepts and definitions. Questions or clarifications were addressed during and after the training session.

Field testing was conducted from Tuesday, January 21, to Friday, January 24, 2014. Call attempts were made to 625 cases to obtain a total of 81 survey completions, representing a gross response rate of 11.9%, with a gross refusal rate of 5.1%. Ten completions were obtained from each institution, with the exception of Academy of Learning – Red Deer, for which eleven completions were obtained. From the field test sample, 94 cases, or 13.8% were found to have incorrect phone numbers.

Table 2.3: Alberta Graduate Outcomes Survey Field Test Call Disposition Summary

Result Code	Count	Gross %
Completion	81	11.9%
Wrong Number or Not in Service	94	13.8%
Unable to Make Contact (answering machine, busy signal, no answer)	282	41.5%
Respondent Moved or is Currently Outside of North America	20	2.9%
Callback Requested, Appointment Made, or Online Link Provided	143	21.0%
Refusal	35	5.1%
Not Called: Field test quota for institution already filled	25	3.7%
Total	680	100.0%

The average survey duration during the field test was approximately 24.0 minutes, longer than the estimated length of 17 minutes noted in the survey introduction. As interviewers became more familiar and experienced with administering the survey, survey lengths decreased to an average of 21.7 minutes during full administration (with averages of 23.2 minutes over the phone and 19.5 minutes online).

SECTION 3: SURVEY ADMINISTRATION

3.1 Call Management System

Malatest uses CallWeb, an advanced CATI/CAWI system, for call management and administration of telephone and online surveys. CallWeb has a number of sophisticated quota management and call management features for large-scale telephone surveys.

The call disposition (or end result) of each call is recorded in the call history, along with the date and time of the call. The call dispositions are customized to meet project needs. For example, cases with a busy signal can be scheduled to be called back 15 minutes later, while cases with a ring but no answer can be scheduled to be called back two hours later. The call dispositions used for this survey project were based on a list of call disposition codes used in previous student outcomes surveys, supplemented by certain call disposition codes regularly used by Malatest. Interviewers placing survey calls for a survey case have access to the full call history for that case, including any specific notes regarding the results of previous calls and new number referrals.

The CallWeb system automatically organizes both new cases and callbacks into a calling queue, organized by scheduled callback time and call priority. (For example, a case with a firm appointment time would take precedence over callbacks scheduled for the same time.)

CallWeb also has complex quota management capabilities that allow management of the calling queue by an unlimited number of sample strata. The quota groups used in this survey were comprised of the 25 public institutions and 39 private sector institutions included in the cohort. The quota system was used to reduce the priority of calling to quota groups that had already exceeded their minimum target until sufficient attempts could be made to meet the targets for other institutions, sector by field of study areas, and programs. This system allowed project managers to define groups of cases that were then used to focus the work of interviewers. The quota system was used to target sample strata with the lowest response rates.

3.2 Online Survey Management

Malatest uses CallWeb because of its ability to integrate CATI and CAWI surveys and administer them as a single mixed-mode survey instrument. The system allows for the collection of data in either telephone interview or online modes, with alternate questionnaire scripts depending on the mode. All data for both modes are stored in the same database.

A respondent may access the online version of the survey either manually via a secure login page or via a direct link unique to that respondent. The survey may be completed online using Secure Socket Layer (SSL) encryption of the data exchange between the respondent's computer and device and the CAWI server. Online respondents may move backwards and forwards between completed questions in order to correct or revise answers, and may stop filling out a questionnaire and resume at the same question at a later time or date. Once the survey is complete, respondents are asked to click on a button to submit their survey as complete, preventing any subsequent access to their results.

There were three ways in which survey respondents were advised of the online survey:

- *Personalized emails sent in mass emailings to email addresses provided in the sample file.*
These mass emails included a direct link to the survey as well as the respondent's unique login code for manual login, in case the direct link did not work for them due to email or browser security settings. The mass emails were sent periodically using CallWeb to all cases that had not yet completed the survey.
- *A personalized email sent by an interviewer to a new email address obtained through telephone contact.*
The CallWeb email module has a "Survey Link Request" feature that allows interviewers to directly send single emails to new email addresses when a respondent requests it.
- *Directions given over the phone.*
Interviewers may provide verbal instructions on how to log in to the survey online by providing the survey website address and the respondent's unique reference ID.

Survey interviewers were instructed to attempt to complete the survey with the respondent over the telephone when they first reached them, and only offer to provide them with directions for doing the survey online if they refused to do the survey by phone or if they expressed a preference for doing the survey online.

All emails sent to respondents included an introduction to the client and a description of the purpose of the survey, confidentiality and anonymity, and how to complete the survey online. The invitation emails also included a unique reference ID and a toll-free number to call Malatest to complete the survey over the phone if desired.

Any email replies received from respondents at the gos@malatest.net email address were reviewed by Malatest's Edmonton-based survey house manager, who acted on requests for further information and requests to be removed from the email list. When necessary, respondent emails were passed on to a Research Analyst to be appropriately dealt with.

3.3 Telephone Survey Administration

Full telephone survey administration began on February 12, 2014, and continued until May 18, 2014.

Survey interviewer training was led by a Research Analyst and senior supervisory staff from Malatest's call centres. Surveyor debriefings were held periodically to obtain feedback from interviewers about any issues or questions that affected surveying. In addition, regular one-on-one coaching was conducted by call centre supervisors to reinforce the training and ensure that the survey was being administered as efficiently as possible.

Telephone surveying took place with on-site supervision and regular monitoring by senior supervisory staff. A minimum of 10% of telephone interviews were monitored by a supervisor, so that feedback and coaching could be provided where necessary. Survey data was reviewed regularly to ensure that data was being entered correctly, and to allow for callbacks when any clarification was required.

The hours of telephone survey administration were typically from 5:00 PM to 9:00 PM Mountain time on weekdays, 10:00 AM to 6:00 PM on Saturdays, and 12:00 PM to 8:00 PM on Sundays. A limited amount of surveying took place during the day on weekdays in order to reach respondents who might

not otherwise be available during evenings or weekend. This included surveying with respondents who had requested daytime callbacks.

Priority codes were applied to each respondent based on the various stratifications of the sample (institution, institutional sector and field of study, and program). Sample strata with lower response rates or higher margins of error received higher priority during dialing to ensure that the response rate and margin of error targets could be met, wherever achievable.

Messages providing Malatest's toll-free number were left on answering machines or were left with friends or family if those contacts were unwilling to provide new phone numbers where the respondent could be reached. Staff were available to accept calls at the toll-free number and complete surveys at a variety of times outside of regularly scheduled survey shifts.

3.3.1 Number of Call Attempts

The RFP for the GOS specified that at least four contact attempts must be made in order to achieve initial contact, and at least 10 contact attempts must be made to cases which have had initial contact to resolve any cases with unresolved call statuses (such as Answering Machine, Busy Signal, No Answer, and so on). In order to meet the project targets, Malatest made an average of more than 10 call attempts for unresolved cases, regardless of whether initial contact had been made. Cases were not excluded from active calling unless they had refused participation or could not be surveyed (for example, if they were deceased or seriously ill).

