2022 Graduate Outcomes Survey

Methodological Report

February 2023



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Australian Government Department of Education

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# Introduction

## About this report

This methodological report describes the sample preparation, data collection, data processing and reporting aspects of the 2022 Graduate Outcomes Survey (GOS, ‘the survey’), conducted on behalf of the Australian Government Department of Education (‘the department’) by the Social Research Centre. This report is organised into the following sections:

Section 1 provides background information and a general overview.

Section 2 describes the target audience and sample design.

Section 3 documents the survey design and procedures for conducting the study.

Section 4 outlines the questionnaire development phase and provides an overview of changes from the previous iteration including institution specific items.

Section 5 describes the data processing procedures.

Section 6 documents the final dispositions and response rates.

Section 7 presents an analysis of response and non-response.

Section 8 outlines key learnings and considerations for future iterations of the GOS.

## Background

The GOS is a component of the Quality Indicators for Learning and Teaching (QILT) suite of surveys, commissioned by the department. The GOS replaced the Australian Graduate Survey (AGS) conducted between 2009 and 2014. For a more detailed history of the GOS and its predecessor instruments, refer to the *2017 GOS Methodological Report*.

## Objectives

The broad aim of the GOS is to measure the short-term labour force outcomes achieved by graduates of Australian higher education institutions approximately four to six months post completion of their undergraduate or postgraduate award. The development, collection and reporting of these measures provides reliable, valid and generalisable information on graduate outcomes to the Australian government and to higher education providers. Specific research objectives of the GOS are to measure recent higher education graduates’:

Employment and further study outcomes.

Level of satisfaction with their higher education course.

The GOS survey instrument is also the mechanism for building sample for the Employer Satisfaction Survey (ESS). The ESS is the first national survey that directly links the experiences of graduates to the views of their direct supervisors. At the completion of the GOS proper, the ESS was introduced and GOS respondents who confirmed that they were in employment were asked to provide contact details for their work supervisor. The ESS collected the insights and perceptions of Australian employers to help monitor and better understand:

* The specific skills and attributes employers need in their business.
* How well higher education is equipping graduates for the workforce.

The ESS was positioned to employers as an opportunity for them to provide feedback about their perceptions of higher education, not as an assessment of the graduate.

## Overview

Graduates who completed a course from March 2021 through to February 2022 were invited to participate in the 2022 GOS. The 2022 GOS collection cycle was conducted over three distinct collection rounds (November 2021, February 2022, and May 2022). Additionally, due to the ongoing Tertiary Collection of Student Information (TCSI) project migration, a handful of institutions included January and February 2021 completions (which ordinarily would have been in-scope for the 2021 GOS May collection round) in the 2022 GOS November 2021 collection round.

Sample for the survey was mainly sourced from TCSI, whilst the participating higher education institutions provided information such as contact details. A *Collection and Sample Guide* was provided to help institutions with their administration of the survey. Except for retired items and institution specific questions (refer to Section 4.3), the survey instrument deployed at each collection round in the 2022 GOS collection cycle was largely consistent with previous years.

The survey was fielded online in English only. Invitations were sent by email, with reminders sent by email and SMS. Reminder calls were also deployed with selected non-responding graduates. Participating institutions could also commission additional reminder calls or full interviews via Computer Assisted Telephone Interviewing (CATI) after the conclusion of the main online fieldwork period. Surveys completed as a result of reminder calls are included as completed surveys in this report. No full CATI interviews were commissioned for the 2022 GOS.

A total of 131,311 surveys were completed (refer to Section 5.1 for a definition). This was made up of 119,989 graduates of 42 Australian universities and 11,322 graduates of 88 non-university higher education institutions (NUHEIs). Refer to Table 1 for further details of participation by collection round.

Response rate varied across each collection round, with the highest response rate achieved in the May collection round as compared to November and February. The final overall response rate for the 2022 GOS was 39.4 per cent, slightly lower than the response rate from the 2021 GOS (40.4 per cent). The final response rate for the 2022 GOS was slightly higher for universities (39.4 per cent) compared to NUHEIs (38.9 per cent).

Table 1 Key project statistics

| Categories | November 2021 University | November 2021 NUHEI | February 2022 University | February 2022 NUHEI | May 2022 University | May 2022 NUHEI | Total University | Total NUHEI |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Participating institutions (n) | 42 | 66 | 32 | 43 | 42 | 77 | 42 | 88 |
| Total sample (n) | 105,482 | 13,688 | 22,660 | 4,456 | 202,840 | 14,122 | 330,982 | 32,266 |
| In-scope sample approached (n) | 97,334 | 12,409 | 20,772 | 3,913 | 186,081 | 12,769 | 304,187 | 29,091 |
| Surveys completed (n) | 37,311 | 4,635 | 8,063 | 1,398 | 74,615 | 5,289 | 119,989 | 11,322 |
| Response rate (%) | 38.3 | 37.4 | 38.8 | 35.7 | 40.1 | 41.4 | 39.4 | 38.9 |

Note: For QILT projects, ‘response rate’ is defined as surveys completed as a proportion of in-scope sample approached, where in-scope sample approached excludes unusable sample (e.g., no contact details), out-of-scope and opted-out. This definition of response rate differs from industry standards by treating certain non-contacts and refusals as being ineligible for the response rate calculation. See American Association for Public Opinion Research (2016) for standard definitions.

## Project milestones

Table 2 provides a summary of the key project milestones for each collection round in the 2022 GOS.

Table 2 Key project milestones

| Task | November 2021 | February 2022 | May 2022 |
| --- | --- | --- | --- |
| Establishment - Core questionnaire development\* | 6-Sep-21 to 8-Oct-21 | - | - |
| Establishment - Sample preparation | 23-Aug-21 to 13-Oct-21 | 25-Oct-21 to 10-Dec-21 | 21-Feb-22 to 8-Apr-22 |
| Fieldwork - Soft launch main online fieldwork period (NUHEIs) | 26-Oct-21 | 1-Feb-22 | 26-Apr-22 |
| Fieldwork - Start main online fieldwork (Universities) | 28-Oct-21 | 3-Feb-22 | 28-Apr-22 |
| Fieldwork - In field reminder calls | 4-Nov-21 to 25-Nov-21 | 10-Feb-22 to 3-Mar-22 | 5-May-22 to 26-May-22 |
| Fieldwork - Main online fieldwork closes\*\* | 28-Nov-21 | 6-Mar-22 | 29-May-22 |
| Fieldwork - Post field reminder calls† | 29-Nov-21 | 07-Mar-22 | 30-May-22 |
| Fieldwork - Fieldwork closes† | 14-Dec-21 | 22-Mar-22 | 14-Jun-22 |
| Reporting - Draft data and documentation to the department | - | - | 15-Jul-22 |
| Reporting - Draft National Report to the department | - | - | 31-Jul-22 |
| Reporting - Final data and documentation to the department | - | - | 31-Jul-22 |
| Reporting - Methodology Report to the department | - | - | 15-Aug-22 |
| Reporting - Institutional Tableau report and data files delivered | - | - | 31-Aug-22 |
| Reporting - Final National Report to the department | - | - | 31-Aug-22 |

‘-‘ Indicates no information available

\*February and May dates not shown as only minor changes made to the questionnaire for these collection rounds.

\*\* Institutions that did not opt for post field reminder calls.

† Institutions that opted for post field reminder calls.

# Sample preparation

## Target population

The in-scope population consisted of all graduates who completed the requirements of an undergraduate or postgraduate award at a participating Australian higher education institution between March 2021 and February 2022. This included domestic and international graduates living outside Australia who studied at an Australian campus. Offshore graduates who studied at a campus outside Australia were excluded from the core survey.

All graduates meeting these criteria were selected for inclusion in the survey. In this way, the 2022 GOS was an attempted census of all in-scope higher education graduates, thereby ensuring as full coverage as possible.

## Institutional participation

All institutions that previously participated in the QILT surveys, along with institutions newly registered with QILT, were invited to participate in the GOS via the *Participation and Additional Services Form*. Invitations to complete the PASF were sent via email to all registered institutional contacts approximately two months prior to the commencement of online fieldwork for each collection round.

In 2021, department funding of QILT participation was extended to non-Higher Education Support Act (HESA) institutions for the first time. Non-HESA institutions continued to be able to participate free of charge in the 2022 GOS collection cycle.

A total of 155 institutions (42 universities and 113 NUHEIs) were invited to participate in the 2022 GOS. Like previous collection cycles, institutional participation in the 2022 GOS was optional. Of those invited, all universities participated, whilst 25 NUEHIs chose not to participate. The main reasons cited by NUEHIs for non-participation included not having any student completions in one of the three reference periods for each respective GOS collection round, or in some cases, not having the administrative resources required. Of the 88 NUHEIs that agreed to participate in the 2022 GOS, 20 were non-HESA institutions. This is an increase from the 12 non-HESA providers who participated in the 2021 GOS, demonstrating a commitment to making the QILT surveys as accessible as possible for all Australian higher education institutions.

Most universities participated in all three collection rounds. Whilst more NUHEIs still elected to participate in May and November respectively, participation in the February collection round continued to increase (43 NUHEIs participated in February 2022 compared to 40 in February 2021). The November and May collection rounds had higher levels of institutional participation as the in-scope reference period for graduates aligned with the more common course completion dates in the middle or end of the year.

## Course majors

The default methodology for the GOS is to survey at the course / qualification level. However, institutions also have the option to survey their graduates at the majors level. Prior to providing sample for the 2022 GOS, institutions were asked to confirm whether they wanted their graduates surveyed at the majors level. For consistency of data, institutions were required to take a uniform approach to surveying at the course level or majors level across the entire 2022 GOS collection cycle.

As majors data is not included in the TCSI project, the option of surveying using majors was only recommended for institutions with generic course offerings (i.e., Bachelor of Arts, Bachelor of Science, Doctor of Philosophy) that also had accurate administrative majors data available for populating sample. Institutions that elected to survey using majors were asked to complete or update a concordance of majors to courses for their institution and provide data for each graduate’s major(s) in the returned sample files.

As recommended in the *2021 GOS Methodological Report,* due to the Course Experience Questionnaire (CEQ) being retired as a core item, a review of surveying using majors was conducted ahead of the 2022 GOS sample preparation period. The aim was to analyse institutions’ continued practice of surveying using majors. Following this review, one institution opted to change to surveying using course.

In the 2022 GOS there were 13 institutions (all universities) that opted to survey using majors. All other institutions chose to survey their graduates at the course level.

## Sample frame

The GOS used a centralised approach to sampling based on data extracted from the TCSI project to create sample files for individual institutions. This ensured the sampling methodology was robust, consistent and transparent across all institutions. The TCSI project replaced the Higher Education Information Management Systems (HEIMS) as the authoritative source of information regarding higher education in Australia in mid-2021.

Institutions are able to enter course completion data to TCSI on a continual basis. For the purpose of extracting the GOS sample, an agreed cut-off date for all completion data to be entered into TCSI was communicated to institutions. This date was usually one week prior to the delivery of institution sample files in each collection round.

Institutions that had not yet migrated to TCSI or had missing course completion data in TCSI were offered a Full template to provide all or part of their sample. The Full template enabled institutions to submit TCSI-consistent data elements for survey execution and reporting.

### Additional populations

Institutions were also provided with the opportunity to include out-of-scope graduates as additional populations in the GOS on a fee-for-service basis. The sample return process allowed institutions to provide additional populations in their returned sample files.

GOS additional populations can include groups such as offshore graduates who completed the requirements for an Australian award during the relevant GOS data collection reference period, or out of cycle graduates (graduates in-scope for a previous collection round but not approached). Five institutions (one university, four NUHEIs) opted to survey additional populations in the 2022 GOS. These included offshore graduates and out of cycle graduates. Additional populations are not included in the *National Report* and do not appear in results presented in this report.

## Sample preparation overview

Detailed information regarding the GOS sampling process was available to institutions in the *Collection and Sample Guide* (refer to Section 3.1.1). The guide was provided to institutions prior to each GOS collection round and outlined the:

* timeline for sample provision,
* options for submission of sample information,
* data elements that were pre-populated, essential, or optional,
* processes for inclusion of additional populations and majors data,
* data elements important for response maximisation, and
* steps for flagging the in-scope population.

The department provided an extract of all TCSI submissions from institutions to the Social Research Centre. The Social Research Centre then reviewed this extract to identify records eligible to participate in the GOS. Sample counts by institution were checked against historical submissions to ensure all expected TCSI submissions were included in the extract. Following this, individual sample files were distributed to institutions for verification, contact information updates and review of the in-scope status of all sample records, to ensure graduates who should not be surveyed were correctly flagged by institutions.

Some institutions were still in the process of migrating to TCSI or did not have all their course completion data submitted to TCSI. To ensure all in-scope records were submitted, these institutions were provided with a Full template to record submissions not present in the TCSI extract.

Institutions were asked to complete the templates as per the instructions in the *Collection and Sample Guide* and return the sample to the Social Research Centre for verification.

### Sample processing quality assurance

Upon receipt of an institution’s returned sample file, the Social Research Centre undertook a range of validation checks to ensure the quality of returned sample files. Issues identified within a returned sample file were documented, feedback was provided, and the institution was asked to submit a revised version of the sample file or template. This process continued for each file until all required validation checks were passed.

Quality assurance checks were undertaken in several stages, as follows:

* Manual naming of the returned file to meet version control conventions.
* Archiving an original reference copy of each returned file version.
* Visual inspection of the file to ensure it aligns with the required format for automated checks.
* Processing the file through an automated sample checking script (the ‘auto-checker’). The auto-checker generated a summary report of the sample file structure, adherence to variable standards, completeness of the returned sample, record scoping and unit record logic checks.
* An extensive sample cleaning process on files validated by the auto-checker before being operationalised for fieldwork.
* Cross-checking data within, and merging of, data for institutions with multiple sample files.

### Sample cleaning

The 2022 GOS validation process included the following sample quality requirements, cleaning checks and operationalisation tasks:

* Comparison of sample against the institution’s historical sample to identify inconsistencies in the in-scope population.
* All essential data elements provided for all in-scope records.
* Personal email addresses (non-institution) supplied where possible.
* Email address information was cleaned and validated.
* Phone numbers supplied where possible, a log of institutions that did not or could not provide phone numbers was maintained for reference.
* *E592 (*previously *CompletionDate)* is in-scope and within the collection round’s expected reference period**.**
* Version control checks for institution files that require multiple submissions to pass validation.
* Data for all TCSI data elements adhere to specified formats.
* Sample course information validated in TCSI aligns with course information provided in the interim TCSI extract.
* Identify and flag additional populations for inclusion (refer to Section 2.4.1).
* Check for duplication of records for the same individual against GOS collections and multiple files within a collection.

### Exclusions

After application of the exclusion rules listed below, 139,657 records were removed from the sample. This is substantially higher than the 2021 exclusions count (n=82,369). This was a result of the TCSI extracts received by the Social Research Centre in 2022 containing all records in the TCSI database; in previous years, the extracts were received already filtered to the GOS in-scope reference period.

