2021 Graduate Outcomes Survey - Longitudinal

Methodological Report

September 2021

Report prepared for:

Phil Aungles and Sam Pietsch

Director and Assistant Director

Australian Government Department of Education, Skills and Employment

50 Marcus Clarke St, Canberra ACT 2601

Report prepared by:

Graham Challice, Lauren Spencer, Blair Johnston, Dr Paddy Tobias, Shane Smith and Kinto Behr

Executive Director, Major Projects; Senior Research Director, Survey Methodology; Senior Research Consultant, Major Projects; Project Manager, Major Projects; Manager Data Science, Major Projects; Data Scientist, Major Projects; Data Scientist, Major Projects

The Social Research Centre

Level 9, 277 William Street

MELBOURNE VIC. 3000

Tel: (613) 9236 8500

Fax: (613) 9602 5422

Email: qilt@srcentre.com.au

www.srcentre.com.au

Version: 01

**Contents**

[1. Introduction 1](#_Toc81826968)

[1.1. About this report 1](#_Toc81826969)

[1.2. Background 1](#_Toc81826970)

[1.3. Objectives 1](#_Toc81826971)

[1.4. Overview 2](#_Toc81826972)

[1.5. Project milestones 3](#_Toc81826973)

[2. Sample preparation 4](#_Toc81826974)

[2.1. Target population 4](#_Toc81826975)

[2.2. Institutional participation 4](#_Toc81826976)

[2.3. Sample frame 4](#_Toc81826977)

[2.3.1. Additional populations 4](#_Toc81826978)

[2.4. Sampling preparation overview 5](#_Toc81826979)

[2.4.1. Sample processing quality assurance 6](#_Toc81826980)

[2.4.2. Sample cleaning 6](#_Toc81826981)

[2.4.3. Exclusions 7](#_Toc81826982)

[2.4.4. Coverage 7](#_Toc81826983)

[3. Survey design and procedures 9](#_Toc81826984)

[3.1. Institutional engagement 9](#_Toc81826985)

[3.1.1. Collection and Sample Guide 9](#_Toc81826986)

[3.1.2. Invitation to participate 9](#_Toc81826987)

[3.1.3. Webinars and newsletters 9](#_Toc81826988)

[3.1.4. Ongoing dialogue with institutions 10](#_Toc81826989)

[3.2. Graduate engagement 10](#_Toc81826990)

[3.3. Contact protocol 11](#_Toc81826991)

[3.3.1. Email invitation and reminders 1](#_Toc81826992)

[3.3.1.1. Tailored email contact strategy for international graduates 7](#_Toc81826993)

[3.3.2. SMS reminders 7](#_Toc81826994)

[3.3.2.1. Additional SMS 8](#_Toc81826995)

[3.3.3. Reminder calls 8](#_Toc81826996)

[3.3.3.1. In field telephone reminder calls 9](#_Toc81826997)

[3.3.3.2. Post field telephone reminder calls 10](#_Toc81826998)

[3.3.4. Interviewer briefing 11](#_Toc81826999)

[3.3.5. Quality control 11](#_Toc81827000)

[3.3.6. Social media 11](#_Toc81827001)

[3.4. Data collection 12](#_Toc81827002)

[3.4.1. Online survey 12](#_Toc81827003)

[3.4.1.1. Progress bar 13](#_Toc81827004)

[3.4.2. Survey testing 13](#_Toc81827005)

[3.4.3. Quality assurance and applicable standards 13](#_Toc81827006)

[3.4.4. Monitoring and progress reporting 13](#_Toc81827007)

[3.4.5. Live online Reporting Module 13](#_Toc81827008)

[3.5. Graduate support 14](#_Toc81827009)

[3.6. Prize draw 15](#_Toc81827010)

[4. Questionnaire 17](#_Toc81827011)

[4.1. Development 17](#_Toc81827012)

[4.2. Overview 17](#_Toc81827013)