Outlined below are some additional statistics relating to the number of call attempts made to the public institution cases included in the sample for the GOS:

- The number of graduates surveyed on the first call attempt was 3,434.
- The average number of call attempts per completed survey was 3.9.
 - The average number of call attempts per completed *telephone* survey was 4.0.
 - The average number of call attempts per completed *online* survey (call attempts made prior to online completion) was 3.9.
- The average number of call attempts per unresolved case, excluding the 2,518 new cases that were added to the sample on April 25, 2014, was 10.3.⁴
- The average number of call attempts per case removed from the calling queue (including refusals, nonqualifiers, wrong numbers, travel/moved outside of North America, and communication difficulties) was 4.2.

3.4 Survey Length

The average time required to complete the survey was monitored regularly throughout survey administration. Survey length was determined using timing fields programmed into CallWeb. This included a record of the time the case was first accessed (either opened by the surveyor while placing a call, or opened by the respondent to complete online) and a record of the time the completed survey was submitted. For survey cases that were accessed more than once, the survey timing data was

⁴ The 2,518 cases added on April 25, 2014, received fewer call attempts due to the shorter timelines available for contacting them. These cases received up to 8 phone calls and email reminders, combined.

sometimes unreliable, resulting in some survey length outliers. These outliers were removed from all survey length calculations.

Survey length calculations resulted in an average time to complete the survey of 21.7 minutes for all completions. The survey took an average of 23.2 minutes to complete over the telephone, and an average of 19.5 minutes to complete online.

SECTION 4: TRACKING, TRACING, AND DIRECTORY SOURCING

4.1 Tracking and Tracing

When respondents were found to have moved from telephone number(s) provided by the institution, new telephone numbers were obtained from family, friends, or former roommates, where possible. Interviewers were trained to be sensitive and responsive to the concerns of family or friends who might be unwilling to provide new numbers. If necessary, a toll-free number for reaching Malatest was provided to the person on the phone with the request that it be forwarded to the graduate so that they could contact Malatest to complete the survey. Contact information for Malatest project team members and institutional contacts was also provided to persons acquainted with the respondent as required.

4.2 Language Cases

In the course of the survey, a number of cases were identified as "language cases", or contacts with a person who did not speak English fluently enough to complete the survey over the telephone. Such contacts are occasionally with the respondent, but are often with another person in the household or a family member. The survey interviewers selected to work on this project included a number of interviewers who speak other languages in addition to English. Language cases were regularly reviewed and referred to interviewers with multilingual abilities for follow-up.

As of the completion of surveying, 16 language cases remained unresolved. Of these 16 cases, 9 could not be reached after further call attempts, while 7 required languages which were not available among Malatest's call centre staff, such as Nepali, Ethiopian, and Degreena (a southwest African dialect).⁵

4.3 Directory Sourcing

Directory sourcing was undertaken for the portion of the sample for which all provided phone numbers were identified as invalid, including wrong numbers (household or business), not in service, fax/modem, or no valid phone number provided.

Directory sourcing involved extracting all of the survey records that had incorrect phone numbers and cases that were supplied without phone numbers. Procedures were used to match these cases to public phone directory databases, based on the following automated sourcing criteria:

Criteria 1: Postal Code / Surname / Given Name (remove from input if match found)

Criteria 2: Postal Code / Surname / First Initial (remove from input if match found)

Criteria 3: Surname / Postal code (limit of 3 matches, remove from input if matches found)

Criteria 4: Province / City / Surname / Given Name (limit of 3 matches if previous criteria are not met, remove from input if matches found)

Criteria 5: Province / City / Surname (limit of 3 random matches if number of overall matches ≤ 15 and if previous criteria not met)

Phone directory records that had sufficient similarity to the cases being searched were uploaded to CallWeb and assigned a special wrong number status indicating that new leads were to be called and

⁵ The languages required

verified. A selected team of survey interviewers called the new numbers to determine whether any of the leads were correct, either through contact with the survey respondent or by verifying the respondent's name on a voice mail message. For correct numbers, the interviewer assigned the case the appropriate call disposition to put the case back into active calling, or recorded a final outcome in the case of a refusal or completion with the correct respondent. Numbers that did not produce conclusive results remained in the directory searching call disposition for additional calling.

The results of directory searching are outlined below. Note that these totals reflect cases from both public and private institutions.

- The total number of records ever identified as having an incorrect number (or no number at all) was 7,325.
- The total number of directory-sourced cases completed online before or after the record was sourced was 132. For these cases, it is difficult to determine whether contact was established from directory sourcing or through the e-mail invitations.
- The total number of records with wrong numbers that were directory searched was 5,604.
- The total number of records for which directory searching resulted in a new lead was 2,470, or 44.1% of searched numbers.
- The total number of records that had a new lead resulting in the survey case re-entering the active calling queue was approximately 491, or 8.8% of all directory searched numbers.
- The total number of records that had a new lead resulting in a successful telephone survey completion was 170, or 3.0% of all directory searched numbers.

A large number of "leads", or potential new numbers, were identified, including phone numbers for a person with the same name, or a number for someone with the same last name in the same or nearby city or town. However, the majority of new leads did not lead to contact with the respondent or the respondent's relatives.

SECTION 5: PUBLICLY FUNDED POST-SECONDARY INSTITUTION SURVEY RESULTS

5.1 Final Call Dispositions

The final call dispositions for the 30,893 cases included in the publicly funded post-secondary institution sample are presented in Table 5.1 below. The Graduate Outcomes Survey – Class of 2011/12 produced a valid response rate of 54.7%⁶, with a gross response rate of 45.4%.

Note that call dispositions represent the outcome of the most recent call made to the respondent.

Table 5.1: Final Call Dispositions and Response Rates

Code		Count	Gross %	Valid %
Completions	All Completions	14,012	45.4%	54.2%
	Telephone Completion	6,645	21.5%	25.7%
	Online Completion	7,367	23.8%	28.5%
Nonqualifier⁷	All Nonqualifiers	132	0.4%	0.5%
Unable to Contact	All Unable to Contact	7,883	25.5%	30.5%
	Busy Signal	268	0.9%	1.0%
	Answering Machine, message left	1,661	5.4%	6.4%
	Answering Machine, no message left	4,102	13.3%	15.9%
	No Answer	974	3.2%	3.8%
	Call Answered, Call Again	398	1.3%	1.5%
	Language Barrier	8	0.0%	0.0%
	Travel/Moved Within Canada	126	0.4%	0.5%
	Respondent Moved; Left Toll-Free Number	5	0.0%	0.0%
	Respondent Wants to Do Online	302	1.0%	1.2%
	Hangup	38	0.1%	0.1%
	Unable to Survey	All Unable to Survey	299	1.0%
Deceased		15	0.0%	0.1%
Serious Illness, Incapable		5	0.0%	0.0%

⁶ Valid response rate includes both survey completions and nonqualifiers. The formula used to calculate the valid response rate is: (Completions + Nonqualifiers) / Valid Sample.