Exclusion rules included:

* duplicate sample records,
* out-of-scope sample records based on the *GraduateStatus* variable (reasons include not being a graduate, graduate should not be contacted, graduate has been surveyed in a prior collection round or other reasons as determined by the institution), and
* sample records with course information insufficient for the administration of the GOS instrument.

### Sample file quality issues

Issues identified throughout the sample return quality assurance process were communicated to institution contacts via email and guidance in resolving issues was provided as necessary by the research team. The project schedule allowed time for the resolution of all sample quality issues prior to the commencement of fieldwork.

The main data quality issues observed during the 2022 GOS were as follows:

* Information essential for survey operationalisation or analysis (i.e., *E592, GraduateStatus, TCSI variables, etc*) not being provided, or not provided in the specified format.
* Conflicting scoping information (i.e., *Exclusions* flagged as in-scope, *E592* outside the reference period flagged as in-scope).
* Non-allowable values being provided for variables that changed during the transition to TCSI (i.e., *E327*, *E615*).
* Insufficient, limited, or unclean contact information (i.e., phone number, email).
* Formatting issues such as altering of templates, use of special characters or duplication of unique records / identifiers.
* Incorrect course codes being provided or course codes not being up to date in the master course list.
* Incorrect assignment of majors or missing majors data.

Sample preparation documentation was reviewed ahead of each collection round to incorporate learnings related to sample file quality issues.

# Survey design and procedures

## Institutional engagement

To build institutional engagement with the GOS, the Social Research Centre employed a strategy based on the principles of stakeholder need, transparency, knowledge sharing, and responsiveness. The Social Research Centre’s institutional engagement strategy for the 2022 GOS is described in this section and included:

* Planning resources such as the *QILT Key Dates Calendar* and *Collection and Sample Guide*.
* Communications inviting institutions to participate in the GOS.
* Webinars and newsletters.
* An ongoing dialog with survey managers to build rapport, including the offer of support during field.
* Supporting institutions to undertake response maximisation activity, such as awareness emails, social media posts and advertisement at graduations, through the *Collection and Sample Guide* and *Marketing Pack* (refer to Section 3.2).

### Planning resources

The Social Research Centre provided planning resources to participating institutions to support the ease of institution participation, allow forward planning of institution resources and ensure project milestones were delivered to schedule.

The *QILT Key Dates Calendar* (refer to Section 1.5) was accessible via the QILT provider portal and contained an overview of the 2022 GOS project milestones along with timelines for the entire QILT suite of surveys. The calendar was kept up to date year-round with any project schedule adjustments.

A *Collection and Sample Guide* was made available for each collection round. A notification email was sent to all institutions advising of each new release and the guides were accessible via the QILT provider portal. The *Collection and Sample Guide* provided a stand-alone source of information to introduce the GOS, provide timelines, outline the sample process, describe participation in the study, provide resources to assist in graduate engagement, outline response maximisation procedures and contact protocols, describe institution deliverables and document general conduct of the GOS.

### Invitation to participate

As noted in Section 2.2, prior to each collection round in the 2022 GOS collection cycle, the Social Research Centre sent an email to all registered survey contacts at each institution. The email asked recipients to confirm their institution’s participation in the respective collection round and provide up to date contact information via the PASF. Further, for each collection round, institutions were asked to nominate additional fee-for-service activities via the PASF. The 2022 GOS offered the following fee-for-service activities:

* Inclusion of additional populations (refer to Section 2.4.1).
* Inclusion of additional items in the GOS questionnaire (refer to Section 4.3.1).
* Participation in an additional SMS reminder (refer to Section 3.3.3).
* Participation in post field reminder calls (refer to Section 3.3.4) or full CATI surveys (refer to Section 3.3.5).

### Webinars and newsletters

As part of the institutional engagement strategy, a series of webinars and newsletters was provided to institutions throughout the 2022 GOS collection cycle. Newsletters were sent monthly covering information related to key QILT survey milestones, acting as a regular point of contact with institution contacts who subscribed. Webinars were presented for institutions on a near monthly basis. Webinar topics were designed to guide institutions through key stages of the survey administration process, share technical and methodological insights and present analysis on topics of relevance to the higher education sector. To ensure continued engagement and relevance, institutions were consulted to inform topics of interest for future webinars. Webinars relating directly to the 2022 GOS collection cycle covered topics such as analysis of prior year survey results, sample preparation, questionnaire changes, response maximisation, survey methodology and fieldwork progress.

### Ongoing dialogue with institutions

An open dialogue with survey managers was maintained throughout the 2022 GOS collection cycle to build rapport, offer support, discuss fieldwork performance, and better understand key issues that could impact the GOS. The following engagement activities were conducted to connect with institutions:

* **Institutional outreach**: telephone contact was attempted with all participating universities and selected NUHEIs during fieldwork for the 2022 GOS. A follow up email was sent when contact with an institution could not be made by telephone (e.g., following a voicemail). To assist with response maximisation, priority was given to contacting larger institutions and institutions with particularly low or high response rates.
* **Respondent Engagement Survey (RES)**: a brief survey was sent to institution contacts after the May fieldwork period. A total of 62 institutions participated in the 2022 GOS RES. The RES collected data to inform analysis on response rate maximisation and was an opportunity for institutions to provide more general feedback on their experience with using the *Marketing Pack*.

In addition to these activities, the QILT research, administration and consulting teams were in regular contact with institutions to maintain a high level of institutional engagement.

## Graduate engagement

In addition to the *Collection and Sample Guide*, a *Marketing Pack* was published ahead of each collection round on the QILT provider portal to assist institutions with graduate engagement activities. Feedback from survey managers via the RES and other channels was reviewed to ensure materials best met institutional needs. All marketing materials referred graduates to either the QILT website, the Social Research Centre website, the GOS helpdesk email address or GOS helpdesk 1800 number for the purpose of contacting the Social Research Centre with any queries.

The *Collection and Sample Guide* for each collection round of the 2022 GOS included an ‘Engagement activity plan’. The plan proposed a marketing campaign schedule that was aligned to the relevant GOS fieldwork period and paired engagement activities with the appropriate *Marketing Pack* resource. A *Marketing Pack User Guide* was included with the *Marketing Pack* to assist institutional survey managers with survey promotion by outlining suggested dates and captions for social media posts and other resources.

## Contact protocol

The 2022 GOS employed an extensive protocol of contact attempts, including an email invitation and nine email reminders, three SMS reminders, and telephone reminder call activity. As an extension to this protocol, an additional SMS and post field reminder calls could be commissioned by institutions on a fee-for-service basis. Each contact mode included provision to opt-out or unsubscribe from future contact, in alignment with obligations under the Australian Communications and Media Authority (ACMA) Spam Act. Graduates could also opt-out by contacting the GOS helpdesk.

Table 3 shows the date of contact activity, as well the number of emails and SMS sent.

Table 3 Invitation and reminder schedule

| Contact activity | November 2021 Day of send | November 2021 Number sent | February 2022 Day of send | February 2022 Number sent | May 2022 Day of send | May 2022 Number sent |
| --- | --- | --- | --- | --- | --- | --- |
| Email invitation (NUHEI) | Tue, 26 Oct | 119,012 | Tue, 1 Feb | 26,972 | Tue, 26 Apr | 216,664 |
| Email invitation (University) | Thu, 28 Oct | 119,012 | Thu, 3 Feb | 26,972 | Thu, 28 Apr | 216,664 |
| Email reminder 1 | Sat, 30 Oct | 111,478 | Sat, 5 Feb | 25,093 | Sat, 30 Apr | 203,060 |
| Email reminder 2 | Mon, 1 Nov | 106,351 | Mon, 7 Feb | 23,783 | Mon, 2 May | 192,662 |
| Prize draw 1 closed | Mon, 1 Nov | N/A | Mon, 7 Feb | N/A | Mon, 2 May | N/A |
| Email reminder 3 and in field reminder calls commenced | Thu, 4 Nov | 101,046 | Thu, 10 Feb | 22,465 | Thu, 5 May | 182,484 |
| Email reminder 4 | Mon, 8 Nov | 96,899 | Mon, 14 Feb | 21,581 | Mon, 9 May | 175,435 |
| SMS 1 | Mon, 8 Nov | 75,511 | Mon, 14 Feb | 15,324 | Mon, 9 May | 140,167 |
| Prize draw 2 closed | Mon, 8 Nov | N/A | Mon, 14 Feb | N/A | Mon, 9 May | N/A |
| Email reminder 5 | Wed, 10 Nov | 89,892 | Wed, 16 Feb | 20,196 | Wed, 11 May | 162,908 |
| Open email reminders to Email 3 and Email 4 if available | Mon, 15 Nov | N/A | Mon, 21 Feb | N/A | Mon, 16 May | N/A |
| Email reminder 6 | Mon, 15 Nov | 86,344 | Mon, 21 Feb | 19,518 | Mon, 16 May | 155,861 |
| SMS 2 | Mon, 15 Nov | 62,595 | Mon, 21 Feb | 13,107 | Mon, 16 May | 116,442 |
| Prize draw 3 closed | Mon, 15 Nov | N/A | Mon, 21 Feb | N/A | Mon, 16 May | N/A |
| Email reminder 7 | Fri, 19 Nov | 80,848 | Fri, 25 Feb | 18,297 | Fri, 20 May | 146,184 |
| Email reminder 8 | Mon, 22 Nov | 79,385 | Mon, 28 Feb | 17,971 | Mon, 23 May | 142,747 |
| SMS fee-for-service | Mon, 22 Nov | - | Mon, 28 Feb | - | Mon, 23 May | - |
| Prize draw 4 closed | Mon, 22 Nov | N/A | Mon, 28 Feb | N/A | Mon, 23 May | N/A |
| Email reminder 9 | Thu, 25 Nov | 77,363 | Thu, 3 Mar | 17,413 | Thu, 26 May | 138,220 |
| SMS 3 | Thu, 25 Nov | 9,611 | Thu, 3 Mar | 2,705 | Thu, 26 May | 93,963 |
| Online fieldwork closes\* | Sun, 28 Nov | N/A | Sun, 6 Mar | N/A | Sun, 29 May | N/A |
| Post field reminder calls commenced† | Mon, 29 Nov | N/A | Mon, 7 Mar | N/A | Mon, 30 May | N/A |
| Fieldwork closes† | Tue, 14 Dec | N/A | Tue, 22 Mar | N/A | Tue, 14 Jun | N/A |

N/A indicates information is not available

‘-‘ indicates item was not run during fieldwork

\* Institutions that did not opt for post field reminder calls.

† Institutions that opted for post field reminder calls.

### Email invitation and reminders

At the beginning of each round within the 2022 GOS collection cycle, the Social Research Centre sent an email survey invitation to all in-scope graduates to advise of their selection in the GOS, and communicate the survey objectives, privacy provisions and the value of participation. The invitation and reminders included a unique link that took the graduates directly into their survey. All emails also referred graduates to the Social Research Centre and QILT webpages for further information about the GOS, privacy provisions and prize draw terms. Further, an unsubscribe link was included in the footer of each email if sample members no longer wanted to receive correspondence.

In the email template design, consideration was given to the display of emails on different devices and how this could alter communication of message intent. Core message themes were communicated in subject lines and above the ‘start survey’ button, whilst content supplementary to the core theme was placed in the lower half of the email body. This made the ‘start survey’ button visible without the graduate having to scroll down, enhancing user experience. Figure 1 and Figure 2 (on the following pages) illustrate the appearance of the invitation on screen for graduates on desktop and mobile devices.

Figure 1 Example GOS survey invitation - desktop

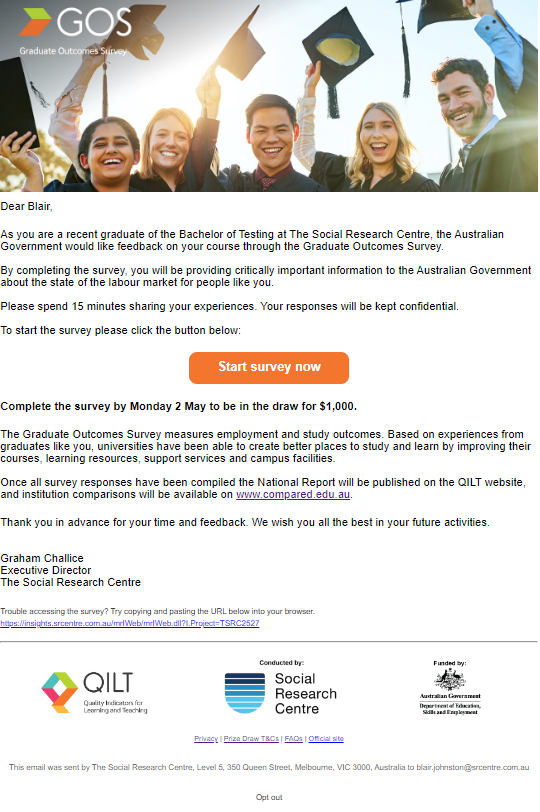
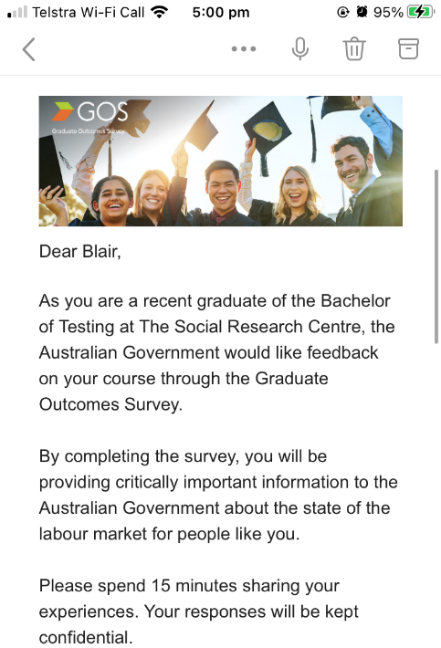


Figure 2 Example GOS survey invitation - mobile





The email schedule was comprised of an invitation followed by up to nine email reminders. Graduates who had completed the survey, those who were disqualified from participating (i.e., screened out because they were not eligible) or who had unsubscribed, were removed from the next scheduled email.

The email send activity was designed to maintain survey completion momentum throughout the data collection period and maximise participation. To enhance the respondent experience, all emails and SMS included a unique survey link which enabled respondents to enter their survey directly.

The following email send, and bounce outcome protocol was used for the 2022 GOS:

* Invitation email sent to both the *Email 1* and *Email 2* fields:
  + If both addresses failed (i.e., hard bounce) and *Email 3* was available, then *Email 3* was used.
  + If *Email 3* failed and *Email 4* was available, then *Email 4* was used.

Provided at least one of the email addresses available was valid, all graduates would have been sent an email invitation.

* For graduates with a failed outcome for all available email addresses:
  + The survey remained accessible throughout field by logging in or ‘authenticating’ via the GOS landing page on the QILT website.
  + They would have received at least one form of contact if a mobile number was available for them (i.e., they were included in SMS activity as described in Section 3.3.3) or they were targeted for the in field reminder calls (refer to Section 3.3.4).

When contacted by SMS, the graduate could access the survey directly via the unique link provided within the SMS. When contacted via a reminder call, graduates were provided the option of receiving an email containing a unique survey link.