[4.3. Changes from 2020 17](#_Toc81827014)

[4.4. Additional items 18](#_Toc81827015)

[5. Data preparation 19](#_Toc81827016)

[5.1. Definition of the analytic unit 19](#_Toc81827017)

[5.2. Data cleaning and preparation 19](#_Toc81827018)

[5.3. Coding and processing of free text responses 19](#_Toc81827019)

[5.4. Data deliverables 20](#_Toc81827020)

[5.5. Weighting 20](#_Toc81827021)

[6. Final dispositions and response rates 21](#_Toc81827022)

[7. Response analysis 22](#_Toc81827023)

[7.1. Response by time 22](#_Toc81827024)

[7.2. Non-response analysis 24](#_Toc81827025)

[7.2.1 Characteristics associated with propensity to respond 24](#_Toc81827026)

[7.2.2 Supplementing response rates with indicators of representativeness 25](#_Toc81827027)

[7.2.3 Characteristics associated with non-response 26](#_Toc81827028)

[7.2.4 Characteristics associated with outcomes 29](#_Toc81827029)

[7.3 Sources of responses 30](#_Toc81827030)

[8. Considerations for future surveys 32](#_Toc81827031)

[8.1. International graduate engagement 32](#_Toc81827032)

[8.2. Panel maintenance activity 32](#_Toc81827033)

[8.3. Sample contact information 32](#_Toc81827034)

[8.4. Email deliverability 32](#_Toc81827035)

[List of abbreviations and terms 34](#_Toc81827036)

[References 35](#_Toc81827037)

**List of tables**

[Table 1 Key project statistics 2](#_Toc81827038)

[Table 2 Key project milestones 3](#_Toc81827039)

[Table 3 Coverage of population to sample 7](#_Toc81827040)

[Table 4 Invitation and reminder schedule 1](#_Toc81827041)

[Table 5 Email plan message intent 3](#_Toc81827042)

[Table 6 Email send outcomes by round of activity 5](#_Toc81827043)

[Table 7 Characteristics of graduates who did not open emails against the total in-scope sample 6](#_Toc81827044)

[Table 8 SMS based follow-up activity outcomes 8](#_Toc81827045)

[Table 9 In field telephone reminder outcomes 9](#_Toc81827046)

[Table 10 Post field telephone reminder outcomes 10](#_Toc81827047)

[Table 11 Facebook campaign outcomes by gender 12](#_Toc81827048)

[Table 12 Graduate enquiries to the GOS-L helpdesk 15](#_Toc81827049)

[Table 13 Prize draw schedule 15](#_Toc81827050)

[Table 14 GOS-L module themes 17](#_Toc81827051)

[Table 15 Items coded and source for coding decisions 20](#_Toc81827052)

[Table 16 Final survey outcomes 21](#_Toc81827053)

[Table 17 Response rates by day 22](#_Toc81827054)

[Table 18 Relative importance of graduate characteristics in predicting survey response in 2021 25](#_Toc81827055)

[Table 19 Comparison of representativeness over past three GOS-L rounds 26](#_Toc81827056)

[Table 20 Comparison between respondents and non-respondents for selected characteristics 27](#_Toc81827057)

[Table 21 Relative importance of graduate characteristics in predicting survey outcomes in 2021 29](#_Toc81827058)

[Table 22 Sources of response 30](#_Toc81827059)

# Introduction

## About this report

This *Methodological Report* describes the sample preparation, data collection, data processing and reporting aspects of the 2021 Graduate Outcomes Survey – Longitudinal (GOS-L, ‘the survey’), conducted on behalf of the Australian Government Department of Education, Skills and Employment (‘the department’) by the Social Research Centre. This report is structured into the following sections:

* Section 1 introduces the background, objectives and provides 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.
* Section 8 summarises considerations for future iterations of the GOS-L.