⁷ Nonqualifier cases included respondents who reported, for example, that they were still currently enrolled in the program, that they had completed their program earlier than the 2011/12 academic year, or that they had not attended the program within which they were listed.

Code		Count	Gross %	Valid %
	Travel/Moved Outside of Canada/USA	271	0.9%	1.0%
	Communication Problem (non-language)	8	0.0%	0.0%
Refusals	All Refusals	3,536	11.4%	13.7%
	First Refusal	1,234	4.0%	4.8%
	Second Refusal	2,241	7.3%	8.7%
	Incomplete Survey, Won't Continue	61	0.2%	0.2%
No Valid Contact Information	All No Valid Contact Information	5,032	16.3%	-
	Not in Service	1,455	4.7%	-
	Wrong Number	1,378	4.5%	-
	Business Number (Respondent Not Employed There)	17	0.1%	-
	Fax/Modem Line	13	0.0%	-
	No Phone Number/Incomplete Phone Number	542	1.8%	-
	Directory Searching, New Numbers to Attempt*	872	2.8%	-
	Directory Searching, All New Numbers Incorrect	755	2.4%	-

* Cases with "new numbers to attempt" were dialled multiple times, but as of the end of survey administration had not yet yielded a conclusive result to signify whether the number belonged to the respondent or to a family member.

Detailed response rate and margin of error information at the institution, sector and field of study, and program level is provided on the following pages.

5.2 Response Rates by Institution

Table 5.2, below, presents the gross and valid response rates obtained for each public institution which participated in the Graduate Outcomes Survey.

Table 5.2: Response Rates by Institution

Institution	All Cases in Cohort	Valid Cohort (duplicates removed)	Cases Included in Sample	% of Sample with Nonvalid Contact Info	Valid Sample	Online Complete	Phone Complete	Total Complete	Gross Response Rate	Valid Response Rate ⁸	Margin of Error
Alberta College of Art and Design	215	215	215	15.8%	181	73	49	122	56.7%	68.0%	5.8%
Ambrose University College	84	83	82	17.1%	68	27	22	49	59.8%	72.1%	9.0%
Athabasca University	1,725	1,723	1,501	15.4%	1,270	513	288	801	53.4%	64.6%	2.5%
Bow Valley College	1,100	1,100	1,100	17.0%	913	283	237	520	47.3%	57.3%	3.1%
Canadian University College	56	54	53	28.3%	38	18	13	31	58.5%	81.6%	11.6%
Concordia University College of Alberta	296	296	296	12.5%	259	81	88	169	57.1%	65.3%	4.9%
Grande Prairie Regional College	443	414	406	19.0%	329	108	109	217	53.4%	67.2%	4.6%
Grant MacEwan University	2,537	2,518	2,252	12.6%	1,968	463	632	1,095	48.6%	56.2%	2.2%
Keyano College	376	357	357	24.1%	271	32	130	162	45.4%	60.5%	5.7%
King's University College, The	148	148	148	10.1%	133	50	51	101	68.2%	75.9%	5.5%
Lakeland College	1,041	1,030	1,018	13.3%	883	230	314	544	53.4%	62.4%	2.9%
Lethbridge College	1,161	1,159	1,159	21.1%	914	245	311	556	48.0%	61.1%	3.0%
Medicine Hat College	427	426	424	23.8%	323	87	109	196	46.2%	60.7%	5.1%
Mount Royal University	1,529	1,517	1,390	16.8%	1,157	353	225	578	41.6%	50.2%	3.2%
NorQuest College	1,944	1,936	1,130	23.3%	867	69	279	348	30.8%	40.7%	4.8%
Northern Alberta Institute of Technology	4,117	4,077	3,305	9.5%	2,992	937	860	1,797	54.4%	60.6%	1.7%
Northern Lakes College	408	405	378	31.0%	261	46	119	165	43.7%	63.6%	5.9%
Olds College	543	506	506	15.0%	430	127	123	250	49.4%	58.4%	4.4%
Portage College	463	383	383	23.7%	293	62	84	146	38.1%	54.5%	6.4%

⁸ Valid response rate is calculated as (Completions + Nonqualifying Respondents) / (Valid Sample).

Institution	All Cases in Cohort	Valid Cohort (duplicates removed)	Cases Included in Sample	% of Sample with Nonvalid Contact Info	Valid Sample	Online Complete	Phone Complete	Total Complete	Gross Response Rate	Valid Response Rate ⁸	Margin of Error
Red Deer College	736	732	732	19.5%	589	143	152	295	40.3%	50.6%	4.4%
Southern Alberta Institute of Technology	4,160	4,144	3,946	22.3%	3,066	697	637	1,334	33.8%	44.1%	2.2%
St. Mary's University College	79	79	79	12.7%	69	26	20	46	58.2%	68.1%	9.4%
University of Alberta	8,487	8,474	4,844	15.4%	4,099	1,427	933	2,360	48.7%	57.9%	1.7%
University of Calgary	6,387	6,187	3,915	14.4%	3,350	935	627	1,562	39.9%	46.8%	2.1%
University of Lethbridge	2,035	1,846	1,274	10.6%	1,139	335	233	568	44.6%	50.0%	3.4%
Total	40,497	39,809	30,893	16.3%	25,862	7,367	6,645	14,012	45.4%	54.7%	0.7%

Note: a margin of error of +/- 5% was targeted within each public sector institution.

5.3 Response Rates by Institutional Sector and Field of Study

Table 5.3 presents the gross and valid response rates and the margins of error obtained for each institutional sector by field of study.

Table 5.3: Response Rates by Institutional Sector and Field of Study

Sector and Field of Study	All Cases in Cohort	Valid Cohort (duplicates removed)	Cases Included in Sample	% of Sample with Nonvalid Contact Info	Valid Sample	Online Complete	Phone Complete	Total Complete	Gross Response Rate	Valid Response Rate ⁹	Margin of Error
Comprehensive Academic and Research Institutions	18,634	18,230	11,534	14.5%	9,858	3,210	2,081	5,291	45.9%	54.1%	1.1%
Business	2,916	2,852	1,754	12.7%	1,532	452	254	706	40.3%	46.6%	3.2%
Education	2,415	2,257	1,294	11.4%	1,146	372	233	605	46.8%	53.1%	3.4%
Health Sciences	3,650	3,623	2,566	14.3%	2,200	665	407	1072	41.8%	49.4%	2.5%
Languages, Social Sciences, Arts and Humanities	3,805	3,714	2,039	15.1%	1,732	640	404	1044	51.2%	60.7%	2.6%
Legal and Security	363	362	353	19.8%	283	76	69	145	41.1%	51.9%	6.3%
Physical, Natural and Applied Sciences	4,916	4,865	2,978	16.9%	2,476	861	602	1463	49.1%	59.2%	2.1%
Recreation	569	557	550	11.1%	489	144	112	256	46.5%	52.8%	4.5%
Baccalaureate and Applied Studies Institutions	4,066	4,035	3,642	14.2%	3,125	816	857	1,673	45.9%	54.0%	1.8%
Business	1,209	1,194	1,003	12.1%	882	211	253	464	46.3%	52.9%	3.6%
Education	100	98	98	10.2%	88	26	30	56	57.1%	63.6%	8.6%
Health Sciences	1,251	1,241	1,085	16.1%	910	209	207	416	38.3%	46.2%	3.9%
Languages, Social Sciences, Arts and Humanities	1,131	1,128	1,083	13.9%	932	280	279	559	51.6%	60.6%	2.9%
Legal and Security	219	218	218	15.1%	185	38	53	91	41.7%	49.7%	7.9%
Physical, Natural and Applied Sciences	85	85	84	17.9%	69	30	15	45	53.6%	65.2%	10.1%
Recreation	53	53	53	15.1%	45	18	15	33	62.3%	73.3%	10.6%