* + They would not have received contact if a mobile number was not available for them or if they were not selected for the in field reminder calls.
* From reminder six onwards, graduates for whom *Email 1* or *Email 2* did not fail, emails were also sent to *Email 3* and *Email 4* if available.

The general objective of the email plan was to appeal to a wide and diverse audience and so the theme, length and tone of each email varied. All emails featured text customised to the graduate and the content differed throughout the reminder program. For example, a sense of urgency was created by appealing to a prize-draw closing that day. To minimise the risk of complaints due to contact fatigue, emphasis was placed on the unsubscribe mechanism for Reminder 6 onwards. The message intent for the GOS May emails is summarised in Table 4.

Table 4 Email plan message intent

| Activity | Message intent |
| --- | --- |
| Invitation | Awareness raising and invitation |
| Reminder 1 | Your feedback is important and will contribute to the experience of current and future students |
| Reminder 2 | Encourage early completion with prize incentive, and grateful if you could spare the time |
| Reminder 3 | Help government understand graduate employment and further study outcomes, acknowledge graduate may be busy, soft mention of prize |
| Reminder 4 | Grateful if you could spare the time to give feedback to benefit future students, soft mention of prize |
| Reminder 5 | More feedback needed from graduates, important to give feedback even if not working, soft mention of prize |
| Reminder 6 | Empathetic tone, acknowledge frequency of contact, attention drawn to unsubscribe option and prize draw closing tonight, improve career resources at institution |
| Reminder 7 | Recognise uniqueness of graduate, help improve outcomes for graduates, soft mention of prize |
| Reminder 8 | Final prize draw closes tonight, still need to hear from more graduates from your course |
| Reminder 9 | Last appeal: final email and chance to complete, help government understand how COVID-19 has affected graduate employment |

A breakdown of email send outcomes by round of activity is provided at Table 5, Table 6, and Table 7. When interpreting results, it should be noted that the sample frame for February was smaller and included fewer institutions relative to the November and May collection rounds.

During the 2022 GOS collection cycle, major companies including Apple introduced new email security measures that prevented email senders from using tracking pixels to measure open rates. This change rendered traditional email Key Performance Indicators (KPIs), such as open rates, as increasingly flawed metrics and made monitoring these KPIs more difficult. Due to these changes, ‘clicked on link’ provides an alternative effectiveness measure. The invitation remained the most effective email in the schedule with the highest ‘clicked on link’ rates across the schedule – 17.5 per cent in February, 13.3 per cent in May and 12.3 per cent in November. As could be expected, ‘clicked on link’ rates generally trended down with each subsequent reminder. Exceptions to this usually coincided with email reminders timed to align with prize draw close dates (Reminder 2, Reminder 4, Reminder 6, Reminder 8). To accurately analyse ‘clicked on link’ rates in future rounds of the GOS, consideration should be made towards implementing a more sophisticated effectiveness measure.

Notwithstanding the changed reliability of open rate metrics, the email invitation open rate was relatively equal between February (65.9 per cent) and May (65.3 per cent), compared to November (60.2 per cent). It should be noted that automatic link-scanning software operated by institutional email domains led to a slightly inflated open rate in the May collection round. Open rates for the remaining emails in the schedule per collection round also remained relatively stable, with the most variation seen at Reminder 9 (52.3 per cent in May, 47.1 per cent in February and 40.7 per cent in November). It should be noted, however, that email deliverability can be inconsistent, and it is often difficult to establish cause and effect even with an array of deliverability tools.

The proportion of bounced emails (sent emails that return with a server response indicating non-delivery) across the 2022 GOS collection cycle was low. This indicates that at the national level, the quality of contact details in the approached sample was good and email cleaning processes were effective. Opt-outs were less than one per cent at each email, suggesting the nature of the survey and the timing of sends were not a concern for graduates.

Table 5 Email send outcomes by round of activity November 2021

| Total | Invite | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total sent (n) | 119,012 | 111,478 | 106,351 | 101,046 | 96,899 | 89,892 | 86,344 | 80,848 | 79,385 | 77,363 |
| Opened (%) | 60.2 | 52.7 | 50.4 | 47.2 | 46.9 | 44.5 | 44.8 | 45.2 | 41.1 | 40.7 |
| Clicked on link (%) | 12.3 | 6.9 | 6.3 | 5.6 | 6.3 | 4.8 | 5.1 | 3.3 | 3.6 | 3.2 |
| Opt-out from link (%) | 0.5 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 | 0.9 | 0.6 | 0.5 | 0.4 |
| Opened email (%) | 47.3 | 45.2 | 43.4 | 40.8 | 39.9 | 39.0 | 38.8 | 41.3 | 37.1 | 37.0 |
| Unopened (%) | 39.3 | 47.1 | 49.3 | 52.6 | 52.8 | 55.2 | 54.9 | 54.5 | 58.6 | 59.0 |
| Soft bounce (%) | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| Hard bounce (%) | 0.3 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

Table 6 Email send outcomes by round of activity February 2022

| Total | Invite | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total sent (n) | 26,972 | 25,093 | 23,783 | 22,465 | 21,581 | 20,196 | 19,518 | 18,297 | 17,971 | 17,413 |
| Opened (%) | 65.9 | 58.4 | 55.2 | 50.7 | 49.2 | 48.7 | 49.7 | 48.0 | 44.4 | 47.1 |
| Clicked on link (%) | 17.5 | 7.2 | 7.2 | 5.1 | 5.0 | 4.1 | 4.3 | 2.6 | 3.0 | 3.1 |
| Opt-out from link (%) | 0.5 | 0.7 | 0.8 | 0.8 | 0.8 | 0.7 | 0.9 | 0.6 | 0.5 | 0.6 |
| Opened email (%) | 47.9 | 50.6 | 47.2 | 44.8 | 43.5 | 43.9 | 44.5 | 44.8 | 40.9 | 43.4 |
| Unopened (%) | 33.0 | 41.0 | 44.1 | 48.6 | 50.1 | 50.5 | 49.5 | 51.3 | 54.8 | 51.9 |
| Soft bounce (%) | 0.5 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 |
| Hard bounce (%) | 0.6 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.1 |

Table 7 Email send outcomes by round of activity May 2022

| Total | Invite | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total sent (n) | 216,664 | 203,060 | 192,662 | 182,484 | 175,435 | 162,908 | 155,861 | 146,184 | 142,747 | 138,220 |
| Opened (%) | 65.3 | 60.0 | 58.0 | 57.7 | 54.2 | 52.7 | 52.1 | 50.3 | 48.7 | 52.3 |
| Clicked on link (%) | 13.3 | 7.4 | 6.1 | 4.6 | 5.9 | 4.4 | 4.6 | 3.0 | 3.0 | 2.8 |
| Opt-out from link (%) | 0.4 | 0.5 | 0.7 | 0.8 | 0.7 | 0.7 | 0.7 | 0.6 | 0.5 | 0.6 |
| Opened email (%) | 51.6 | 52.1 | 51.1 | 52.3 | 47.6 | 47.5 | 46.8 | 46.6 | 45.2 | 48.9 |
| Unopened (%) | 33.9 | 39.8 | 41.8 | 42.1 | 45.6 | 46.8 | 47.6 | 49.4 | 51.0 | 47.5 |
| Soft bounce (%) | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 |
| Hard bounce (%) | 0.7 | <0.1 | <0.1 | <0.1 | <0.1 | 0.4 | 0.1 | <0.1 | <0.1 | <0.1 |

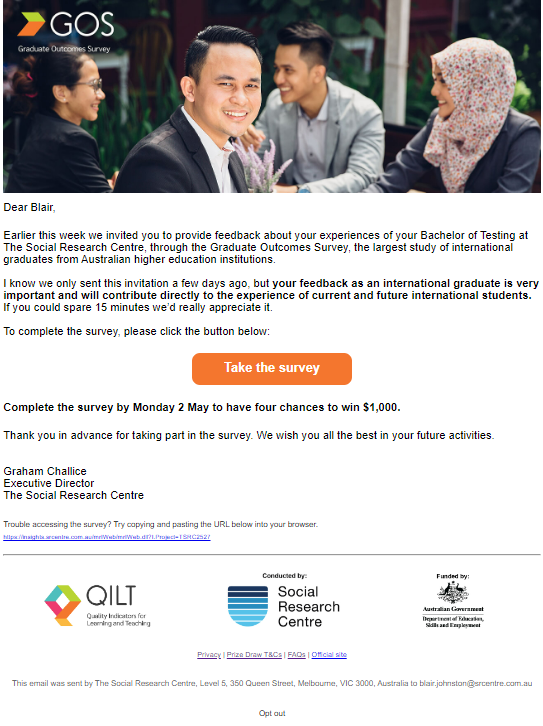
### International engagement strategy

The Social Research Centre is committed to an International Engagement Strategy with the goal of increasing international student and graduate response, thereby improving the representation of the QILT data. Since the 2021 GOS collection cycle, a customised email plan designed to appeal to the ‘international graduate’ identity has been implemented.

Outcomes from the 2021 implementation were reviewed and learnings applied to the customised email plan prior to the 2022 collection cycle. In an effort to appeal to international students, Reminders 1, 4 and 6 included header images featuring multicultural subjects and message content that explicitly referenced the recipients’ international student identity. An example reminder email is shown in Figure 3 below.

Despite adjustments made to the customised email plan, non-response analysis (refer to Section 7.2) shows that international graduates were underrepresented in the 2022 GOS collection cycle. Whilst the current plan provides a good foundation for attracting international student interest in the GOS, future collections should continue to build and refine a customised engagement strategy that effectively drives response and representation.

Figure 3 International customisation of Reminder 1 from May 2022



### SMS reminders

Increased use of SMS was identified as an area of importance for future GOS collections in the *2021 GOS Methodological Report*. As such, the 2022 GOS collection cycle featured expanded use of SMS during fieldwork to complement the email contact strategy. For the first time on GOS, three SMS were sent in each collection period. The third SMS was employed as a tool to boost response rate based on response in comparison to historical performance. Institutions were also able to nominate participation in an additional fee-for-service SMS (sent to either all, or a subset, of in-scope graduates with a mobile number) during each collection round. In total, 18 institutions across the 2022 GOS collection cycle opted to send a fee-for-service SMS.

Rationale for the extended use of SMS in 2022 came from the inherent value of this contact form with the GOS cohort (as specified in the *2021 GOS Methodological Report,* having a mobile number is a strong predictor of response); and its effectiveness as an alternative contact method in response to declining email open and click through rates observed across recent survey collections.

The initial SMS for all collection rounds was sent to all in-scope graduates with an Australian mobile number. For the November collection round, a response propensity model (refer to Section 3.3.9) and budget allocations were used to determine sample selected for the second and third SMS. In February, the scope of SMS2 was expanded to include all in-scope non-responders, whilst the SMS3 selection remained dependent on response propensity and budget allocations. In May, both SMS2 and SMS3 were sent to all remaining non-responders. Each SMS was paired with an email reminder sent on the same day.

Those who had already completed the survey, unsubscribed from email activity, or refused to participate from the in field reminder calls were excluded from the SMS sends.

The SMS content referenced email reminders for authenticity, and when applicable, mentioned the prize draw to incentivise response. Each SMS contained a unique link that provided direct access to the online survey, and for the first time in 2022, allowed survey responses to be definitively attributed to each individual SMS message. Graduates were able to opt-out by replying ‘STOP’ to the SMS and all other responses were reviewed for further opt-outs. An example of the first SMS used in the May collection round is provided in Figure 4.

Figure 4 Example SMS content

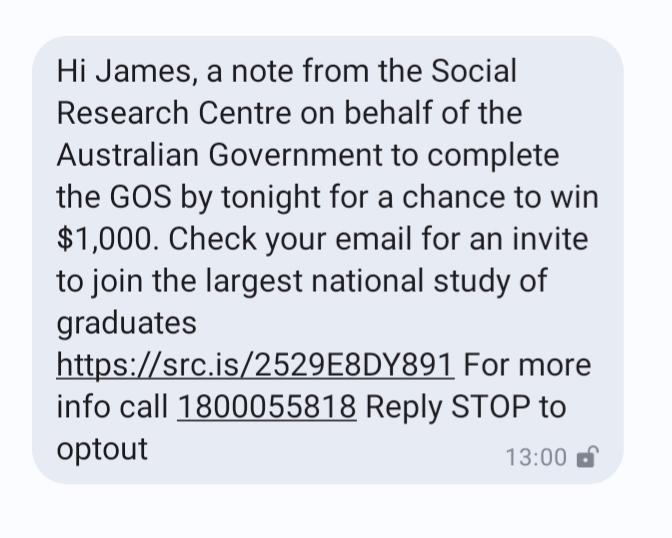


Table 8 displays a summary of the number of SMS sent and the outcomes. Open rates were generally high across all messages in each collection round. The rate of survey completions directly attributable to SMS1, SMS2 and SMS3 was higher than 1 per cent across the three collection rounds, with SMS1 in February featuring the highest directly attributable completion rate (2.3 per cent). Additionally, the fee-for-service SMS sent in all three collection rounds experienced substantially high open rates. These results illustrate the relative receptiveness of sample members to SMS in comparison to more traditional contact modes (like email) and provide justification for implementing SMS3 as a standard part of the contact protocol in the future. Continued exploration of novel ways to use SMS as a response maximisation tool should also be considered.

Table 8 SMS based follow up activity outcomes

| Contact activity | November 2021 n | November 2021 % | February 2022 n | February 2022 % | May 2022 n | May 2022 % |
| --- | --- | --- | --- | --- | --- | --- |
| SMS1 - Sent | 75,511 | 100.0 | 15,324 | 100.0 | 140,167 | 100.0 |
| SMS1 - Opened | 64,960 | 86.0 | 13,671 | 89.2 | 127,040 | 90.6 |
| SMS1 - Unopened | 9,131 | 12.1 | 1,349 | 8.8 | 10,802 | 7.7 |
| SMS1 - Unsubscribed | 1,420 | 1.9 | 304 | 2.0 | 2,325 | 1.7 |
| SMS1 - Completed via SMS link\* | 1,309 | 1.7 | 347 | 2.3 | 2,674 | 1.9 |
| SMS2 - Sent | 62,595 | 100.0 | 13,107 | 100.0 | 116,442 | 100.0 |
| SMS2 - Opened | 55,525 | 88.7 | 11,801 | 90.0 | 107,163 | 92.0 |
| SMS2 - Unopened | 5,375 | 8.6 | 958 | 7.3 | 6,605 | 5.7 |
| SMS2 - Unsubscribed | 1,695 | 2.7 | 348 | 2.7 | 2,674 | 2.3 |
| SMS2 - *Completed via SMS link\** | 944 | 1.5 | 167 | 1.3 | 1,567 | 1.3 |
| SMS3 - Sent | 14,926 | 100.0 | 8,228 | 100.0 | 93,963 | 100.0 |
| SMS3 - Sent Opened | 14,500 | 97.1 | 7,366 | 89.5 | 91,216 | 97.1 |
| SMS3 - Sent Unopened | 49 | 0.3 | 706 | 8.6 | 499 | 0.5 |
| SMS3 - Sent Unsubscribed | 377 | 2.5 | 156 | 1.9 | 2,247 | 2.4 |
| SMS3 - Sent *Completed via SMS link\** | 244 | 1.6 | 122 | 1.5 | 1,176 | 1.3 |
| SMS F4S - Sent | 9,611 | 100.0 | 2,705 | 100.0 | 23,238 | 100.0 |
| SMS F4S - Opened | 9,318 | 97.0 | 2,615 | 96.7 | 22,537 | 97.0 |
| SMS F4S - Unopened | 74 | 0.8 | 22 | 0.8 | 180 | 0.8 |
| SMS F4S - Unsubscribed | 219 | 2.3 | 68 | 2.5 | 521 | 2.2 |
| SMS F4S - *Completed via SMS link\** | 189 | 2.0 | 55 | 2.0 | 441 | 1.9 |

\* Graduate completed survey directly via the SMS link. Due to the large scope of SMS activity, completions that could be indirectly associated with SMS (i.e., SMS prompted graduate to complete via email link) are not shown and would instead be attributed to other sources of response (refer to Section 7.3).