## Background

The GOS-L is a component of the Quality Indicators for Learning and Teaching (QILT) suite of surveys, commissioned by the department. In 2016, the GOS-L replaced the Beyond Graduation Survey (BGS), which was the longitudinal component of the Australian Graduate Survey (AGS) (superseded by the Graduate Outcomes Survey (GOS)) conducted between 2009 and 2015. Graduates who completed a course in 2017 and responded to the 2018 GOS were invited to participate in the 2021 GOS-L.

## Objectives

The broad aim of the GOS-L is to measure the medium-term labour force outcomes of graduates approximately three years post completion of their undergraduate or postgraduate course. 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 institutions. Specifically, the survey findings are used to:

* monitor graduates’ labour market and further study outcomes,
* better understand graduate attributes and preparation for the workforce, and
* identify specific areas that may positively impact graduates’ experiences with their higher education.

‘Higher education institutions’ refers to universities and non-university higher education institutions (NUHEI).

## Overview

The Social Research Centre administered the GOS-L in February and March 2021 with the assistance of 104 participating institutions. In 2021, the scope of the GOS-L was extended to include all higher education institutions, including for the first time non-Higher Education Support Act (HESA) approved providers.

Table 1 provides an overview of key project statistics. In total, 86,641 graduates were approached with 76,861 identified as in-scope to participate. A 49.0 per cent response rate was achieved with a total of 37,650 completed surveys from graduates across all study levels, down from 50.0 per cent in 2020 and 55.9 per cent in 2019, but up from 43.3 per cent in 2018 and 42.2 per cent in 2017.

Table 1 Key project statistics

|  |  |  |  |
| --- | --- | --- | --- |
|  | **University** | **NUHEI** | **Total** |
| Participating institutions (n) | 41 | 63 | 104 |
| Total sample (n) | 81,124 | 5,517 | 86,641 |
| Final in-scope graduates (n) | 72,127 | 4,734 | 76,861 |
| Surveys completed (n) | 35,609 | 2,041 | 37,650 |
| Response rate1 (%) | 49.4 | 43.1 | 49.0 |

1 For the purpose of QILT projects, ‘response rate’ is defined as completed surveys as a proportion of final sample, where final sample 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.

The survey was fielded online in English only. Invitations and reminders were sent by email and SMS to sample members, while telephone reminders were deployed with selected non-respondents. Participating institutions could also commission additional SMS towards the end of main online fieldwork and reminder calls 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.

## Project milestones

Table 2 provides a summary of the key project milestones including tasks and dates for the 2021 GOS-L.

Table 2 Key project milestones

|  |  |
| --- | --- |
| **Milestone** | **2021 GOS-L** |
| **Start-up** |  |
| Sample preparation | 15-Oct to 30-Oct 2020 |
| Questionnaire development | 01-Dec to 11-Dec 2020 |
| **Fieldwork** |  |
| Soft launch main online fieldwork (NUHEIs) | 16-Feb 2021 |
| Start main online fieldwork (Universities) | 18-Feb 2021 |
| In field reminder calls | 04-Mar to 21-Mar 2021 |
| Main online fieldwork closes\* | 28-Mar 2021 |
| Post field reminder calls† | 29-Mar to 09-Apr 2021 |
| Fieldwork closes† | 09-Apr 2021 |
| **Reporting** |  |
| Draft data and documentation to the department | 30-Apr 2021 |
| Draft *National Report* to the department | 15-May 2021 |
| Final data and documentation to the department | 15-May 2021 |
| *Methodological Report* to the department | 31-May 2021 |
| Institutional Tableau report and data files delivered | 15-Jun 2021 |
| Final *National Report* to the department | 15-Jun 2021 |

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

† Institutions that opted for post field reminder calls.

# Sample preparation

## Target population

To qualify as part of the in-scope population for the 2021 GOS-L, graduates must have completed the 2018 GOS via the online survey and either:

* provided consent to being recontacted for future research or
* skipped (i.e. did not answer) the question about consent to being recontacted for future research.

Consent to be recontacted for future research is captured at the variable ‘CONTACT’ in the GOS.