⁹ Valid response rate is calculated as (Completions + Nonqualifying Respondents) / (Valid Sample).

Sector and Field of Study	All Cases in Cohort	Valid Cohort (duplicates removed)	Cases Included in Sample	% of Sample with Nonvalid Contact Info	Valid Sample	Online Complete	Phone Complete	Total Complete	Gross Response Rate	Valid Response Rate ⁹	Margin of Error
Trades and Technologists	18	18	18	22.2%	14	4	5	9	50.0%	64.3%	23.8%
Polytechnical Institutions	8,277	8,221	7,251	16.5%	6,058	1,634	1,497	3,131	43.2%	52.2%	1.4%
Business	2,299	2,282	1,465	16.2%	1,227	335	221	556	38.0%	46.4%	3.6%
Health Sciences	1,674	1,655	1,559	14.2%	1,337	327	325	652	41.8%	49.1%	3.0%
Languages, Social Sciences, Arts and Humanities	444	436	435	15.6%	367	118	84	202	46.4%	55.3%	5.1%
Legal and Security	97	97	97	28.9%	69	18	14	32	33.0%	46.4%	14.3%
Physical, Natural and Applied Sciences	726	716	714	19.3%	576	185	140	325	45.5%	56.9%	4.0%
Recreation	74	74	74	9.5%	67	18	15	33	44.6%	49.3%	12.8%
Trades and Technologists	2,963	2,961	2,907	16.9%	2,415	633	698	1331	45.8%	55.6%	2.0%
Comprehensive Community Institutions	8,642	8,448	7,593	20.0%	6,072	1,432	1,967	3,399	44.8%	56.7%	1.3%
Business	1,392	1,350	1,341	18.9%	1,088	314	320	634	47.3%	59.0%	2.8%
Education	170	169	167	18.0%	137	39	48	87	52.1%	64.0%	7.4%
Health Sciences	3,694	3,673	2,854	20.3%	2,274	450	701	1151	40.3%	51.2%	2.4%
Languages, Social Sciences, Arts and Humanities	954	944	940	24.1%	713	183	240	423	45.0%	59.9%	3.5%
Legal and Security	586	581	579	18.1%	474	101	151	252	43.5%	54.4%	4.6%
Physical, Natural and Applied Sciences	686	655	653	16.4%	546	180	187	367	56.2%	67.4%	3.4%
Recreation	140	66	66	21.2%	52	13	16	29	43.9%	57.4%	9.9%
Trades and Technologists	1,020	1,010	993	20.6%	788	152	304	456	45.9%	58.5%	3.4%
Independent Academic Institutions	663	660	658	13.8%	567	202	194	396	60.2%	70.0%	3.1%
Business	60	59	59	8.5%	54	16	18	34	57.6%	63.0%	11.0%
Education	157	156	155	15.5%	131	46	45	91	58.7%	69.5%	6.7%
Health Sciences	121	121	121	11.6%	107	34	41	75	62.0%	70.1%	7.0%
Languages, Social Sciences, Arts and Humanities	203	202	201	13.4%	174	67	53	120	59.7%	69.5%	5.7%

Sector and Field of Study	All Cases in Cohort	Valid Cohort (duplicates removed)	Cases Included in Sample	% of Sample with Nonvalid Contact Info	Valid Sample	Online Complete	Phone Complete	Total Complete	Gross Response Rate	Valid Response Rate ⁹	Margin of Error
Physical, Natural and Applied Sciences	122	122	122	17.2%	101	39	37	76	62.3%	75.2%	6.9%
Specialized Arts and Culture Institutions	215	215	215	15.8%	181	73	49	122	56.7%	68.0%	5.8%
Languages, Social Sciences, Arts and Humanities	215	215	215	15.8%	181	73	49	122	56.7%	68.0%	5.8%

Note: a margin of error of +/- 5% was targeted within each institutional sector and field of study.

5.4 Response Rates by Program

A valid response rate of 40% or greater was achieved in 711 out of the 812 public institution programs represented in the Graduate Outcomes Survey cohort.

However, despite these strong response rates, the margin of error targets set in the Graduate Outcomes Survey RFP were not attained in many programs. A margin of error of less than 10% was targeted at the program level. Due to small available sample sizes, this was achieved in 117 of the 812 public institution programs.

SECTION 6: PRIVATE VOCATIONAL TRAINING INSTITUTION SURVEY RESULTS

6.1 Final Call Dispositions

The final call dispositions for the 2,894 cases included in the private vocational training institution sample are presented in Table 6.1 below. Among these institutions, the Graduate Outcomes Survey – Class of 2011/12 produced a valid response rate of 55.5%¹⁰, with a gross response rate of 38.3%.

Call dispositions represent the outcome of the most recent call made to the respondent.

Table 6.1: Final Call Dispositions and Response Rates

Code		Count	Gross %	Valid %
Completions	All Completions	1,107	38.3%	54.7%
	Telephone Completion	569	19.7%	28.1%
	Online Completion	538	18.6%	26.6%
Nonqualifier	All Nonqualifiers	16	0.6%	0.8%
Unable to Contact	All Unable to Contact	654	22.6%	32.3%
	Busy Signal	19	0.7%	0.9%
	Answering Machine, message left	177	6.1%	8.7%
	Answering Machine, no message left	294	10.2%	14.5%
	No Answer	86	3.0%	4.2%
	Call Answered, Call Again	36	1.2%	1.8%
	Language Barrier	8	0.3%	0.4%
	Travel/Moved Within Canada	2	0.1%	0.1%
	Respondent Moved; Left Toll-Free Number	1	0.0%	0.0%
	Respondent Wants to Do Online	30	1.0%	1.5%
	Hangup	1	0.0%	0.0%
	Unable to Survey	All Unable to Survey	14	0.5%
Deceased		1	0.0%	0.0%
Serious Illness, Incapable		0	0.0%	0.0%

¹⁰ Valid response rate includes both survey completions and nonqualifiers. The formula used to calculate the valid response rate is: (Completions + Nonqualifiers) / (Completions + Nonqualifiers + Unable to Contact + Unable to Survey + Refusals).