### Reminder calls

Reminder calls were undertaken in field and post field as part of a ‘push to web’ response maximisation strategy during each collection round, designed to encourage online completion. In the 2022 GOS in field reminders were used primarily to improve the representation of international graduates (refer to Section 7.2). Post field telephone activity was a fee-for-service option to enable institutions to ‘top-up’ response rates.

Reminder calls involved attempting to contact graduates to collect updated email address information, with a survey invitation automatically emailed upon completion of the call. The Social Research Centre’s operational hours facilitated reminder call attempts any day of the week and at varied times of day. Up to two call attempts were made and a voicemail left where possible.

Reminder calls used ‘contacts’ as the sample outcome metric. Contacts included outcomes such as agreed to complete online, refusal, request to remove number from list, claims to have already completed and away for the duration of the study. Once contact was achieved with a graduate, no further reminder calls to that graduate were made.

#### In field reminder calls

In field reminders were conducted between the second and final weeks of the main fieldwork period of each collection round. To be selected for the in field reminder calls, a graduate had to meet the following criteria:

* have a valid phone number available in the sample, and
* have not opted-out, screened-out or completed the online survey.

In support of the International Engagement Strategy, in field reminder call activity for the 2022 GOS was prioritised to international graduates (determined by citizenship indicator). Domestic graduates were not excluded from in field reminder calls, only given a lower priority in the call cycle.

In field reminder calls were made to 14.3 per cent of the in-scope sample approached for the 2022 GOS (not shown). Table 9 provides a summary of outcomes from the in field reminder calls. More than one quarter of the sample initiated agreed to complete online (26.1 per cent). Better outcomes were reported for postgraduates (28.6 per cent agreed to complete online) compared to undergraduates (21.8 per cent). This is consistent with the 2021 GOS where better in field call outcomes were achieved with postgraduates and is likely a result of again prioritising international sample for the reminder calls.

A completed survey could be directly attributed to the in field reminder call for 6.0 per cent of graduates called. There were additional completions that may be indirectly attributed to in field reminder calls (12.2 per cent) that have been attributed to another source of response (refer to Section 7.2.1). For example, after speaking with a call centre operator or listening to a voicemail, a graduate contacted via reminder calls may have been prompted to complete the GOS via a link included in the email invitation or a SMS reminder.

Table 9 In field reminder call outcomes

| Categories | Undergraduate n | Undergraduate % | Postgraduate n | Postgraduate % | Total n | Total % |
| --- | --- | --- | --- | --- | --- | --- |
| Total sample initiated | **19,055** | **100.0** | **32,758** | **100.0** | **51,813** | **100.0** |
| Unusable sample | 692 | 3.6 | 909 | 2.8 | 1,601 | 3.1 |
| No contact | 13,926 | 73.1 | 21,960 | 67.0 | 35,886 | 69.3 |
| Total contacts | **4,437** | **23.3** | **9,889** | **30.2** | **14,326** | **27.6** |
| Agree to complete online | 4,159 | 21.8 | 9,373 | 28.6 | 13,532 | 26.1 |
| Other contact type | 278 | 1.5 | 516 | 1.6 | 794 | 1.5 |
| Completed directly\* | 987 | 5.2 | 2,131 | 6.5 | 3,118 | 6.0 |
| Completed indirectly† | 2,079 | 10.9 | 4,256 | 13.0 | 6,335 | 12.2 |

\* Graduate completed the survey directly via the in field reminder email.

† Graduate completed the survey by any means other than the in field reminder email after being contacted or left a voicemail from in field reminder calls (excludes non-contact outcomes such as no answer, disconnected phone number).

Note: Unusable sample includes wrong numbers, disconnected numbers, not a residential number, fax lines, incoming call restrictions and respondent unreliable.

#### Post field reminder calls

As noted earlier, post field reminder calls were a fee-for-service option to enable institutions to top-up response rates for reporting purposes and their own internal analysis. The number of institutions opting for post field reminder calls at the November, February and May collection rounds was eight, four and seven respectively.

Post field reminder calls were conducted following the close of the main online fieldwork, with the online survey remaining open for approximately a two-week period (refer to Table 2) to allow for graduates of participating institutions to respond following telephone contact. Online survey completions resulting from post field reminder calls were included in national reporting and analysis, as the mode of completion was consistent with online surveys completed as part of the main field period.

In addition to the criteria described for in field reminder calls, to be selected for the post field reminder calls, a graduate was required to meet the following criteria:

* not have a ‘contact’ outcome from in field reminder calls, and
* meet any custom criteria chosen by the institution (e.g., the institution may only want to top up response in certain study areas).

The purpose of post field reminder call activity was to confirm or update the best contact email address for graduates and ask them to complete the survey online. Table 10 provides a summary of post field reminder call outcomes.

A total of eight institutions opted for post field reminder calls in the 2022 GOS collection cycle. Post field reminder calls were made to 9.2 per cent of the in-scope sample approached for the 2022 GOS (not shown). Email addresses were confirmed or updated for around a third of all graduates called (29.9 per cent). Outcomes for undergraduates (30.2 per cent collected graduate’s email) and postgraduates (29.5 per cent collected graduate’s email) were comparable. Contact rates were generally higher for post field reminder calls than in field reminder calls. This could be due to differing demographics (in field priority was international graduates) or longer call cycles required to meet institutions’ quoted targets.

For fewer than one in ten (5.6 per cent) of the graduates called, a completed survey could be directly attributed to the post field reminder call. Similar to in field reminder calls, there are survey completions that may be indirectly attributed to post field reminder calls (a further 1.2 per cent of graduates called); this lower rate of indirect completion may be due to the cessation of other engagement activity during the post field period.

Table 10 Post field reminder call outcomes

| Categories | Undergraduate n | Undergraduate % | Postgraduate n | Postgraduate % | Total n | Total % |
| --- | --- | --- | --- | --- | --- | --- |
| Total sample initiated | **19,491** | **100.0** | **14,078** | **100.0** | **33,569** | **100.0** |
| Unusable sample | 274 | 1.4 | 199 | 1.4 | 473 | 1.4 |
| No contact | 13,115 | 67.3 | 9,538 | 67.8 | 22,653 | 67.5 |
| Total contacts | **6,102** | **31.3** | **4,341** | **30.8** | **10,443** | **31.1** |
| Collected graduate’s email | 5,881 | 30.2 | 4,157 | 29.5 | 10,038 | 29.9 |
| Other contact type | 221 | 1.1 | 184 | 1.3 | 405 | 1.2 |
| Completed directly\* | 1,081 | 5.5 | 795 | 5.6 | 1,876 | 5.6 |
| Completed indirectly† | 233 | 1.2 | 174 | 1.2 | 407 | 1.2 |

\* Graduate completed the survey directly via the post field reminder email.

† Given that standard response maximisation initiatives cease at the end of the main online fieldwork period, ‘Completed indirectly for post field reminder calls is defined as: graduate completed the survey by means other than the post field reminder email after being called from post field reminder calls (excludes calls to disconnected phone numbers).

Note: Unusable sample includes wrong numbers, disconnected numbers, not a residential number, fax lines, incoming call restrictions and respondent unreliable.

### Full CATI

Full CATI refers to the completion of the GOS by telephone with a call centre operator, rather than online. Institutions were able to commission full CATI surveys on a fee-for-service basis, to help boost number of completed surveys for their internal reporting purposes only. No institutions commissioned full CATI surveys during the 2022 GOS. As either very few, or no institutions have opted to commission full CATI surveys for the past three GOS collection rounds, consideration should be given to removing it as an offering for future surveys.

### Fieldwork briefing

Call centre operators selected to work on the 2022 GOS in field and post field reminder calls attended a briefing session delivered by the Social Research Centre project management team. Briefings were conducted prior to the commencement of in field and post field activities in each collection round. Additional briefings were conducted throughout fieldwork as required to meet operational needs. The briefings covered an overview of the GOS and QILT, privacy and confidentiality policy, reminder call procedures, and fieldwork timelines.

Each briefing session was followed by a run through of the reminder call script and a training module delivered by the operations team. The training module focused on building skills for respondent liaison and respondent engagement. It made use of interactive learning, utilising call recordings and role-play exercises to tailor response maximisation skills to the GOS.

### Quality control

In field quality monitoring techniques applied to the reminder call components of this project included:

* Listening-in validations conducted in accordance with existing ISO 20252 procedures.
* Monitoring (listening in) by the Social Research Centre project manager and supervisory staff.
* Field team debriefing after the first shift, and thereafter, whenever there was important information to impart to the field team in relation to data quality, consistency of reminder call administration, or project performance.
* Maintenance of an ‘field team handout’ document detailing project performance metrics, graduate liaison techniques and data quality requirements.
* Maintenance of a wiki with answers to common graduate queries.

Quality assurance and applicable standards are discussed further at Section 3.4.3.

### Social media

A social media advertising campaign was conducted to support the GOS response maximisation strategy. To support the administration of the campaign, the research team created an extensive content calendar to plan and schedule posts in advance.

Facebook and Instagram posts were shared on QILT social media accounts (QILT Facebook Page[[1]](#footnote-1) , [QILT Instagram Page](https://www.instagram.com/qilt_src/?hl=en)[[2]](#footnote-2)) to build a baseline social media presence. The campaign included paid Facebook and Instagram ads purchased via Facebook Ads Manager that were timed to coincide with key fieldwork dates. Organic (i.e., unpaid) ads were also shared across the same platforms. Ad content was tailed with calls to action appropriate for each fieldwork milestone (e.g., referencing a ‘chance to win’ during the prize draw period) and built upon themes introduced in the email reminder plan. An example paid ad is shown at Figure 5.

Figure 5 Example social media advertisement



Paid ads were used to build awareness of the GOS by reaching a larger audience than was possible via organic posts on the QILT social media accounts. Ads were targeted to Facebook, Instagram and Messenger users in Australia aged 23 to 40 who matched a range of interests related to higher education. Example interests for targeting included university, international graduates and recent undergraduate study. Delivery of the ads within the target audience was determined by the ‘lowest cost’ bid strategy.

Paid ad campaign outcomes for the 2022 GOS are shown in Table 11. Data for ‘impressions’ is shown, that is, the number of times the ad was on screen, ‘reach’, that is, the number of people who saw the ad at least once and ‘link clicks’, that is, the number of people who clicked on the survey link[[3]](#footnote-3). The audience skewed towards males who comprised most of the impressions (63.8 per cent), reach (62.1 per cent) and link clicks (60.4 per cent). However, the number of impressions for males dropped (63.8 per cent in 2022 compared to 80.2 per cent in 2021), despite the same audience selection criteria being used. Future ad campaigns should continue to ensure that content appeals to relevant subsections of the selected audience, such as males, who were underrepresented by -6.7 per cent in the 2022 collection round (refer to Section 7.2).

Table 11 Paid ad campaign outcomes by gender

| Categories | Impressions n | Impressions % | Reach n | Reach % | Link clicks n | Link clicks % |
| --- | --- | --- | --- | --- | --- | --- |
| Total audience | 1,033,355 | 100.0 | 373,780 | 100.0 | 268 | 100.0 |
| Female | 341,287 | 33.0 | 133,468 | 35.7 | 96 | 35.8 |
| Male | 659,365 | 63.8 | 232,184 | 62.1 | 162 | 60.4 |
| Unknown | 32,703 | 3.2 | 8,128 | 2.2 | 10 | 3.7 |

Note: Results are aggregated from ads displayed on the Facebook, Instagram and Messenger platforms.

### Response propensity model

A logistic regression model was used to predict response probabilities (response propensity model) of graduates using a range of sample characteristics (i.e., age, gender, course level, study area, attendance type, locality). The output of the model was a ‘propensity to respond’ score (zero to one) which estimated a graduate’s propensity to complete the survey. The response propensity model was used to strategically target certain engagement activities. Prioritisation of the lowest scoring sample was used for activities designed to increase representation. To maximise total response from an activity, prioritisation could be given to the highest scoring sample.

### Email deliverability testing

Email deliverability was noted as a continuing issue of importance in the *2021 GOS Methodological Report.* For the 2022 GOS, email deliverability processes focused on maximising graduate email engagement by ensuring that all emails avoided delivery to a spam or junk folder. Extensive pre-field testing was also undertaken to ensure that email content was delivering to primary inboxes (such as the ‘primary’ tab in Gmail and ‘focused’ inbox in Outlook).

Actions taken and products used to optimise email deliverability included:

* A dedicated Internet Protocol (IP) address range used only by the Social Research Centre for bulk email delivery. The reputation of this range was maintained year-round to keep the IP addresses ‘warm’. The dedicated range eliminated risks associated with bulk mailing from a shared IP pool.
* During sample cleaning email addresses were validated to reduce bounce rates, thereby minimising the degradation of IP reputation.
* Ongoing maintenance of technical services and policies to meet sender best practice.
* Optimisation of all images, hyperlinks and HTML code used in emails to meet deliverability best practices.
* Pre-field testing of emails across a broad range of mail clients, devices, and providers to confirm and optimise compatibility, display and delivery.
* In field tracking of email deliverability using analytics tools.

## Data collection

### Online survey

The online survey could be accessed by clicking on the link in the email invitation or reminders, via the GOS landing page on the QILT website, via a redirect from the GOS home page, by clicking the link in the SMS, or a redirect from social media ads. Clicking from the email invitation, email reminder or SMS would go directly to the beginning of the survey. From the GOS landing page graduates could log in to the survey with their unique username and password. In-scope graduates without a username and password could ‘authenticate’ their personal details (name, student identification code, date of birth) against the sample information and receive an email invitation with direct survey link and login details. Alternatively, in-scope graduates without login details could gain access to the survey by contacting the GOS helpdesk.