Institutions were able to request inclusion of additional populations such as offshore graduates on a fee-for-service basis, however, these responses were excluded from national reporting and analysis. Like the in-scope population, these additional populations must have also completed the 2018 GOS and not explicitly declined future contact.

## Institutional participation

In previous iterations of the GOS-L, non-HESA providers were excluded from all data presented in this report and the nationally reported figures. In 2021, the scope of the GOS-L was extended to include all higher education institutions, including for the first time non-HESA approved providers. In total, six non-HESA approved providers participated in the 2021 GOS-L.

Institutions were invited to participate in the GOS-L via the *Participation and Additional Services Form* (PASF, refer to Section 3.1.2). Invitations to complete the PASF were sent via email to all primary institutional contacts approximately four months prior to the commencement of online fieldwork. All institutions with in-scope sample were invited to complete the PASF.

A total of 104 institutions participated in the 2021 GOS-L, comprising 41 universities and 63 NUHEIs. Refer to Appendix 2 for a list of participating institutions.

## Sample frame

Records meeting the target population definition from the 2018 GOS data file were identified, with relevant contact information appended, either as collected in the GOS questionnaire, else as provided in the GOS sample. Institutions were then required to update the scope status of the sample member, review faculty name and campus name, provide updated email contact details, and were encouraged to provide telephone contact details to facilitate survey execution as detailed below.

### Additional populations

Institutions were provided with the opportunity to include out-of-scope graduates as additional populations in the GOS-L on a fee-for-service basis. GOS-L out-of-scope populations included graduates who completed the GOS as either of the following:

* out-of-scope populations or
* in-scope populations but who completed the GOS via telephone interview, that is, via a different mode to the predominantly online collection.

Three institutions included additional populations in the 2021 GOS-L. Additional populations were not included in the *2021* *GOS-L* *National Report* and do not appear in results presented in this report.

## Sampling preparation overview

Detailed information regarding the GOS-L sampling process was available to institutions in the *Collection and Sample Guide* (refer to Section 3.1.1). The guide was provided to institutions ahead of sample preparation and outlined the:

* data elements required,
* essential and optional fields, and
* steps to create the sample of in-scope graduates.

The sampling process for the GOS-L is summarised as follows:

1. **Population file creation**

The Social Research Centre prepared the population file based on the GOS data and distributed these files to institutions.

1. **Population file review and update**

Institutions then updated the following data elements in their population file:

* Residential address

The address fields listed (i.e. variables E469, E470, E413 and E471) were used to determine time zone and location for survey execution and response maximisation initiatives.

* Email addresses

Institutions were asked to provide at least one valid email address for each graduate in the file. Email 1 was the email address which institutions considered most likely to result in the email being opened by the intended recipient and the next best options were included at Email 2 and Email 3 if available.

Institutions were advised to record the graduate’s personal email address (e.g. Hotmail, Gmail) as the best option (i.e. Email 1). Other options could include the email address issued by the institution while graduates were enrolled, or an alumni email address issued after graduation.

* Telephone numbers

Telephone numbers were used for in field telephone reminder calls, SMS, and fee-for-service post main online fieldwork telephone reminder calls. Mobile numbers were preferred (where available) as they could be used for SMS reminders. Institutions were advised that providing a telephone number increased the chances of successfully making contact with the graduate and achieving a completed survey. If an institution did not wish the Social Research Centre to contact their graduates by telephone or SMS, they were advised to leave this field blank.

In addition, institutions were required to review and update, if necessary, the following information:

* INSCOPE variable

The INSCOPE variable denoted whether the graduate was in-scope for the GOS-L. Each record was allocated one of the following codes:

0 = In-scope (graduate did not refuse future follow-up in 2018 GOS).

1 = Out-of-scope (graduate explicitly declined to be contacted for future follow-up).

2 = Out-of-scope (ineligible for the GOS-L).