Code		Count	Gross %	Valid %
	Travel/Moved Outside of Canada/USA	13	0.4%	0.6%
	Communication Problem (non-language)	0	0.0%	0.0%
Refusals	All Refusals	234	8.1%	11.6%
	First Refusal	87	3.0%	4.3%
	Second Refusal	141	4.9%	7.0%
	Incomplete Survey, Won't Continue	6	0.2%	0.3%
No Valid Contact Information	All No Valid Contact Information	869	30.0%	-
	Not in Service	304	10.5%	-
	Wrong Number	213	7.4%	-
	Business Number (Respondent Not Employed There)	3	0.1%	-
	Fax/Modem Line	2	0.1%	-
	No Phone Number/Incomplete Phone Number	22	0.8%	-
	Directory Searching, New Numbers to Attempt*	193	6.7%	-
	Directory Searching, All New Numbers Incorrect	132	4.6%	-

* Cases with "new numbers to attempt" were dialled multiple times, but as of the end of survey administration had not yet yielded a conclusive result to signify whether the number belonged to the respondent or to a family member.

Additional information about response rates and margins of error at the institution, sector and field of study, and program level is provided on the following pages.

6.2 Response Rates by Institution

Table 6.2, below, presents the gross and valid response rates obtained for each private sector institution which participated in the Graduate Outcomes Survey.

Table 6.2: Response Rates by Institution

Institution	All Cases in Cohort	Valid Cohort (duplicates removed)	Cases Included in Sample	% of Sample with Nonvalid Contact Info	Valid Sample	Online Complete	Phone Complete	Total Complete	Gross Response Rate	Valid Response Rate ¹¹	Margin of Error
Academy of Learning - Calgary NE	82	82	81	33.3%	54	11	11	22	27.2%	40.7%	18.0%
Academy of Learning - Edmonton Downtown	106	106	105	46.7%	56	6	24	30	28.6%	53.6%	15.2%
Academy of Learning - Edmonton South	120	120	120	30.0%	84	19	27	46	38.3%	54.8%	11.4%
Academy of Learning - High River	44	44	43	32.6%	29	14	5	19	44.2%	69.0%	17.1%
Academy of Learning - Medicine Hat	45	45	45	37.8%	28	8	9	17	37.8%	60.7%	19.0%
Academy of Learning - Red Deer	139	138	138	21.0%	109	25	40	65	47.1%	59.6%	8.9%
Academy of Learning - WEM	142	141	141	30.5%	98	24	23	47	33.3%	50.0%	11.7%
Alberta College of Acupuncture and TCM	8	8	8	25.0%	6	5	0	5	62.5%	83.3%	28.7%
Alberta Massage Training - Calgary	34	34	34	55.9%	15	15	0	15	44.1%	100.0%	19.2%
Alberta Massage Training - Edmonton	31	31	31	29.0%	22	12	6	18	58.1%	81.8%	15.2%
Alberta Massage Training - Fort McMurray	16	16	16	6.3%	15	7	1	8	50.0%	53.3%	25.3%
Alberta Massage Training - Grande Prairie	32	32	32	25.0%	24	10	10	20	62.5%	83.3%	13.6%
Alberta Massage Training - Lloydminster	34	34	34	32.4%	23	10	7	17	50.0%	73.9%	17.1%
Artists Within	48	48	48	12.5%	42	10	11	21	43.8%	52.4%	16.2%

¹¹ Valid response rate is calculated as (Completions + Nonqualifying Respondents) / (Valid Sample).

Institution	All Cases in Cohort	Valid Cohort (duplicates removed)	Cases Included in Sample	% of Sample with Nonvalid Contact Info	Valid Sample	Online Complete	Phone Complete	Total Complete	Gross Response Rate	Valid Response Rate ¹¹	Margin of Error
Campbell College	103	103	103	11.7%	91	49	24	73	70.9%	81.3%	6.2%
CDI College of Business, Technology and Health Care - Calgary CC	210	210	192	42.2%	111	5	37	42	21.9%	38.7%	13.6%
CDI College of Business, Technology and Health Care - Edmonton CC	177	177	148	56.8%	64	19	17	36	24.3%	57.8%	14.6%
CDI College of Business, Technology and Health Care - Edmonton W	4	3	3	0.0%	3	0	1	1	33.3%	33.3%	98.0%
Columbia College	182	178	178	22.5%	138	41	30	71	39.9%	51.4%	9.0%
Eveline Charles Academy - Edmonton	88	88	88	23.9%	67	17	21	38	43.2%	56.7%	12.1%
GURU Digital Arts College	9	9	9	33.3%	6	3	2	5	55.6%	83.3%	31.0%
KDM Dental College International Inc. - Calgary	35	35	35	25.7%	26	3	12	15	42.9%	57.7%	19.4%
KDM Dental College International Inc. - EDMONTON	38	38	38	21.1%	30	7	13	20	52.6%	66.7%	15.3%
LA School of Hair Design (1989) Ltd.	26	26	24	37.5%	15	0	5	5	20.8%	33.3%	40.2%
Marvel College - Calgary	102	102	102	29.4%	72	12	16	28	27.5%	40.3%	15.9%
Marvel College - Edmonton	165	165	165	33.3%	110	28	26	54	32.7%	50.0%	11.0%
Marvel College - Red Deer	80	80	80	17.5%	66	18	19	37	46.3%	57.6%	11.9%
Mayfair Business College	24	24	24	29.2%	17	8	3	11	45.8%	64.7%	22.2%
Medical Reception College LTD Calgary	39	36	34	32.4%	23	3	6	9	26.5%	39.1%	28.7%
MH Vicars School of Massage Therapy - Calgary	23	23	23	17.4%	19	9	5	14	60.9%	73.7%	16.8%
MH Vicars School of Massage Therapy - Edmonton	45	45	45	11.1%	40	15	10	25	55.6%	65.0%	13.2%
Nightingale Academy	101	98	98	26.5%	72	12	24	36	36.7%	52.8%	13.1%
Northern Institute of Massage Therapy Inc.	40	40	40	2.5%	39	16	12	28	70.0%	74.4%	10.3%
Pixel Blue College	18	18	18	22.2%	14	6	6	12	66.7%	85.7%	16.8%

Institution	All Cases in Cohort	Valid Cohort (duplicates removed)	Cases Included in Sample	% of Sample with Nonvalid Contact Info	Valid Sample	Online Complete	Phone Complete	Total Complete	Gross Response Rate	Valid Response Rate ¹¹	Margin of Error
Reeves College - Calgary City Centre	163	163	162	37.0%	102	23	33	56	34.6%	54.9%	10.6%
Reeves College - Calgary North	67	67	62	33.9%	41	8	14	22	35.5%	53.7%	17.3%
Reeves College - Lethbridge	52	52	50	36.0%	32	9	4	13	26.0%	40.6%	23.8%
Robertson College - Calgary	250	249	247	25.5%	184	44	45	89	36.0%	49.5%	8.3%
Royal Health Care Aide Training School	51	50	50	24.0%	38	7	10	17	34.0%	44.7%	19.4%
Total	2,973	2,958	2,894	30.0%	2,025	538	569	1,107	38.3%	55.5%	2.3%

6.3 Response Rates by Sector and Field of Study

Table 6.3 presents the gross and valid response rates and the margins of error obtained for each institutional sector by field of study within the private vocational training institutions.