Online survey presentation was informed by accessibility guidelines and other relevant resources, with standard features including:

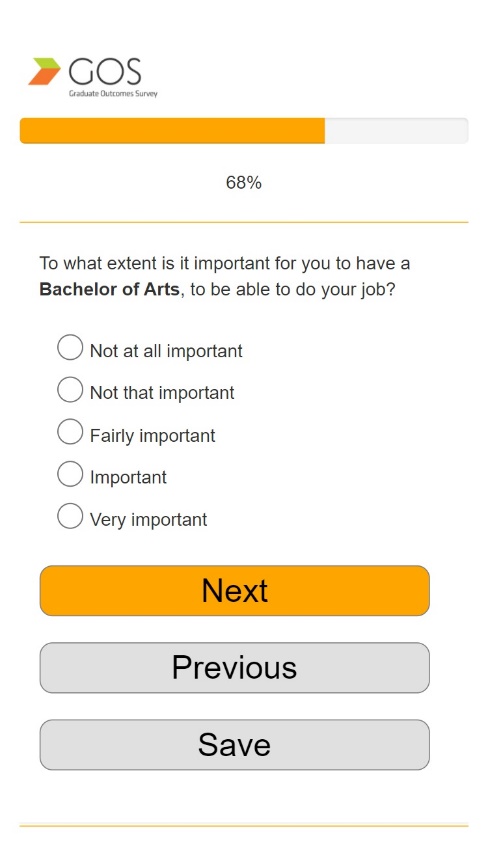
* Optimisation for small screen devices
* Consistent presentation and placement of “Next” and “Previous” buttons.
* Input controls and internal logic / validation checks.
* Tailoring error messages as appropriate.
* Splitting long statement batteries over several screens to reduce the number of items that require vertical scrolling on a desktop.
* Sizing the panels for free text responses commensurate with the level of detail required in the response.
* Automatically ‘saving’ with progression to the next screen.
* The capacity to save and return to finish off at another time, resuming at the last question viewed.

The survey look and feel was customised to be consistent with QILT branding guidelines, including the use of the GOS logo and colour scheme. This ensured consistency with the look of the email invitation and reminders, advertisements placed on Facebook, and the QILT website. Refer to Figure 6 and Figure 7 for examples of the online survey look and feel on desktop and mobile.

Figure 6 Presentation of the GOS online survey on a desktop device



Figure 7 Presentation of the GOS online survey on a small screen device



### Survey testing

Standard operational checks of the online survey were conducted pre-field to ensure implementation aligned with the intended questionnaire design.

In addition to these standard checks, institutions with additional items (refer to Section 4.3.1) were sent test links to facilitate testing and sign off on their items prior to field launch.

The survey was soft launched each collection round with NUHEI graduates, a small component of the total population. Data was checked following the soft launch to ensure all survey sequencing was functioning as intended. No issues were identified during the soft launch data checks and the main survey launch proceeded as scheduled for each collection round. To further ensure the survey data quality, checks were repeated on the data following the main launch.

### Quality assurance and applicable standards

All aspects of the GOS were undertaken in accordance with the Privacy Act (1988) and the Australian Privacy Principles contained therein, the Privacy (Market and Social Research) Code 2021, the Research Society’s Code of Professional Behaviour, and ISO 20252 standards. All senior QILT staff are full members of the Research Society or maintain professional membership relevant to their role and the Social Research Centre is also a member of the Australian Data and Insights Association (ADIA, formerly Association of Market and Social Research Organisations). All sensitive or personally identifiable information such as sample and data were transferred using the QILT Secure File Exchange (SFX).

### Monitoring and progress reporting

Weekly fieldwork update emails were sent to institutions outlining the response rate that had been achieved and how the individual institution compared to the overall response rate, their cohort (university or NUHEI) average, and the prior year’s results.

The department was provided with weekly updates covering survey launch, in field milestones and the response rate of institutions overall.

### Live online reporting module

In addition to weekly updates, the department was provided with access to a specially designed ‘live’ online reporting module which provided an overview of response rates for each institution and a national average of universities and NUHEIs. Results were provided in real time and included a summary of sample outcomes and response by institution.

Institutions were also able to monitor their progress through a subset of the reporting module. Each institution was provided with their own login which allowed institutions to track their sample outcomes and response rates split by a selection of key demographics.

Summary tables could be downloaded in CSV format by the department and institutions. Institutions also had the option of downloading sample outcomes at the unit record level. The reporting module enabled institutions to monitor response, identify underperforming demographic groups and target engagement activity based on live sample outcomes.

## Graduate support

The Social Research Centre maintained a GOS helpdesk for the duration of the 2022 GOS fieldwork to provide graduates an avenue to contact the GOS team. The helpdesk featured a 1800 number and a GOS inbox and responded to queries within one business day. The 1800 number was also available to international graduates (with an international dialling code) and remained operational for the duration of the overall fieldwork period. The helpdesk was staffed seven days a week during call centre operational hours and all calls outside these hours were routed to a voicemail service. A QILT inbox was also maintained year-round, managed by the QILT administration team and staffed during business hours.

The GOS helpdesk team was briefed on the GOS background, procedures and questionnaire enabling them to answer a wide range of queries. To further support the helpdesk, a database was made available to the team to enable them to look up graduate information and survey links, as well as providing a method for logging all contacts. All opt-outs and out-of-scopes received via the helpdesk were removed from the in-scope sample to cease further contact with these graduates.

A summary of graduate enquires to the GOS helpdesk is provided at Table 12. In comparison to 2021, there was an increase in contacts to the 1800 number, while contacts to the GOS inbox were comparable to 2021. The increase in contact to the 1800 number was driven by survey queries, which continue to be the most common reason for contacting the GOS helpdesk, accounting for more than half of all enquiries (56.8 per cent). The increased helpdesk contact was driven in part by new inbound telephone software tools that allowed helpdesk operators to more quickly process calls to the 1800 number.

Table 12 Graduate enquiries to the GOS helpdesk

| Type of enquiry | 1800 number n | 1800 number % | GOS Inbox n | GOS Inbox % | Total n | Total % |
| --- | --- | --- | --- | --- | --- | --- |
| Total | **1,151** | **100.0** | **734** | **100.0** | **1,885** | **100.0** |
| Survey query | 758 | 65.9 | 312 | 42.5 | 1,070 | 56.8 |
| Opt-out | 108 | 9.4 | 212 | 28.9 | 320 | 17.0 |
| General query | 78 | 6.8 | 115 | 15.7 | 193 | 10.2 |
| Supervisor contact details query | 153 | 13.3 | 18 | 2.5 | 171 | 9.1 |
| Change of contact details | 17 | 1.5 | 28 | 3.8 | 45 | 2.4 |
| Out-of-scope | 14 | 1.2 | 30 | 4.1 | 44 | 2.3 |
| Other query | 13 | 1.1 | 6 | 0.8 | 19 | 1.0 |
| Deletion or removal request | <5 | 0.2 | 10 | 1.4 | 12 | 0.6 |
| Request for follow up | 8 | 0.7 | <5 | 0.4 | 11 | 0.6 |

## Prize draw

All completing respondents were entered into a four-week rolling prize draw in each collection round of the 2022 GOS collection cycle (refer to Table 13). The rolling prize draw was designed to encourage early survey completion by offering more chances to win the earlier the survey was completed (e.g., if the survey was completed by the end of the first week, the respondent would be entered into all four prize draws). The terms and conditions of the prize draw were available on the Social Research Centre’s website and were provided in all email communications sent to graduates.

The total prize money available for the 2022 GOS survey collection was divided into national and state-based prize pools, with an equitable split based on institutional representation in the sample. In compliance with State and Territory gaming and lottery legislation, prize draw winners were notified in writing, by phone (if necessary) and published on the QILT Facebook and Instagram pages. Winners were published on the same day as the prize draw was conducted. All prizes were awarded as a prepaid VISA e-gift card.

Table 13 Prize draw pool and schedule

| Categories | November 2021 | February 2022 | May 2022 |
| --- | --- | --- | --- |
| Prize pool - Total weekly prize pool | $6,750 | $1,500 | $9,250 |
| Prize pool - Weekly $1,000 prize pool | $3,000 | $1,000 | $3,000 |
| Prize pool - Weekly $500 prize pool | $2,500 | - | $2,500 |
| Prize pool - Weekly $250 prize pool | $1,250 | $500 | $3,750 |
| Prize draw activity - Prize draw period opens / Fieldwork starts | 26-Oct-21 | 1-Feb-22 | 26-Apr-22 |
| Prize draw activity - Prize draw 1 close | 1-Nov-21 | 7-Feb-22 | 2-May-22 |
| Prize draw activity - Prize draw conducted | 3-Nov-21 | 9-Feb-22 | 4-May-22 |
| Prize draw activity - Prize draw 2 close | 8-Nov-21 | 14-Feb-22 | 9-May-22 |
| Prize draw activity - Prize draw conducted | 10-Nov-21 | 16-Feb-22 | 11-May-22 |
| Prize draw activity - Prize draw 3 close | 15-Nov-21 | 21-Feb-22 | 16-May-22 |
| Prize draw activity - Prize draw conducted | 17-Nov-21 | 23-Feb-22 | 18-May-22 |
| Prize draw activity - Prize draw 4 close | 22-Nov-21 | 28-Feb-22 | 23-May-22 |
| Prize draw activity - Prize draw conducted | 24-Nov-21 | 2-Mar-22 | 25-May-22 |

Note: Results are aggregated from ads displayed on the Facebook, Instagram and Messenger platforms.

# Questionnaire

## Development

The 2022 GOS questionnaire was based on the 2021 instrument, with standard operational updates made to align the questionnaire with current reference periods.

Following the removal of the CEQ and Graduate Attributes Scale (GAS) as core items in the 2021 GOS, institutions wanting to retain these measures were able to include them on a fee-for-service basis in the 2022 GOS (refer to Section 4.3.3).

In addition to the core questionnaire changes, institutions were able to add, modify or remove their additional items for each collection round. Institutions were also given the option of including stakeholder items for the full GOS year (refer to Section 4.3.2).

## Overview

Table 14 outlines the thematic areas of the eight main modules in the questionnaire. The design of the GOS instrument was modular, with items essential to response analysis (Labour force, Further study) positioned early in the questionnaire and other core item modules positioned before additional items (Module F). Items related to future contact details and further research were delivered in the final two modules. Refer to the *2022 ESS Methodological Report* for a full description of ESS bridging (Module X).

Table 14 GOS module themes

| Module | Themes |
| --- | --- |
| Module A | Introduction, screening and confirmation |
| Module B | Labour force |
| Module C | Further study |
| Module D | Graduate Attributes – Overall satisfaction/PREQ |
| Module E | Graduate preparation |
| Module F | Additional items |
| Module G | Contact details |
| Module X | ESS bridging |

## Changes from 2021

The main changes to the core questionnaire are presented below:

* Moved *FURINST* to be asked prior to *FURQUAL* to improve flow.
* Updated *FURFOE* to ask ‘main’ rather than ‘major’ field of education to better convey question intent and reduce confusion amongst graduates who do not have a formal major.
* Added descriptive text to the *FURFOE* code frame (e.g., clarifying that ‘Natural and Physical Sciences’ option included Maths, Biological and Medical Science study areas) to improve data quality.
* Altered *COUNTRYX* to collect data using a lookup list rather than response frame to improve respondent experience and data quality and align the operational design of this item to *OSCOUNTRY.*
* Removed *CATCH* as the item was no longer considered relevant for the 2022 GOS collection round.

### Institution items

A total of 16 institutions (14 universities and 2 NUHEIs) included institution specific items in the 2022 GOS. Institution specific items can be the same or a variation on questions included in prior collection rounds of the GOS, or new questions entirely. Content covered by institution specific items included questions relating to the net promoter score, work preparedness, further study plans, graduate job search, time spent in internships, volunteering and other co-curricular activities. Currently, institution specific items do not fall under any data sharing arrangements and are therefore only included in the respective institution data files.

### Stakeholder items

Stakeholders including the Australian Association of Graduate Employers (AAGE), Australian Collaborative Education Network Limited (ACEN), and Optometry Council of Australia and New Zealand (OCANZ) included items in the 2022 GOS. Content covered by the stakeholder items included employment pathways, work integrated learning and preparedness of optometry graduates. Institutions were invited to participate in these items, where applicable, by each of the relevant stakeholders.

### Retired items

When confirming participation in a collection round of the 2022 GOS, institutions were also able to nominate participation in the CEQ and / or GAS on a fee-for-service basis. In total, 40 institutions (19 universities, 21 NUHEIs) opted to include the CEQ, and 37 institutions (22 universities and 15 NUHEIs) opted to include the GAS.

# Data preparation

## Definition of the analytic unit

The analytic unit for the GOS was the graduate. The data file contained one record for each respondent to the survey.

In the 2022 GOS data set, a record was considered complete if the graduate had:

* provided a response as to whether they had worked in the last week, or
* responded that they were in further study, and
* did not disqualify themselves at the start of the survey (e.g., did not study the named course at the named institution).

## Data cleaning and preparation

Data preparation occurred on the raw data file exported from the data collection platform with derivations, re-coding and cleaning routines applied, including:

* Derivation of labour force status, salary and other reporting outcome variables based on the Australian Bureau of Statistics (ABS) standards (derivations are documented in the *2022 GOS* *Data Dictionary*,available to institutions on the QILT provider portal).
* Re-coding value labels where required.
* Re-coding of ‘no answers’ to the missing values conventions.
* Cleaning of employer name.
* Coding of occupation, industry and further study field of education.

## Coding and processing of open text responses

Spell checking and light cleaning of free text responses were applied, seeking to remove identifiers and expletives.

Table 15 summarises the items where industry standard frames were applied for the coding of free text responses. For items with free text responses not associated with an industry standard frame, code frames and back-coding rules were developed in conjunction with, and approved by the department, and were largely unchanged from previous iterations of the GOS.

Table 15 Items coded and source for coding decisions

| Item coded | Code frame source |
| --- | --- |
| Course A Major(s) field of education, Course B Major(s) field of education | Field of education was coded using the Australian Standard Classification of Education (ASCED, 2001, ABS catalogue number 1272.0) at the six-digit level. |
| Occupation | Occupation was coded using the Australian and New Zealand Standard Classification of Occupations (ANZSCO, Version 1.3, 2013, ABS catalogue number 1220.0) |
| Industry | Industry was coded using the Australia and New Zealand Standard Classification of Occupations (ANZSIC, 2006 Revision 2.0, ABS catalogue number 1292.0) |
| Country employer / business is based | For graduates working overseas, country of employment was coded using the Standard Australian Classification of Countries (SACC, 2016, Second edition, ABS catalogue number 1269.0). |
| Further study field of education | Field of education was coded using the Australian Standard Classification of Education (ASCED, 2001, ABS catalogue number 1272.0) at the single digit level. |
| Overseas country location | For graduates living overseas, country of residence was coded using the Standard Australian Classification of Countries (SACC, 2016, Second edition, ABS catalogue number 1269.0). |

## Data deliverables

The Social Research Centre provided institutions and the department the following data deliverables at the completion of the 2022 GOS collection cycle:

* Institution data files and final population files in CSV and SPSS format as a standard, and in SAS format for institutions specifically requesting this format.
* Department national data file and national final population file in CSV, SPSS and SAS format.
* Data dictionary and data map.
* Fieldwork and data package summary in MS Word format.
* Files in Tableau packaged workbook format at the national (department), institution, Universities Australia and Independent Higher Education Australia level.
* Files of verbatim responses to open-ended questions in MS Excel, at the national (department) and institution level.
* *ComparED Website Tables*, *National Report Tables*, *International Report Tables*.