3 = Not to be surveyed as instructed by institution (e.g. deceased or not to be contacted under any circumstances).

All records were pre-flagged in the sample file as code 0, 1 or 2 based on their responses in the GOS. Institutions were asked to review records that had been flagged as INSCOPE = 0 or 1 and update as appropriate. No action was required for records flagged as INSCOPE = 2.

* FACULTY and CAMPUS variables

The faculty and campus variables were pre-populated using information collected in the 2018 GOS. Faculty and campus information is useful for institutions to conduct their own internal analysis but this data is not used in the *National Report* or website content. Institutions were asked to review and update this information as required.

1. **Sample review and selection**

The Social Research Centre reviewed and verified the population file as part of selecting all cases where INSCOPE = 0.

### Sample processing quality assurance

Upon receipt of an institution’s returned sample file, the Social Research Centre undertook and logged quality assurance and validation checks to ensure the quality of the returned sample data. 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.

Sample data 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.
* A basic 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 (as described in Appendix 1), completeness of the returned sample data, record scoping and unit record logic checks.
* An extensive sample cleaning process on files validated by the auto-checker before being operationalised for fieldwork.

### Sample cleaning

In addition to quality assurance and validation checks, the Social Research Centre also undertook an extensive sample cleaning process. The main components of sample file cleaning and manipulation were as follows:

* standardisation of sample return files – including compliance to a standard format,
* email address cleaning (e.g. correct domain formats, identification of non-personal emails, deduping),
* phone cleaning (e.g. leading zeros, country codes),
* name cleaning (e.g. correct capitalisation and salutations),
* address cleaning (e.g. standardisation of state), and
* various institution-specific corrections.

### Exclusions

As part of sample processing the following exclusions were made:

* records without an email address,
* out-of-scope records based on the INSCOPE variable,
* respondents from the 2018 GOS who explicitly declined to be contacted for future follow-up, and
* duplicate records.

### Coverage

The total target population was graduates who completed a course at an on-shore Australian higher education institution in 2017 and participated in the 2018 GOS. As described in Section 2.3, the operationalised sample excluded any GOS respondent who had explicitly declined to be contacted for future follow-up. Table 3 reiterates key concepts and information from Section 1.4 illustrating the coverage of the sample to the population.

Table 3 Coverage of population to sample

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **University n** | **University** % | **NUHEI** n | **NUHEI** % | **Total n** | **Total %** |
| Completed the 2018 GOS (n) | 115,794 | 100.0 | 7681 | 100.0 | 123475 | 100.0 |
| Explicitly declined to be contacted for future follow-up (n) (A) | 31,321 | 27.0 | 2042 | 26.6 | 33363 | 27.0 |
| Consent to follow-up (n) (B) | 68,967 | 59.6 | 4238 | 55.2 | 73205 | 59.3 |
| Did not answer consent to follow-up (n) (C) | 15,506 | 13.4 | 1401 | 18.2 | 16907 | 13.7 |
| Total eligible sample for 2021 GOS-L (n)(B+C) | 84,473 | 73.0 | 5639 | 73.4 | 90112 | 73.0 |
| Institution removals and out-of-scope additional populations (n) (D) | 3,349 | 2.9 | 122 | 1.6 | 3471 | 2.8 |
| Sample available for 2021 GOS-L1 (n) (Total eligible sample - D) | 81,124 | 70.1 | 5517 | 71.8 | 86641 | 70.2 |

1 National in-scope population approached.

# Survey design and procedures

## Institutional engagement

To build institutional engagement, the Social Research Centre employed a strategy based on the principles of stakeholder need, transparency, knowledge sharing and responsiveness. A comprehensive range of activities were designed to actively engage institutions with the GOS-L. The Social Research Centre’s institutional engagement strategy for the 2021 GOS-L is described in this section and included:

* planning resources such as the *QILT Key Dates Calendar* and *Collection and Sample Guide*,
* communications inviting institution participation in the GOS-L,
* webinars and newsletters,
* regular communications with institutions’ nominated survey contacts throughout fieldwork, and
* ad hoc assistance from the QILT research and administrative teams for institution contacts as required.