Table 6.3: Response Rates by Institutional Sector and Field of Study

Sector and Field of Study	All Cases in Cohort	Valid Cohort (duplicates removed)	Cases Included in Sample	% of Sample with Nonvalid Contact Info	Valid Sample	Online Complete	Phone Complete	Total Complete	Gross Response Rate	Valid Response Rate ¹²	Margin of Error
Select Private Institutions	2,973	2,958	2,894	30.0%	2,025	538	569	1,107	38.3%	55.5%	2.3%
Business	798	791	764	34.8%	498	144	149	293	38.4%	60.2%	4.5%
Health Sciences	1,404	1,396	1,367	26.3%	1,008	274	278	552	40.4%	54.9%	3.2%
Legal and Security	195	195	189	47.1%	100	18	29	47	24.9%	47.0%	12.5%
Physical, Natural and Applied Sciences	67	67	67	29.9%	47	17	15	32	47.8%	76.6%	12.6%
Trades and Technologists	509	509	507	26.6%	372	85	98	183	36.1%	49.2%	5.8%

Note: a margin of error of +/- 5% was targeted within each institutional sector and field of study.

¹² Valid response rate is calculated as (Completions + Nonqualifying Respondents) / (Valid Sample).

SECTION 7: DATA CLEANING AND VALIDATION AND DATA FILE PREPARATION

7.1 Cleaning and Upcoding

Throughout survey administration, responses to open-ended questions, including "Other" response options, were regularly reviewed. Grammar and spelling checks were undertaken. In addition, "Other" responses entered by online respondents were reviewed for whether they aligned with an existing response code, and were upcoded into the appropriate hard-coded responses where necessary. Where this upcoding affected skip patterns, Malatest attempted to call back respondents to clarify their responses and obtain responses to questions that had been skipped.

Open-ended numeric responses were reviewed for unreasonable responses, and Malatest attempted to call back respondents who had provided questionable values. For example, respondents who reported working more an average of more than 65 hours per week were called back, as were respondents who reported annual incomes above \$150,000 (if these earnings did not align with the nature of their occupation), and respondents who reported high numbers of dependents (if this number of dependents did not align with the respondent's age).

7.2 Weekly Validation Uploads

During survey administration, survey completions were extracted on a weekly basis, converted to a flat file following the Triple-S specifications, and provided to IAE for validation. The datasets were run through IAE's FoxPro and DCaR validation software packages to check for unreasonable responses, invalid skip patterns, and other data cleanliness issues. Validation reports were provided back to Malatest so that any identified issues could be addressed. Malatest addressed any issues presented in these validation reports on an ongoing basis. This generally involved correcting data entry errors, and occasionally required callbacks to respondents to confirm or clarify unrealistic responses.

7.3 Preparation of the Final Dataset

Upon the conclusion of survey administration, the full dataset was extracted into an SPSS database for final cleaning and upcoding. Response frequencies and open-ended numeric and text responses were reviewed in detail for any outliers, unreasonable responses, and spelling and grammar issues that were not addressed during the ongoing cleaning and coding that took place during survey administration. Additional upcoding was also conducted, where necessary.

The final dataset was provided as a fixed-width flat file (in .dat file format), along with an SPSS syntax file for conversion into SPSS format. Since certain open-ended responses are truncated in the fixed-width format Malatest provided a supplementary version of the final dataset in SPSS format, with variable lengths modified to allow for the delivery of the full text of these responses. Affected variables include MJ104 (job duties) and DG110 (final remarks from respondents).

7.3.1 Occupation Coding

Based on respondents' reported job titles, job duties, and other contextual information, Malatest created occupational codes for the most common occupations reported in the Graduate Outcomes Survey, in order to facilitate statistical analysis. Malatest generated a code list and provided it to IAE for review and approval before completing the coding.

SECTION 8: INITIAL ANALYSES

Some initial analyses were run to diagnose any potential biases inherent in the dataset, and to identify possible strategies for improving the accuracy and reliability of the dataset. Note that these analyses were conducted only for surveys completed by graduates from publicly funded post-secondary institutions.

8.1 Non-Respondent Demographics

The demographic attributes of non-responders to the survey, as provided by the participating institutions, were compared to the attributes of survey respondents in order to identify any potential sources of non-response bias. Information provided by institutions included gender, date of birth, and details about the program attended.

8.1.1 Gender

The proportion of survey respondents who were female was slightly lower than the proportion of female graduates in the entire sample. Male graduates were slightly more likely to complete the survey.

Table 8.1: Gender Distribution Among Respondents and Non-Respondents

Gender ¹³	Respondents*	Non-Respondents**	Complete Sample***
Female	59.4%	58.5%	60.5%
Male	40.6%	41.5%	39.5%

* χ^2 (1, n = 14,012) = 7.646, p = .006.

** n = 18,625.

*** n = 32,637.

¹³ For 56 cases, discrepancies are present between the gender provided by the institution and the gender recorded during the survey. For these cases, the gender provided by the institution has been used during analysis. For cases in which an "Unknown" gender was reported for the graduate by the institution, the gender recorded during the survey has been inserted.

8.1.2 Age

Respondents to the survey were older than non-respondents, on average. The median age was the same between respondents and non-respondents.

Table 8.2: Average Age Among Respondents and Non-Respondents

Age ¹⁴	Respondents*	Non-Respondents**	Complete Sample***
Mean age.	30.1	29.1	29.6
Median age.	26	26	26

* n = 14,012, t = 5.271, p < .001.

** n = 16,880.

*** n = 30,893.

8.1.3 Credential Types

Some differences are evident among the credential types of respondents and non-respondents to the survey. Graduates of certificate and baccalaureate programs were somewhat less likely to complete the survey, while graduates of diploma and Masters programs were more likely to complete it.

Table 8.3: Credential Types Among Respondents and Non-Respondents

Credential	Respondents*	Non-Respondents**	Complete Sample***
Certificates	21.1%	24.4%	22.9%
Diplomas	31.8%	29.3%	30.4%
Applied & Bachelor Degrees	35.9%	36.9%	36.5%
Masters Degrees	9.9%	7.8%	8.8%
Doctoral Degrees	1.3%	1.5%	1.4%

χ^2 (4, n = 14,012) = 50.42, p < .001.

* n = 14,012.

** n = 16,881.

¹⁴ For 289 cases, discrepancies are present between the date of birth provided by the institution and the age reported by the respondent during the survey. For these cases, the date of birth provided by the institution has been used during this comparative analysis.