## Weighting

As was the case for previous surveys in the series, no weights were applied to the GOS data. Details of testing of the effect of weighting GOS data by comparing weighted and unweighted estimates for key measures are provided in the *2019 GOS Methodological Report* and show that the differences between weighted and unweighted estimates are small at the national level. Following this historical precedent, 2022 GOS results remain unweighted.

# Final dispositions, response rates and reportable strata

## Final dispositions and response rates

Table 16 shows the final survey outcomes at an overall level and for each collection round of the 2022 GOS collection cycle.

For the QILT suite of surveys, ‘response rate’ is defined as completed surveys (refer to Section 5.1) as a proportion of final sample, where final sample is the total sample excluding unusable sample (e.g., no contact details), out-of-scope and opted-out. This definition of response rate differs from industry standards by treating certain non-contacts and refusals as being ineligible for the response rate calculation (see American Association for Public Opinion Research 2016 for standard definitions of response rates).

The final response rate for the 2022 GOS collection cycle was 39.4 per cent, which was 1.0 percentage point lower than the final response rate achieved in 2021 (40.4 per cent). The response rate was higher for universities (39.4 per cent) than NUHEIs (38.9 per cent) in 2022.

When reviewing response rate by course type, postgraduate research had the highest response rate (65.4 per cent), followed by undergraduate (38.7 per cent) and then postgraduate coursework (38.6 per cent). Consistent with previous surveys in the series, the May collection round saw the highest overall response rate (40.2 per cent), followed by February (38.3 per cent) and November (38.2 per cent).

Table 16 Final survey outcomes

| Institution | Total sample | Unusable sample | Out-of-scope | Opted-out | In-scope sample approached | Surveys completed | Response rate (%) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2022 GOS overall: Total | 363,248 | 782 | 589 | 28,599 | 333,278 | 131,311 | 39.4 |
| Universities | 330,982 | 701 | 443 | 25,651 | 304,187 | 119,989 | 39.4 |
| NUHEIs | 32,266 | 81 | 146 | 2,948 | 29,091 | 11,322 | 38.9 |
| 2022 GOS overall: Course type |  |  |  |  |  |  |  |
| Undergraduate | 198,335 | 413 | 297 | 16,504 | 181,121 | 70,071 | 38.7 |
| Postgraduate | 164,913 | 369 | 292 | 12,095 | 152,157 | 61,240 | 40.2 |
| Postgraduate coursework | 155,246 | 310 | 274 | 11,653 | 143,009 | 55,261 | 38.6 |
| Postgraduate research | 9,667 | 59 | 18 | 442 | 9,148 | 5,979 | 65.4 |
| November 2021: Total | 119,170 | 134 | 289 | 9,004 | 109,743 | 41,946 | 38.2 |
| Universities | 105,482 | 100 | 212 | 7,836 | 97,334 | 37,311 | 38.3 |
| NUHEIs | 13,688 | 34 | 77 | 1,168 | 12,409 | 4,635 | 37.4 |
| November 2021: Course type |  |  |  |  |  |  |  |
| Undergraduate | 56,586 | 57 | 155 | 4,651 | 51,723 | 18,900 | 36.5 |
| Postgraduate | 62,584 | 77 | 134 | 4,353 | 58,020 | 23,046 | 39.7 |
| Postgraduate coursework | 58,383 | 58 | 129 | 4,159 | 54,037 | 20,473 | 37.9 |
| Postgraduate research | 4,201 | 19 | 5 | 194 | 3,983 | 2,573 | 64.6 |
| February 2022: Total | 27,116 | 203 | 61 | 2,167 | 24,685 | 9,461 | 38.3 |
| Universities | 22,660 | 196 | 48 | 1,644 | 20,772 | 8,063 | 38.8 |
| NUHEIs | 4,456 | 7 | 13 | 523 | 3,913 | 1,398 | 35.7 |
| February 2022: Course type |  |  |  |  |  |  |  |
| Undergraduate | 10,220 | 66 | 29 | 829 | 9,296 | 3,325 | 35.8 |
| Postgraduate | 16,896 | 137 | 32 | 1,338 | 15,389 | 6,136 | 39.9 |
| Postgraduate coursework | 14,975 | 119 | 27 | 1,241 | 13,588 | 4,977 | 36.6 |
| Postgraduate research | 1,921 | 18 | 5 | 97 | 1,801 | 1,159 | 64.4 |
| May 2022: Total | 216,962 | 445 | 239 | 17,428 | 198,850 | 79,904 | 40.2 |
| Universities | 202,840 | 405 | 183 | 16,171 | 186,081 | 74,615 | 40.1 |
| NUHEIs | 14,122 | 40 | 56 | 1,257 | 12,769 | 5,289 | 41.4 |
| May 2022: Course type |  |  |  |  |  |  |  |
| Undergraduate | 131,529 | 290 | 113 | 11,024 | 120,102 | 47,846 | 39.8 |
| Postgraduate | 85,433 | 155 | 126 | 6,404 | 78,748 | 32,058 | 40.7 |
| Postgraduate coursework | 81,888 | 133 | 118 | 6,253 | 75,384 | 29,811 | 39.5 |
| Postgraduate research | 3545 | 22 | 8 | 151 | 3364 | 2247 | 66.8 |

## Population for confidence intervals calculations

For the first time in 2022, the survey population as identified in across the three rounds of GOS was used to calculate confidence intervals (CIs). In previous years, the final course completion (PS) file from HEIMS provided by the department was used. The change in 2022 was made because some institutions were still in the process of transitioning to TCSI at the time of GOS data processing, and therefore a course completion extract from TCSI would be incomplete.

The Social Research Centre analysed the impact of this change by comparing the CIs calculated using the 2021 GOS survey population against the CIs calculated using the 2021 Past Course Completions (PS) file provided by the department. It was found that the change of population data had a minimal effect on CIs across institutions. For university undergraduate full-time employment results, the CI range broadened by 1.4 percentage points at most by using the survey population. For overall employment rates, the biggest difference was a widening of 2.2 percentage points.

## Strata meeting the desired level of precision

Table 17 shows the number and proportion of strata meeting the desired level of precision (+/- 7.5 percentage points at the 90 per cent level of confidence) over time, for undergraduates in full-time study. Strata are defined by institution at the 21 study area level. For defining population strata counts, study area is based on the specialisation code as it is in the survey population, and for completed surveys, it is based on course field of education for the graduate’s course or major as assigned by the institution. This results in some minor discrepancies between the graduate’s study area in the population and data files.

Despite a slight decline in response rate for 2022, a higher proportion of reportable strata was observed. In 2022, the proportion of eligible strata that met the desired level of precision (reportable strata), increased to 43.2 per cent, an improvement of 1.5 percentage points from 2021. This was influenced by a decrease of strata meeting the minimum population criteria (n=16 fewer strata below the minimum population) and strata with no completions (n=4 fewer strata with no completed surveys).

Table 17 Strata meeting desired level of precision for undergraduates in full-time study

| Categories | 2019 | 2020 | 2021 | 2022 |
| --- | --- | --- | --- | --- |
| Total strata (n) | **798** | **810** | **821** | **814** |
| Strata below minimum population (n) | 45 | 52 | 64 | 48 |
| Strata with no completed surveys (n) | 20 | 22 | 18 | 14 |
| Eligible strata for reportability (n) | 733 | 736 | 739 | 752 |
| Reportable strata (n) | 355 | 335 | 308 | 325 |
| Reportable strata (%) | **48.4** | **45.5** | **41.7** | **43.2** |

# Response analysis

## Response by time

Table 18, Table 19 and Table 20 illustrate the daily and cumulative response rates (refer to Section 6.1 for a definition) and operational response rates for the main online field period of the November, February and May rounds respectively. Operational response rate is calculated as ‘A completed survey in which all survey items have been responded to, as a proportion of in-scope sample approached’. Key email and SMS engagement activities are overlayed (refer to Section 3.3 for a full schedule by round).

The pattern of response across all reminder activity was broadly similar. The most effective response across all rounds occurred when two forms of communication (i.e., an email and SMS) were sent on the same day, as evidenced by the relative performance of R4/SMS1 and R6/SMS2. The strong daily response reminders timed with prize draws (Reminders 2, 4, 6 and 8) is visible in all rounds, though diminished by Reminder 8. Response was front loaded, with at least half of the final response for each round achieved by day 10 in field.

Table 18 Response rates by date November 2021

| Fieldwork date | Daily fieldwork activity | Daily Response Rate (%) | Daily Operational Response Rate (%) | Cumulative Response Rate (%) | Cumulative Operational Response Rate (%) |
| --- | --- | --- | --- | --- | --- |
| 26-Oct-21 | Auth, Soft-Launch (NUHEIs) | 0.6% | 0.5% | 0.6% | 0.5% |
| 27-Oct-21 | - | 0.1% | 0.1% | 0.8% | 0.6% |
| 28-Oct-21 | Main-Launch (Unis) | 5.3% | 4.6% | 6.1% | 5.3% |
| 29-Oct-21 | - | 1.1% | 0.9% | 7.2% | 6.2% |
| 30-Oct-21 | R1 | 3.3% | 2.8% | 10.5% | 9.0% |
| 31-Oct-21 | - | 1.3% | 1.1% | 11.8% | 10.1% |
| 1-Nov-21 | R2 | 4.3% | 3.6% | 16.1% | 13.8% |
| 2-Nov-21 | - | 0.5% | 0.4% | 16.6% | 14.2% |
| 3-Nov-21 | - | 0.2% | 0.2% | 16.8% | 14.4% |
| 4-Nov-21 | R3 | 2.4% | 2.0% | 19.2% | 16.4% |
| 5-Nov-21 | - | 0.6% | 0.5% | 19.9% | 16.9% |
| 6-Nov-21 | - | 0.3% | 0.2% | 20.1% | 17.1% |
| 7-Nov-21 | - | 0.3% | 0.2% | 20.4% | 17.3% |
| 8-Nov-21 | R4, SMS1 | 4.6% | 3.9% | 25.0% | 21.3% |
| 9-Nov-21 | - | 0.6% | 0.4% | 25.6% | 21.7% |
| 10-Nov-21 | R5 | 2.0% | 1.6% | 27.6% | 23.3% |
| 11-Nov-21 | - | 0.5% | 0.4% | 28.1% | 23.7% |
| 12-Nov-21 | - | 0.2% | 0.2% | 28.4% | 23.9% |
| 13-Nov-21 | - | 0.1% | 0.1% | 28.5% | 24.0% |
| 14-Nov-21 | - | 0.2% | 0.1% | 28.7% | 24.2% |
| 15-Nov-21 | R6, SMS2 | 3.1% | 2.4% | 31.7% | 26.6% |
| 16-Nov-21 | - | 0.4% | 0.3% | 32.1% | 26.8% |
| 17-Nov-21 | - | 0.2% | 0.1% | 32.3% | 27.0% |
| 18-Nov-21 | - | 0.1% | 0.1% | 32.4% | 27.0% |
| 19-Nov-21 | R7 | 1.0% | 0.7% | 33.4% | 27.8% |
| 20-Nov-21 | - | 0.2% | 0.1% | 33.6% | 27.9% |
| 21-Nov-21 | - | 0.1% | 0.1% | 33.7% | 28.0% |
| 22-Nov-21 | R8 | 1.6% | 1.2% | 35.3% | 29.2% |
| 23-Nov-21 | - | 0.2% | 0.2% | 35.6% | 29.4% |
| 24-Nov-21 | - | 0.1% | 0.1% | 35.7% | 29.4% |
| 25-Nov-21 | R9 | 1.2% | 0.8% | 36.9% | 30.2% |
| 26-Nov-21 | - | 0.2% | 0.1% | 37.1% | 30.4% |
| 27-Nov-21 | - | 0.1% | 0.0% | 37.2% | 30.4% |
| 28-Nov-21 | Online fieldwork close | 0.1% | 0.0% | 37.3% | 30.5% |

Note: ‘-‘ indicates no fieldwork activity

Table 19 Response rates by date February 2022

| Fieldwork date | Daily fieldwork activity | Daily Response Rate (%) | Daily Operational Response Rate (%) | Cumulative Response Rate (%) | Cumulative Operational Response Rate (%) |
| --- | --- | --- | --- | --- | --- |
| 1-Feb-22 | Auth, Soft-Launch (NUHEIs) | 0.9% | 0.8% | 0.9% | 0.8% |
| 2-Feb-22 | - | 0.2% | 0.2% | 1.1% | 1.0% |
| 3-Feb-22 | Main-Launch (Unis) | 5.5% | 4.7% | 6.6% | 5.7% |
| 4-Feb-22 | - | 1.2% | 1.0% | 7.8% | 6.7% |
| 5-Feb-22 | R1 | 3.5% | 3.1% | 11.3% | 9.8% |
| 6-Feb-22 | - | 1.5% | 1.4% | 12.9% | 11.1% |
| 7-Feb-22 | R2 | 4.6% | 4.0% | 17.5% | 15.2% |
| 8-Feb-22 | - | 0.6% | 0.5% | 18.1% | 15.6% |
| 9-Feb-22 | - | 0.2% | 0.2% | 18.3% | 15.8% |
| 10-Feb-22 | R3 | 2.5% | 2.1% | 20.8% | 17.9% |
| 11-Feb-22 | - | 0.5% | 0.4% | 21.3% | 18.3% |
| 12-Feb-22 | - | 0.2% | 0.2% | 21.6% | 18.5% |
| 13-Feb-22 | - | 0.2% | 0.1% | 21.7% | 18.6% |
| 14-Feb-22 | R4, SMS1 | 4.2% | 3.5% | 26.0% | 22.1% |
| 15-Feb-22 | - | 0.4% | 0.3% | 26.4% | 22.4% |
| 16-Feb-22 | R5 | 1.8% | 1.3% | 28.2% | 23.8% |
| 17-Feb-22 | - | 0.4% | 0.3% | 28.6% | 24.1% |
| 18-Feb-22 | - | 0.2% | 0.2% | 28.8% | 24.3% |
| 19-Feb-22 | - | 0.1% | 0.1% | 28.9% | 24.3% |
| 20-Feb-22 | - | 0.1% | 0.1% | 29.0% | 24.4% |
| 21-Feb-22 | R6, SMS2 | 2.7% | 2.1% | 31.7% | 26.5% |
| 22-Feb-22 | - | 0.5% | 0.4% | 32.1% | 26.9% |
| 23-Feb-22 | - | 0.2% | 0.1% | 32.3% | 27.0% |
| 24-Feb-22 | - | 0.1% | 0.1% | 32.5% | 27.1% |
| 25-Feb-22 | R7 | 0.9% | 0.7% | 33.4% | 27.8% |
| 26-Feb-22 | - | 0.2% | 0.2% | 33.6% | 28.0% |
| 27-Feb-22 | - | 0.1% | 0.1% | 33.7% | 28.1% |
| 28-Feb-22 | R8 | 1.6% | 1.2% | 35.3% | 29.3% |
| 1-Mar-22 | - | 0.2% | 0.1% | 35.5% | 29.4% |
| 2-Mar-22 | - | 0.1% | 0.1% | 35.7% | 29.5% |
| 3-Mar-22 | R9 | 1.3% | 0.9% | 37.0% | 30.4% |
| 4-Mar-22 | - | 0.3% | 0.2% | 37.3% | 30.6% |
| 5-Mar-22 | - | 0.1% | 0.1% | 37.4% | 30.7% |
| 6-Mar-22 | Online fieldwork close | - | - | - | - |