### Collection and Sample Guide

A *Collection and Sample Guide* was made available to institutions via the QILT provider portal prior to the 2021 GOS-L. A notification email was sent to all institutions advising of the release. The *Collection and Sample Guide* provided a stand-alone source of information to introduce the GOS-L, 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, and document general conduct of the GOS-L. The *2021 GOS-L* *Collection and Sample Guide* is provided at Appendix 1.

### Invitation to participate

As noted in Section 2.2, prior to the 2021 GOS-L the Social Research Centre sent an email to the key contact at each institution. The email asked recipients to confirm their institution’s participation in the respective collection via the PASF. Institutions were also asked to nominate additional fee-for-service activities. The 2021 GOS-L included the following fee-for-service activities:

* inclusion of additional populations (refer to Section 2.3.1),
* inclusion of additional items in the GOS-L questionnaire (refer to Section 4.4),
* participation in an additional SMS (refer to Section 3.3.1.1), and
* participation in post field reminder calls (refer to Section 3.3.3).

### Webinars and newsletters

As part of the institutional engagement strategy, the Social Research Centre provided institutions with a series of webinars and newsletters before and throughout fieldwork. Newsletters were sent monthly, covering information related to key QILT survey milestones. The newsletters were a regular point of contact with institution contacts who subscribed.

A series of webinars was presented to institutions on a near-monthly basis. Webinar topics were designed to guide institutions through key stages of the survey administration process and to share technical and methodological insights. To ensure continued engagement with the webinar series, institutions were consulted to inform topics of interest for future sessions. Webinars relating directly to the 2021 GOS-L covered topics such as sample preparation, fee-for-service activities, graduate engagement and fieldwork progress.

### Ongoing dialogue with institutions

An open dialogue with survey managers was maintained throughout the 2021 GOS-L collection to better understand institutions’ experience of fieldwork. The following engagement activities were conducted to connect with institutions:

* **Program of institutional outreach**

Members of the QILT research team spoke to participating institutions during fieldwork via telephone to hear their experiences of administering the GOS-L and to identify opportunities for improvement. Discussions typically ran for five to ten minutes and were conducted as follows:

* + Contact was attempted with all participating universities and selected NUHEIs. NUHEIs were selected on the basis of size and response rate performance, such that a large and underperforming NUHEI was prioritised for contact above a small and high performing NUHEI.
  + The objective was to discuss with institutions how their response rate was progressing, what type of engagement activities they had planned or conducted, and suggestions (where appropriate) for how to improve their response rate.
  + The impact of COVID-19 on institutions’ resourcing of engagement activities was a key topic of discussion.

It should be noted that the continued work-from-home environment during fieldwork made it difficult to contact some survey managers for whom we only had landline office numbers. To remedy this, the QILT research team followed up phone contact with an email.

* **Respondent Engagement Survey (RES)**

This survey was designed to collect information about the graduate engagement activities undertaken by institutions for the 2021 GOS-L. The RES collected data to inform analysis of response rate maximisation activities and was an opportunity for institutions to provide more general feedback on their experience using the QILT graduate engagement materials.

The RES consisted of a short online survey, conducted with participating institutions at the completion of fieldwork. A total of 41 institutions completed the survey.

Key findings from the RES were communicated to institutions via a presentation uploaded on the QILT provider portal.

In addition to these activities, the QILT research team maintained regular communication with institutions to sustain high levels of engagement and momentum.

## Graduate engagement

In addition to the *Collection and Sample Guide*, a *Marketing Pack* was provided to institutions to help increase graduate engagement and support the institutional administration of the GOS-L. Images used in the *Marketing Pack* matched images used as headers in the survey email invitation and reminders documented in Appendix 3. In 2021, social media tiles in two different dimensions were introduced to allow for easier use with Facebook and Instagram.