8.1.4 Program Band

Based on Classification of Instructional Programs (CIP2000) codes provided by the institutions, graduates from programs in the fields of Languages, Social Sciences, Arts, and Humanities, Physical, Natural, and Applied Sciences, and Education were more likely to complete the survey. Graduates from programs in the fields of Business and Health Sciences were less likely to complete the survey.

Table 8.4: Program Bands Among Respondents and Non-Respondents

Program Band	Respondents*	Non-Respondents**	Complete Sample***
Languages, Social Sciences, Arts, and Humanities	17.6%	14.5%	15.9%
Physical, Natural, and Applied Sciences	16.2%	13.5%	14.7%
Business	17.1%	19.1%	18.2%
Education	6.0%	5.2%	5.5%
Health Sciences	23.9%	28.4%	26.3%
Legal and Security	3.7%	4.3%	4.0%
Recreation	2.7%	2.5%	2.6%
Trades and Technologists	12.8%	12.5%	12.6%

* χ^2 (7, n = 14,012) = 98.600, p < .001.

** n = 16,881.

*** n = 30,893.

8.1.5 Legal Status

Graduates with Canadian citizenship and those with permanent resident status were slightly more likely to complete the survey, while graduates on student visas were less likely to complete the survey. A possible explanation for this is that graduates who were in Canadian on student visas are more likely to have left Canada by the time the survey is conducted, making a greater number of them difficult to reach to complete the survey.

Table 8.5: Legal Status Among Respondents and Non-Respondents

Legal Status	Respondents*	Non-Respondents**	Complete Sample***
Canadian	12,270 (87.8%)	14,601 (86.8%)	26,871 (87.2%)
Permanent Resident	1,067 (7.6%)	1,189 (7.1%)	2,256 (7.3%)
Student Visa	584 (4.2%)	961 (5.7%)	1,545 (5.0%)
Other Visa	45 (0.3%)	54 (0.3%)	99 (0.3%)
Offshore	8 (0.1%)	21 (0.1%)	29 (0.1%)

* χ^2 (4, n = 13,974) = 23.768, p < .001.

** n = 16,826.

*** n = 30,800.

8.1.6 Conclusions

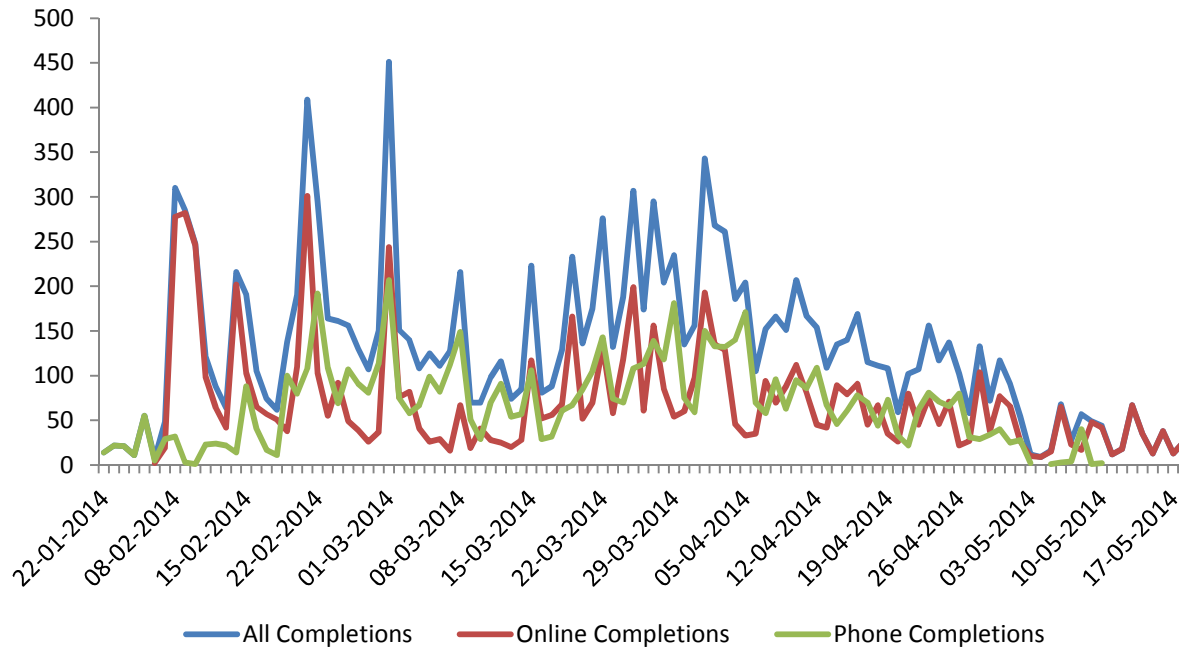
Some differences in gender, age, and credential type are apparent between survey respondents and non-respondents, but these differences are within reasonable levels of variation. Given that the differences are relatively small, the response rates and margins of error obtained for the Graduate Outcomes Survey are sufficient to provide confidence in the accuracy of the survey findings.

Data weighting at the program level may help to address the minor discrepancies found among the credential types of respondents and non-respondents. A discussion of the effects of weighting can be found in **Section 8.3**.

8.2 Telephone vs. Online Completions

Among respondents who attended publically funded post-secondary institutions, 6,645 completed the survey over the telephone and 7,367 completed the survey online. Figure 8.1, below, demonstrates the number of completions obtained using each method over the time the survey was administered.

Figure 8.1: Survey Completions Over Time, by Survey Mode



Comparative analyses were run to determine whether any meaningful differences exist between respondents who used each survey mode. It should be noted that the large sample sizes involved with the Graduate Outcomes Survey allow for statistical significance even with very small differences between groups.

8.2.1 Demographics

Female respondents were more likely to complete the survey online, while male respondents were slightly more likely to complete the survey over the phone.

Table 8.6: Gender Differences by Completion Type

Gender	Telephone	Online
Female	3,753 (45.1%)	4,565 (54.9%)
Male	2,892 (50.8%)	2,802 (49.2%)

$\chi^2 (1, n = 14,012) = 43.60, p < .001.$

Respondents who completed the survey online tended to be slightly older, on average, than those who completed the survey by phone. The difference in age was small.

Table 8.7: Age Differences by Completion Type

	Telephone (mean age)	Online (mean age)
Respondent mean age.*	29.8	30.3
Respondent median age.**	26	27

* n = 14,012, t = 3.239, p = .001.

** n = 14,012.

8.2.2 Satisfaction Levels

Respondents were asked to rate their satisfaction with various aspects of their education on a 4-point scale, where 1 is "Very Dissatisfied" and 4 is "Very Satisfied". Respondents who completed the survey over the phone reported slightly higher satisfaction compared to online respondents.

Table 8.8: Satisfaction Levels by Completion Type

Question	Telephone (mean satisfaction)	Online (mean satisfaction)
Satisfaction with quality of teaching.*	3.4	3.3
Satisfaction with program.**	3.4	3.3

Satisfaction with overall quality of educational experience.***	3.4	3.3
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* n = 13,918, t = -9.63, p < .001.
 ** n = 13,922, t = -11.21, p < .001.
 *** n = 13,921, t = -12.27, p < .001.