Note: ‘-‘ indicates no fieldwork activity

Table 20 Response rates by date May 2022

| Fieldwork date | Daily fieldwork activity | Daily Response Rate (%) | Daily Operational Response Rate (%) | Cumulative Response Rate (%) | Cumulative Operational Response Rate (%) |
| --- | --- | --- | --- | --- | --- |
| 26-Apr-22 | Auth, Soft-Launch (NUHEIs) | 0.4% | 0.3% | 0.4% | 0.3% |
| 27-Apr-22 | - | 0.1% | 0.1% | 0.5% | 0.4% |
| 28-Apr-22 | Main-Launch (Unis) | 5.5% | 4.7% | 6.0% | 5.1% |
| 29-Apr-22 | - | 1.3% | 1.2% | 7.3% | 6.3% |
| 30-Apr-22 | R1 | 3.9% | 3.3% | 11.2% | 9.6% |
| 1-May-22 | - | 1.5% | 1.3% | 12.7% | 10.8% |
| 2-May-22 | R2 | 4.6% | 4.0% | 17.3% | 14.8% |
| 3-May-22 | - | 0.6% | 0.5% | 17.9% | 15.3% |
| 4-May-22 | - | 0.2% | 0.2% | 18.1% | 15.4% |
| 5-May-22 | R3 | 2.3% | 1.8% | 20.3% | 17.3% |
| 6-May-22 | - | 0.6% | 0.5% | 20.9% | 17.7% |
| 7-May-22 | - | 0.3% | 0.2% | 21.2% | 17.9% |
| 8-May-22 | - | 0.2% | 0.2% | 21.3% | 18.1% |
| 9-May-22 | R4, SMS1 | 5.0% | 4.2% | 26.4% | 22.3% |
| 10-May-22 | - | 0.5% | 0.4% | 26.9% | 22.7% |
| 11-May-22 | R5 | 2.1% | 1.7% | 29.0% | 24.4% |
| 12-May-22 | - | 0.5% | 0.4% | 29.5% | 24.8% |
| 13-May-22 | - | 0.2% | 0.1% | 29.7% | 24.9% |
| 14-May-22 | - | 0.2% | 0.1% | 29.8% | 25.1% |
| 15-May-22 | - | 0.1% | 0.1% | 30.0% | 25.2% |
| 16-May-22 | R6, SMS2 | 3.3% | 2.7% | 33.3% | 27.8% |
| 17-May-22 | - | 0.3% | 0.3% | 33.6% | 28.1% |
| 18-May-22 | - | 0.2% | 0.1% | 33.8% | 28.2% |
| 19-May-22 | - | 0.1% | 0.1% | 33.9% | 28.3% |
| 20-May-22 | R7 | 1.2% | 0.9% | 35.1% | 29.2% |
| 21-May-22 | - | 0.3% | 0.2% | 35.3% | 29.4% |
| 22-May-22 | - | 0.2% | 0.1% | 35.5% | 29.6% |
| 23-May-22 | R8 | 1.7% | 1.4% | 37.2% | 30.9% |
| 24-May-22 | - | 0.2% | 0.2% | 37.5% | 31.1% |
| 25-May-22 | - | 0.1% | 0.1% | 37.6% | 31.2% |
| 26-May-22 | R9 | 1.5% | 1.0% | 39.1% | 32.2% |
| 27-May-22 | - | 0.3% | 0.2% | 39.3% | 32.3% |
| 28-May-22 | - | 0.1% | 0.1% | 39.4% | 32.4% |
| 29-May-22 | Online fieldwork close | 0.1% | 0.0% | 39.5% | 32.4% |

Note: ‘-‘ indicates no fieldwork activity

## Non-response analysis

This section assesses the extent and impact of non-response bias on estimates made from the 2022 GOS. Non-response bias occurs when persons who respond to the survey are systematically different from those who do not, leading to results that do not accurately reflect the population of interest. The following assessment is approached from several perspectives, by:

Supplementing response rates with measures that account for the composition of respondents compared to the population.

Identifying administrative characteristics of graduates that are most different between respondents and non-respondents and that are most strongly associated with the propensity to respond to the survey.

Determining if adjusting for non-response changes the key GOS indicators.

### Supplementing response rates with indicators of representativeness

Response rate is the most commonly used measure for describing how well a survey performs, since it is simple to calculate and offers a useful indicator of survey quality. It has well known limitations, however (Shlomo et al., 2012[[4]](#footnote-4)), since it does not account for the composition of respondents relative to the population and the subsequent impact of non-response error.

Non-response error occurs when the responding population is considerably different from the in-scope population and there is a substantial degree of non-response, resulting in estimates that do not accurately represent the overall population. This is caused by the fact that, despite ideally everyone having an equal probability of responding, this is not what is observed.

To supplement the use of response rates, indicators of the representativeness of respondents (R-indicators) have been developed (Schouten et al., 2009[[5]](#footnote-5); Schouten et al., 2011[[6]](#footnote-6)). These indicators use modelled probabilities of response to construct an overall measure of how well the responding population represents the in-scope population. There are numerous R-indicators. The one used here is given by the following expression:

where is the standard deviation of the predicted response propensities:

Here, is the number of in-scope graduates, is the response propensity for graduate and is the mean response propensity. The R-indicator can assume any value in the range 0-1, where a value of 1 indicates the most representative response and a value of 0 indicates the least. Values for R are only directly comparable if they are derived using the same model.

For the 2022 GOS, response propensities were predicted by using a random forest model and then calculating the R-indicator for the survey overall. As shown in Table 18, despite a declining response rate, representativeness of the GOS remains reasonably in line with previous years. At most there is a difference of 1.1 per cent in representativeness across the last three years.

Table 21 Comparison of representativeness over past three GOS collection cycles

| Year | Response rate (%) | R-indicator (%) |
| --- | --- | --- |
| 2020 | 42.3 | 73.2 |
| 2021 | 40.4 | 74.3 |
| 2022 | 39.4 | 73.8 |

### Characteristics associated with propensity to respond

For a number of collection cycles, the GOS has made use of predicted response rates to target subgroups of graduates for follow-up activities. Response propensity is defined as the expected likelihood of a graduate responding to the survey, conditional on their characteristic. In contrast, response rate is the percentage of the invited population that completed the survey.

Response propensity is calculated by predicting survey completion conditional upon the characteristics available for both respondents and non-respondents. Characteristics included the following: study area, age, higher education provider, institution type (Group of 8, Other university or NUHEI), institution size, course of study type, type of attendance, citizenship, language spoken at home, country of birth, course level, gender, higher education provider type, disability, and Aboriginal or Torres Strait Islander status. A random forest model was used to predict the response propensity for all sample members. The variable importance chart shown in Table 22 summarises the relative importance of these characteristics in predicting non-response to the GOS, where a longer bar indicates higher importance. The variables consistently most important as predictors of non-response were age, study area, and higher education provider. This information will be considered in the refinement of the contact strategy for future iterations.

Table 22 Relative importance of graduate characteristics in predicting survey response

| Variable | Relative importance |
| --- | --- |
| Age grouping | 100 |
| Study area | 53.4371574 |
| Higher Education Provider name (binned) | 47.5899905 |
| Course of study type code | 31.2050603 |
| Citizenship indicator | 20.0405868 |
| Institution size | 18.9490415 |
| Level of study categorised - with HDR | 18.0651193 |
| Gender | 15.0341822 |
| NESB indicator | 11.2133001 |
| Type of attendance code | 11.0903473 |
| Institute type | 8.07257826 |
| Disability indicator | 5.31262381 |
| Birthplace | 2.0697556 |
| Indigenous indicator | 1.55455778 |
| Higher Education Provider Type | 0 |
| Age grouping | 100 |

### Characteristics associated with non-response

An important assumption of the GOS in using unweighted estimates to make inferences about the population, is that non-response is essentially a random process – there is no systematic pattern of non-response, so that respondents can be treated as representative of non-respondents without risk of bias. A simple way to check this assumption is to compare the profile of respondents with that of non-respondents. The presence of extensive differences between the two groups may show that this assumption is not being met and that some adjustments may be necessary.

The characteristics most associated are described above (refer to Figure 11). These are presented at the overall level, whereas in this section the results of a more detailed analysis of selected characteristics are summarised.

As an illustration of the selected approach to analysis and reporting, Table 19 shows results comparing the distribution of respondents with the distribution of non-respondents for selected characteristics. A positive difference indicates that the specified category was higher among respondents than among non-respondents, and a negative difference indicates that the category was higher among non-respondents. Cohen’s effect size is used in the analysis to demonstrate the significance of these associations. Alongside the difference in proportions is Cohen’s effect size (Cohen, 1992[[7]](#footnote-7)) with a classification into small, medium or large. Results without a stated effect size were ‘so small as to be trivial.’

As an example, overseas graduates made up 27.5 per cent of respondents and 37.3 per cent of non-respondents. The difference of -9.9 per cent indicates that this subgroup was relatively under-represented among respondents compared to non-respondents, with a small but meaningful effect size (0.2). At the same time, domestic graduates were over-represented among respondents (9.9 per cent) with a small but meaningful effect size (0.2). Based on Table 19, citizenship and the age group 20-24 were the only characteristics for which there were notable differences between respondents and non-respondents at the overall level, with the effect categorised as ‘small’. Future GOS rounds should continue to prioritise specific response maximisation activities aimed at engaging international graduates and those in younger age groups.

Table 23 Comparison between respondents and non-respondents for selected characteristics

| Characteristic | Respondents (%) | Non-respondents (%) | Difference  (%) | Cohen’s effect size |
| --- | --- | --- | --- | --- |
| Age: 15-19 years | 1.2 | 1.4 | -0.2 | 0.0 |
| Age: 20-24 years | 41.4 | 52.8 | -11.5 | 0.2 (Small) |
| Age: 25-29 years | 21.6 | 25.1 | -3.4 | 0.1 |
| Age: 30-34 years | 11.5 | 8.4 | 3.0 | 0.1 |
| Age: 35-39 years | 7.9 | 5.0 | 2.9 | 0.1 |
| Age: 40-44 years | 5.6 | 3.0 | 2.6 | 0.1 |
| Age: 45-49 years | 4.4 | 2.1 | 2.3 | 0.1 |
| Age: 50-54 years | 3.0 | 1.1 | 1.9 | 0.1 |
| Age: 55+ years | 3.3 | 0.9 | 2.4 | 0.2 |
| Study area: Science and mathematics | 9.0 | 6.9 | 2.1 | 0.1 |
| Study area: Dentistry | 0.3 | 0.3 | -0.1 | 0.0 |
| Study area: Veterinary science | 0.3 | 0.3 | 0.0 | 0.0 |
| Study area: Rehabilitation | 1.1 | 1.3 | -0.2 | 0.0 |
| Study area: Teacher education | 8.6 | 7.4 | 1.2 | 0.0 |
| Study area: Business and management | 19.5 | 27.3 | -7.8 | 0.2 |
| Study area: Humanities, culture and social sciences | 8.1 | 6.0 | 2.1 | 0.1 |
| Study area: Social work | 2.8 | 1.8 | 1.0 | 0.1 |
| Study area: Psychology | 4.1 | 2.9 | 1.2 | 0.1 |
| Study area: Law and paralegal studies | 4.5 | 4.7 | -0.1 | 0.0 |
| Study area: Creative arts | 2.9 | 3.0 | -0.1 | 0.0 |
| Study area: Computing and Information Systems | 8.1 | 8.7 | -0.6 | 0.0 |
| Study area: Communications | 2.3 | 2.4 | -0.2 | 0.0 |
| Study area: Tourism, Hospitality, Personal Services, Sport and recreation | 0.2 | 0.3 | -0.1 | 0.0 |
| Study area: Engineering | 6.0 | 6.2 | -0.2 | 0.0 |
| Study area: Architecture and built environment | 2.5 | 2.9 | -0.4 | 0.0 |
| Study area: Agriculture and environmental studies | 1.9 | 1.1 | 0.8 | 0.1 |
| Study area: Health services and support | 7.0 | 5.7 | 1.3 | 0.1 |
| Study area: Medicine | 1.6 | 1.8 | -0.2 | 0.0 |
| Study area: Nursing | 8.7 | 8.1 | 0.5 | 0.0 |
| Study area: Pharmacy | 0.5 | 0.6 | -0.1 | 0.0 |
| Country of birth: Australia | 1.6 | 1.4 | 0.1 | 0.0 |
| Country of birth: Other | 98.1 | 98.3 | -0.2 | 0.0 |
| Country of birth: Unable to establish | 0.3 | 0.3 | 0.1 | 0.0 |
| Level of study: Undergraduate | 53.4 | 55.0 | -1.6 | 0.0 |
| Level of study: Postgraduate Coursework | 42.0 | 43.5 | -1.4 | 0.0 |
| Level of study: Postgraduate Research | 4.6 | 1.6 | 3.0 | 0.2 |
| Gender: Female | 61.8 | 55.2 | 6.6 | 0.1 |
| Gender: Male | 38.0 | 44.7 | -6.7 | 0.1 |
| Gender: Unknown | 0.1 | 0.1 | 0.0 | 0.0 |
| Type of attendance: Full-time | 69.3 | 73.9 | -4.7 | 0.1 |
| Type of attendance: Part-time | 29.1 | 24.4 | 4.7 | 0.1 |
| Type of attendance: No information | 1.6 | 1.7 | 0.0 | 0.0 |
| Aboriginal or Torres Strait Islander status: Non indigenous | 98.9 | 99.2 | -0.3 | 0.0 |
| Aboriginal or Torres Strait Islander status: Indigenous | 1.1 | 0.8 | 0.3 | 0.0 |
| Language spoken at home: English speaking background | 79.8 | 72.3 | 7.4 | 0.2 |
| Language spoken at home: Non-English speaking background | 20.2 | 27.7 | -7.4 | 0.2 |
| Citizenship: Domestic | 72.5 | 62.7 | 9.9 | 0.2 (Small) |
| Citizenship: Overseas | 27.5 | 37.3 | -9.9 | 0.2 (Small) |
| Disability: No disability | 93.7 | 95.7 | -2.0 | 0.1 |
| Disability: Has a disability | 6.3 | 4.3 | 2.0 | 0.1 |
| Higher education provider type: University | 92.0 | 91.7 | 0.2 | 0.0 |
| Higher education provider type: NUHEI | 8.0 | 8.3 | -0.2 | 0.0 |
| Institution size: 1-3000 records | 14.8 | 13.6 | 1.3 | 0.0 |
| Institution size: 3001-6000 records | 22.7 | 20.9 | 1.9 | 0.0 |
| Institution size: 6001-9000 records | 21.8 | 21.1 | 0.7 | 0.0 |
| Institution size: 9001-12500 records | 17.2 | 18.7 | -1.5 | 0.0 |
| Institution size: 12501+ records | 23.5 | 25.9 | -2.4 | 0.1 |
| Institution type: Group of 8 | 28.2 | 31.8 | -3.6 | 0.1 |
| Institution type: NUHEI | 8.0 | 8.3 | -0.2 | 0.0 |
| Institution type: Other university | 63.7 | 59.9 | 3.8 | 0.1 |

### Characteristics associated with outcomes

An important consideration when assessing representation is the extent to which unit characteristics are also associated with survey outcomes.[[8]](#footnote-8) For example, if a particular subgroup of the population is under-represented among respondents, any non-response error may be compounded if the subgroup also gives notably different responses to survey outcomes compared to other groups. In such a situation, estimates made from the survey would potentially be biased.