A *GOS-L Marketing Pack User Guide* was included with the *Marketing Pack* to provide information and examples of the intended use of the marketing materials. The *Collection and Sample Guide* for the 2021 GOS-L included further marketing information and an engagement activity plan. The engagement activity plan proposed a marketing campaign schedule that was aligned to the relevant GOS-L fieldwork period and paired engagement activities with the appropriate *Marketing Pack* resource.

The *Marketing Pack* was published on the QILT provider portal prior to the commencement of fieldwork and included materials that could be used before the survey commenced, during fieldwork and in the final week of fieldwork. The specific materials are summarised below:

* *GOS-L* *Marketing Pack User Guide*,
* email templates,
* web tiles,
* digital displays,
* social media tiles and suggested social media post content, and
* GOS-L and QILT brand logos.

All marketing materials referred graduates to either the QILT website, the Social Research Centre website, the GOS-L helpdesk email address or GOS-L helpdesk 1800 number for the purpose of contacting the Social Research Centre with any queries.

## Contact protocol

The 2021 GOS-L employed an extensive protocol of contact attempts, including an email invitation and ten email reminders, as well as in field telephone reminder calls and SMS reminders. In each mode of contact there was provision to opt-out or unsubscribe from future contact. Table 4 shows the date of contact activity, as well the number of emails and SMS sent. SMS reminders included two SMS as part of the standard QILT survey methodology and one SMS conducted on a fee-for-service basis. Further information about email, telephone and SMS contacts is provided in Appendix 3.

Table 4 Invitation and reminder schedule

|  |  |  |
| --- | --- | --- |
| **Round of activity** | **Date of send (2021)** | **Number sent1** |
| Email invitation - NUHEIs | Tues 16 Feb | 5517 |
| Email invitation - Universities | Thu 18 Feb | 81,122 |
| Email reminder 1 | Sat 20 Feb | 76,819 |
| Email reminder 2 | Mon 22 Feb | 71,034 |
| Prize draw 1 close | Mon 22 Feb | N/A |
| Email reminder 3 | Thu 25 Feb | 66,476 |
| Email reminder 4 | Mon 1 Mar | 63,409 |
| SMS 1 | Mon 1 Mar | 51,420 |
| Prize draw 2 closed | Mon 1 Mar | N/A |
| In field telephone reminder calls commenced | Thu 4 Mar | N/A |
| Email reminder 5 | Fri 5 Mar | 55,372 |
| Email reminder 6 | Mon 8 Mar | 53,546 |
| Prize draw 3 closed | Mon 8 Mar | N/A |
| Email reminder 7 | Thu 11 Mar | 51,375 |
| Email reminder 8 | Mon 15 Mar | 49,713 |
| SMS 2 | Mon 15 Mar | 32,337 |
| Prize draw 4 closed | Mon 15 Mar | N/A |
| Email reminder 9 | Thu 18 Mar | 46,005 |
| Email reminder 10 | Mon 22 Mar | 45,014 |
| SMS 3 | Mon 22 Mar | 1,417 |
| Prize draw 5 closed | Mon 22 Mar | N/A |
| Online fieldwork closed\* | Sun 28 Mar | N/A |
| Post field telephone reminder calls commenced† | Mon 29 Mar | N/A |
| Fieldwork closed† | Mon 12 Apr | N/A |

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

† Institutions that opted for post field reminder calls.

### Email invitation and reminders

The Social Research Centre sent an email invite to all in-scope sample members, inviting them to complete the GOS-L. The invitation email advised of their selection in the GOS-L, summarised the survey objectives, outlined privacy provisions and communicated the value of participation. The invitation and reminder emails included a unique link that took the graduates directly into their survey. All emails referred to the QILT and GOS-L webpages for further information and contact details. Further, an unsubscribe link was included in the footer of each email if sample members no longer wanted to receive correspondence. A copy of the invitation and all reminders is provided at Appendix 3.