8.2.3 Debts at Time of Graduation

Respondents were asked how much they owed in government-sponsored student loans, education-related borrowing from family, and education-related borrowing from financial institutions. Online respondents reported somewhat higher amounts owed than phone respondents, though no statistically significant differences were present for borrowing from financial institutions.

Note the amounts owing only reflect respondents who indicated that they used each respective source of financing. Respondents who did not use government-sponsored student loans, for example, were not included in the calculated average amount owing for student loans.

Table 8.9: Amounts Owed at Time of Graduation by Completion Type

Question	Telephone (mean amount owing)	Online (mean amount owing)
Amount owed for government-sponsored student loans at graduation.*	\$19,008.94	\$21,155.63
Amount owed as a result of education-related borrowing from family at graduation.**	\$5,411.62	\$7,754.00
Amount owed for education-related borrowing from financial institutions at graduation.***	\$15,332.43	\$16,180.10

* n = 4,804, t = 4.138, p < .001.
 ** n = 4,044, t = 4.326, p < .001.
 *** n = 2,271, t = 0.901, p = .368.

8.2.4 Outcomes

Telephone and online respondents were approximately equally likely to be employed. Phone respondents were employed slightly more often, while online respondents were full-time students slightly more often.

Table 8.10: Employment and Further Education Outcomes by Completion Type

Employment Status¹⁵	Telephone	Online
Employed	88.8%	87.3%
Unemployed	3.2%	3.9%
Not in Labour Force	2.6%	2.4%
Full-time Student	5.4%	6.5%

χ^2 (3, n = 13,974) = 13.07, p = .004.

Of those who were employed, telephone respondents were slightly more likely to feel that their job was very related to the program they graduated from.

Table 8.11: Relatedness of Occupation to Education by Completion Type

Relatedness of current job to the program from which the respondent graduated in 2011-12.	Telephone	Online
Not related	16.7%	14.3%
Somewhat related	25.0%	28.9%
Very related	58.3%	56.7%

χ^2 (2, n = 12,130) = 28.98, p < .001.

8.2.5 Income

Online respondents reported slightly higher average incomes than telephone respondents. This difference was statistically significant. Online respondents' average annual earnings were less than 4% higher than telephone respondents' earnings.

Table 8.12: Average Income by Completion Type

Question	Telephone	Online
Average annual earnings (main job and other jobs combined)	\$59,309.51	\$61,445.26

* n = 9,792, t = 3.019, p = .003.

¹⁵ Respondents who were both employed and a full-time student were considered to be employed.

8.2.6 Conclusions

Some differences were evident between respondents who completed the survey by telephone and those who completed the survey online. The most noteworthy differences were in satisfaction. These findings suggest that respondents were more likely to express stronger positive answers over the phone than online. For example, as shown in Table 8.13, while the total proportion of respondents who reported being either "Satisfied" or "Very satisfied" was quite similar between phone and online respondents (91.1% phone compared to 92.8% online), phone respondents were much more likely to respond "Very satisfied", while online respondents were more likely to respond "Satisfied".

Table 8.13: Response Frequencies of Satisfaction with Overall Quality by Completion Type

Satisfaction with overall quality of educational experience.	Telephone	Online
Very dissatisfied	1.3%	2.0%
Dissatisfied	5.9%	6.9%
Satisfied	40.5%	50.4%
Very satisfied	52.3%	40.7%

$\chi^2 (3, n = 13,921) = 191.233, p < .001.$

8.3 Effects of Data Weighting

Data weights were calculated at the program level, using program names and program codes for the 811 unique programs offered by participating public-sector institutions. The formula for calculating data weights was

$$w = w_d * n/n_r$$

Where w_d is the inverse of the probability of selection, n is the number of cases included in the sample from within the stratum, and n_r is the number of responses received from within the stratum.

The following comparisons demonstrate the effects of applying program-based weights to the dataset.

8.3.1 Gender

The weighting of the dataset slightly increased the proportion of female respondents.

Table 8.14: Effects of Weighting on Gender

Respondent Gender	Unweighted	Weighted
Female	8,318 (59.4%)	8,506 (60.7%)
Male	5,694 (40.6%)	5,506 (39.3%)

n = 14,012.

8.3.2 Age

When the dataset was weighted, average respondent age decreased slightly.

Table 8.15: Effects of Weighting on Age

Respondent Age	Unweighted	Weighted
Average Age	30.1	29.8

n = 14,012.

8.3.3 Satisfaction Levels

Weighting the dataset had minimal effects on respondents' satisfaction levels, with overall quality of educational experience decreasing by 0.1.

Table 8.16: Effects of Weighting on Satisfaction Levels

Respondent Satisfaction	Unweighted	Weighted
Satisfaction with quality of teaching.*	3.3	3.3
Satisfaction with program.**	3.3	3.3
Satisfaction with overall quality of educational experience.***	3.4	3.3

* n = 13,918.

** n = 13,922.

*** n = 13,921.

8.3.4 Debts at Time of Graduation

Data weighting slightly increased the average amounts owed for student loans, family borrowing, and borrowing from financial institutions. The largest difference was with student loans, where average amounts owed increased by 4.3%.

Table 8.17: Effects of Weighting on Amounts Owed at Graduation

Amounts Owed at Graduation	Unweighted	Weighted	Difference
Amount owed for government-sponsored student loans at graduation.*	\$20,116.69	\$20,981.77	4.3%
Amount owed as a result of education-related borrowing from family at graduation.**	\$6,410.78	\$6,455.53	0.7%
Amount owed for education-related borrowing from financial institutions at graduation.***	\$15,828.49	\$16,099.06	1.7%

* n = 4,804.

** n = 4,044.

*** n = 2,271.

8.3.5 Outcomes

In the weighted dataset, the proportion of respondents in full-time employment slightly decreased, while the proportion of respondents who were attending further full-time education slightly increased.

Table 8.18: Effects of Weighting on Employment and Further Education Outcomes

Employment Status ¹⁶	Unweighted	Weighted
Employed	88.0%	87.4%
Unemployed	3.6%	3.4%
Not in Labour Force	2.5%	2.5%
Full-time Student	5.9%	6.6%

n = 13,974.

¹⁶ Respondents who were both employed and a full-time student were considered to be employed.

8.3.6 Income

Weighting the dataset resulted in minor differences, with a 2.2% decrease in average total income.

Table 8.19: Effects of Weighting on Average Income

Income	Unweighted	Weighted	Difference
Average Total Income	\$60,328.96	\$59,007.48	-2.2%

n = 9,792.

8.3.7 Conclusions

Applying program-based data weighting had minimal effects on the variables assessed above. The use of data weights for the full analysis of the collected data is not likely to produce large differences in the final reported findings, but may improve the reliability and representativeness of the data. Malatest recommends applying program-based weights to the dataset when conducting further analyses, to ensure that the findings accurately represent the distribution of graduates across programs and institutions.