Using a similar approach to that outlined at Section 7.2.1, it can be determined which characteristics have strong associations with outcome variables. First, using a random forest model the outcome measures from respondent characteristics at the overall level was predicted. The relative importance of variables was reasonably consistent across key survey outcome measures in 2022 and is shown in Table 20.[[9]](#footnote-9)

It is noted that age and citizenship, which had notable differences between the responding and non-responding sample (refer to Table 19) are strongly associated with core outcomes (refer to Table 20).

Table 24 Relative importance of graduate characteristics in predicting survey outcomes

| Variable Label | Scale of Perceived Over-qualification (SPOQ) indicator | General employment indicator | Part-time employment indicator | Full-time employment indicator |
| --- | --- | --- | --- | --- |
| Study area | 100.0 | 91.5 | 100.0 | 100.0 |
| Citizenship | 83.8 | 100.0 | 12.4 | 39.2 |
| Higher education provider name | 70.7 | 69.2 | 58.8 | 49.8 |
| Age | 68.8 | 73.0 | 53.6 | 52.7 |
| Course of study type | 55.3 | 59.9 | 41.5 | 51.1 |
| Language spoken at home | 37.7 | 45.9 | 6.9 | 14.9 |
| Institution size | 27.1 | 28.5 | 23.9 | 19.0 |
| Level of study | 22.4 | 24.4 | 14.2 | 29.4 |
| Type of attendance | 15.9 | 17.2 | 13.7 | 13.0 |
| Gender | 14.0 | 15.0 | 26.5 | 15.0 |
| Disability | 6.2 | 13.1 | 6.7 | 8.3 |
| Institution type | 6.2 | 15.0 | 8.4 | 6.6 |
| Aboriginal or Torres Strait Islander status | 0.6 | 0.5 | 0.6 | 0.0 |
| Country of birth | 0.3 | 1.1 | 1.9 | 0.6 |
| Higher education provider type | 0.0 | 0.0 | 0.0 | 1.5 |

In summation, it is apparent that overall representativeness has remained fairly stable over the past three GOS rounds. When looking at particular graduate characteristics important for predicting survey response, age, study area and higher education provider (in that order) appear as the top three areas of interest. Future GOS rounds should continue to prioritise specific response maximisation activities aimed at engaging graduates with these characteristics. Refer to Section 8 for further discussion about considerations for future surveys.

## Sources of response

Table 25 (on the next page) summarises the breakdown of online survey completion methods and includes sources of response by gender, age, and citizenship due to the variation in method of accessing the survey within these groups. As only minimal differences were observed when reviewing source of response by institution type or course level, these groups are not displayed.

Survey completion via the direct link in email communications was most popular for all subgroups. However, males, those aged 30 or under, and international graduates were less likely to respond via a link in an email communication than females, those over 30 and domestic graduates respectively. Completing via the direct link in SMS was the next most popular method of response amongst most subgroups, except international graduates. Completion via SMS was more likely among females, those aged under 30 and domestic graduates.

In field reminder calls were targeted at international graduates in the 2022 GOS in support of the International Engagement Strategy, which accounts for the high proportion of international graduates responding via this contact method.

This highlights the continued need to preference other communication methods, including SMS and in field reminder calls, over extensive email contact for these subgroups.

It should be noted that only completed surveys directly attributable to the in field reminder calls, post field reminder calls and SMS are recorded as such in Table 25. It is possible that, for example, reminder call activity may prompt a graduate to click on the direct survey link in an email they had previously received. In this context, the analysis presented at Table 25 should only be considered indicative. It should also be noted that the opportunity to complete via each method was not necessarily equal between subgroups.

Table 25 Sources of response

| Categories | Total % | Gender Female % | Gender Male % | Age 30 or under % | Age Over 30% | Citizenship indicator Domestic % | Citizenship indicator International % |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Final response rate | **39.4** | **42.1** | **35.6** | **34.8** | **53.9** | **42.9** | **32.4** |
| Authentication | 0.4 | 0.4 | 0.4 | 0.5 | 0.2 | 0.4 | 0.4 |
| Type in | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.1 |
| Survey link (email) | 89.0 | 89.7 | 87.9 | 87.7 | 91.8 | 91.2 | 83.4 |
| Survey link (SMS) | 6.2 | 6.5 | 5.8 | 6.3 | 6.0 | 6.6 | 5.2 |
| In field reminder calls | 2.4 | 1.7 | 3.5 | 3.2 | 0.6 | <0.1 | 8.6 |
| Post field reminder calls | 1.4 | 1.2 | 1.9 | 1.7 | 0.9 | 1.3 | 1.8 |
| SMS fee-for-service | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | 0.5 | 0.4 |

## Sample retention for GOS-L

Graduates were generally open to being contacted for future research across all 2022 GOS collection rounds, which is the point at which sample is built for the GOS-L.

As shown in Table 22, a total of 76,568 graduates, or more than half (58.0 per cent) of all GOS completes, agreed to be contacted for future research purposes. This level of agreement was comparable to 2021 (58.2 per cent). Improved understanding of factors correlated with consent to recontact should remain an area of interest to achieve further growth of the GOS-L sample base.

Fewer than one in five graduates (19.3 per cent) did not provide a response to the ‘consent to future contact’ question, by either choosing not to provide a response or stopping the survey before seeing the ‘consent to future contact’ question.

To ensure the efficacy of the GOS-L sample build process, consideration should be given to resuming the administration of a ‘panel maintenance’ survey to graduates who consented to contact for further research in the GOS. This survey would give graduates to correct or update their best contact details ahead of their respective GOS-L collection.

Table 26 Graduate responses to further contact for GOS-L

| Sample retention phase | November  2021 n | November  2021 % | February  2022 n | February  2022 % | May  2022n | May  2022 | Total n | Total % |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Consent to contact at GOS-L: Yes | 24,066 | 57.0 | 5,588 | 59.2 | 46,914 | 58.4 | 76,568 | 58.0 |
| Consent to contact at GOS-L: No | 9,842 | 23.3 | 2,069 | 21.9 | 18,068 | 22.5 | 29,979 | 22.7 |
| Consent to contact at GOS-L: Missing | 8,311 | 19.7 | 1,777 | 18.8 | 15,349 | 19.1 | 25,437 | 19.3 |
| Consent to contact at GOS-L: Total | 42,219 | 100.0 | 9,434 | 100.0 | 80,331 | 100.0 | 131,984 | 100.0 |
| Details provided for GOS-L sample: Permanent email address is as used in GOS | 22,450 | 78.8 | 5,444 | 84.7 | 44,056 | 80.8 | 71,950 | 80.5 |
| Details provided for GOS-L sample: New permanent email address provided | 3,858 | 13.5 | 557 | 8.7 | 6,562 | 12.0 | 10,977 | 12.3 |
| Details provided for GOS-L sample: Don’t have a permanent email address | 251 | 0.9 | 41 | 0.6 | 359 | 0.7 | 651 | 0.7 |
| Details provided for GOS-L sample: Do not wish to be re-contacted by email | 554 | 1.9 | 74 | 1.2 | 1,032 | 1.9 | 1,660 | 1.9 |
| Details provided for GOS-L sample: Missing | 1,370 | 4.8 | 310 | 4.8 | 2,506 | 4.6 | 4,186 | 4.7 |
| Details provided for GOS-L sample: Total | **28,483** | **100.0** | **6,426** | **100.0** | **54,515** | **100.0** | **89,424** | **100.0** |

Note: The responses shown here are raw and derived before data processing in accordance with the definition of the analytic unit is undertaken (refer to Section 5.1), as such total completes will not align to figures presented earlier in the report.

# Considerations for future surveys

## Enhanced SMS protocol

A sophisticated SMS contact protocol provides the opportunity to drive response at an overall level. While SMS has become an integral part of the GOS contact protocol (refer to Section 3.3.3), there may still be opportunities to maximise response through novel refinements to the SMS protocol. Potential opportunities include:

Introducing a third SMS, sent to all non-respondents, as a standard component of the contact protocol,

Experimenting with the day of send for SMS communications. For example, exploring whether an SMS sent earlier in the contact protocol has a beneficial effect on overall response,

Analysing historical SMS response data to identify groups most likely to respond via SMS and considering customisations to further leverage SMS in the contact protocol for these groups, and

As an alternative to the current opt-out mechanism, that is, replying ‘STOP’ to the SMS, recipients could be directed by hyperlink to a landing page. This page would contain information about the GOS in order to avert opt-outs and encourage completions.

With the general prevalence of scam messages, a small number of graduates have queried the legitimacy of survey links used in the GOS SMS. To address these concerns and improve user experience, the following updates will be considered for future SMS sends:

Revise the survey link format presented in SMS to include recognisable branding (i.e., ‘GOS’) as a way of building respondent trust, and

Displaying the sender name as ‘QILT’ or ‘GOS’ rather than the current mobile telephone number to enhance brand recognition.

## Expanded engagement with characteristics of interest

The non-response analysis (refer to Section 7.2) shows that age and citizenship are characteristics which had notable differences between respondents and non-respondents at the overall level. In particular, respondents aged under 30 and graduates with overseas citizenship were identified as underrepresented groups. Additionally, age, study area and higher education provider were identified as the three most important characteristics in predicting survey response.

Tailoring of engagement materials to graduates with specific characteristics has been a component of the GOS response maximisation strategy in recent years. Further development of these materials should focus on appealing to the characteristics mentioned above.

## Revised International Engagement Strategy

The non-response analysis (refer to Section 7.2) shows that international respondents were underrepresented in the 2022 GOS, despite the tailoring of engagement materials for international graduates (refer to Section 3.3.2). For future rounds, the International Engagement Strategy could be revised to better target international graduates from countries of interest to improve representativeness and response.

Completion rates by country of origin could be analysed to identify outliers and engagement activities then refined to ensure they are relevant and appealing. Any change to engagement materials needs to recognise the nuances of the international graduate cohort, rather than a ‘one size fits all’ approach. Whilst it is a simplistic example, exchange students from the United States or the United Kingdom are likely different than full-time students from South Asia and East Asia in terms of their motivations for choosing to study in Australia. As such, engagement materials should highlight and connect with the needs and motivations of graduates from countries of interest.

## Email response tracking

Since its inception, the GOS has utilised industry-standard email response tracking measures for benchmarking and analysing the performance of the email contact protocol. As discussed in Section 3.3.1, new email security measures have clouded email open rate measurements. Further, the continued decline of the overall GOS response rate (refer to Section 1.4) necessitates accurate measures of email performance.

As a solution to these external changes in email tracking and to facilitate planning of response maximisation activities, improvements for the 2023 GOS could include incorporating unique survey links that allow completions to be definitively attributed to each individual email message and expanded mapping of email domains to email service providers.

## GOS-L panel maintenance

The retention of sample for the GOS-L remains a key area of importance (refer to Section 7.4). For the purposes of creating the GOS-L sample, it is important that the most up-to-date contact details are available for graduates who consented to further research. The ‘panel maintenance’ activity should be reintroduced to these graduates to maintain graduate engagement with QILT between completion of the GOS and commencement of GOS-L. Furthermore, improved understanding of factors correlated with consent to recontact should remain an area of interest to achieve further growth of the GOS-L sample base.

## Full CATI removal

No institutions chose to commission full CATI surveys during the 2021 or 2022 GOS collection cycle. To gain efficiencies during fieldwork set-up and reduce administrative burden, the Social Research Centre will no longer be offering full CATI surveys as a fee-for-service option across all QILT surveys.

**List of abbreviations and terms**

**AAGE** Australian Association of Graduate Employers

**ABS** Australian Bureau of Statistics

**ACEN** Australian Collaborative Education Network Limited

**ACMA** Australian Communications and Media Authority

**AGS** Australian Graduate Survey

**ANZSIC** Australian New Zealand Standard Industrial Classification

**ANZSCO** Australian New Zealand Standard Classification of Occupations

**ASCED** Australian Standard Classification of Education

**CATI** Computer Assisted Telephone Interviewing

**CEQ** Course Experience Questionnaire

**CI** Confidence Interval

**ESS** Employer Satisfaction Survey

**GAS** Graduate Attributes Scale

**GOS** Graduate Outcomes Survey

**GOS-L** Graduate Outcomes Survey – Longitudinal

**HEIMS** Higher Education Information Management System

**HESA** Higher Education Support Act

**IP** Internet Protocol

**KPI** Key Performance Indicator

**NUHEI** Non-University Higher Education Institution

**OCANZ** Optometry Council of Australia and New Zealand

**PASF** Participation and Additional Services Form

**PS** Past Course Completions

**QILT** Quality Indicators for Learning and Teaching

**RES** Respondent Engagement Survey

**SACC** Standard Australian Classification of Countries

**TCSI** Tertiary Collection of Student Information

1. https://www.facebook.com/QILT1 [↑](#footnote-ref-1)
2. https://www.instagram.com/qilt\_src/?hl=en [↑](#footnote-ref-2)
3. https://www.facebook.com/business/help/447834205249495 [↑](#footnote-ref-3)
4. “Estimation of an Indicator of the Representativeness of Survey Response. Journal of Statistical Planning and Inference,” Journal of Statistical Planning and Inference, 2012, 201–11. [↑](#footnote-ref-4)
5. “Indicators for the Representativeness of Survey Response,” Dalton Transactions, 2009. [↑](#footnote-ref-5)
6. “Indicators for Monitoring and Improving Representativeness of Response,” *Journal of Official Statistics*, no. 2 (2011): 1–24. [↑](#footnote-ref-6)
7. “Statistical Power Analysis,” *Current Directions in Psychological Science* 1, no. 3 (1992): 98–101, <https://doi.org/10.1111/1467-8721.ep10768783>. [↑](#footnote-ref-7)
8. Andy Peytchev, Stanley Presser, and Mengmeng Zhang, “Improving Traditional Nonresponse Bias Adjustments: Combining Statistical Properties with Social Theory,” *Journal of Survey Statistics and Methodology* 6, no. 4 (January 2018): 491–515, <https://doi.org/10.1093/jssam/smx035>. [↑](#footnote-ref-8)
9. 0 = least important; 100 = most important. [↑](#footnote-ref-9)