The invitation email was followed by up to ten email reminders. Sample members who had completed the survey or who had unsubscribed, were removed from the next scheduled email reminder.

The email send activity was designed to maintain survey completion momentum throughout the data collection period and maximise participation. The following email send and bounce outcome protocol was used for 2021 GOS-L:

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

As a result, and provided that at least one of the email addresses available was valid, all sample members received at least one email invitation within the first 24 hours (approximately) of fieldwork commencing.

1. For sample members with a failed outcome for all available email addresses:
   1. They would have received at least one form of contact if they were targeted for the in field reminder calls (refer to Section 3.3.3) or the SMS activity (refer to Section 3.3.1.1).

During any reminder call, the graduate had an opportunity to update their email address and receive access to the survey. When contacted by SMS, the graduate could have accessed the survey directly from the SMS if they were from the group eligible for an SMS with a unique survey link (refer to Section 3.3.2), alternatively they could contact the GOS-L helpdesk and update their email address to receive access to the survey.

* 1. They would not have received contact if they were not selected for the in field reminder calls or the SMS activity, though all in-scope graduates with a valid Australian mobile number were included in the first and second SMS.

1. From Reminder 6 onwards, graduates for whom *Email 1* or *Email 2* did not fail, emails were sent to the next available addresses (that is, *Email 3* and *Email 4*).

As a result, provided that all four addresses available were valid, sample members eligible for Reminder 6 received an email to each valid email address for each remaining round of activity.

To enhance the respondent experience, all emails and some SMS (depending on whether the respondent had updated their details in panel maintenance) included a direct survey link which enabled respondents to enter their unique survey automatically. Further, in line with the Australian Communications and Media Authority (ACMA) Spam Act, each email and SMS contained an ‘unsubscribe’ facility if graduates no longer wanted to receive contact for the 2021 GOS-L. Graduates could also ‘opt-out’ by contacting the GOS-L helpdesk.

All emails featured a customised text using a friendly tone and were as short as possible. The objective of the email plan was to appeal to a wide and diverse audience. While all emails mentioned the survey length, confidentiality provisions, and where relevant the prize draw, the content differed throughout the reminder program. The message intent for the GOS-L emails is summarised in Table 5.

Table 5 Email plan message intent

|  |  |
| --- | --- |
| **Round of activity** | **Message intent** |
| Invitation | Awareness raising and invitation |
| Reminder 1 | Your feedback is important and can help future graduates, first prize draw mention |
| Reminder 2 | Grateful if you could spare the time |
| Reminder 3 | Recognition of difficulty of past year, sharing unique views to help future students, second prize draw mention |
| Reminder 4 | Grateful if you could spare the time |
| Reminder 5 | Importance of completing the survey to assist institutions in understanding graduate outcomes, third prize draw mention |
| Reminder 6 | Acknowledgment of frequency of contact, unsubscribe option emphasised, importance of hearing from as many graduates as possible to improve career resources |
| Reminder 7 | Acknowledgement of COVID-19, chance to have your say, mention of penultimate prize draw |
| Reminder 8 | Link to completing Graduate Outcomes Survey, grateful if you could spare the time, providing important information about employment outcomes and further study activities |
| Reminder 9 | Survey closing soon, mention of course name, joining the largest study of graduate employment outcomes, mention of final prize draw |
| Reminder 10 | Last appeal: Absolute last chance to complete, acknowledgement of difficulties of past year, importance of feedback |

A breakdown of email send outcomes by round of activity is provided at Table 6.

Open rates and ‘clicked on link’ rates generally trended downwards with each successive reminder. However, this downward trend was less consistent than in previous collections, likely due to variability in inbox placement between sends. For example, Reminder 2, a prize draw themed message, had a relatively low open rate considering its position in the schedule. Indications from pre-send testing suggested that a proportion of emails sent did land in ‘Other’ or ‘Promotions’ sub-folders, and in some cases were flagged as spam. Although the open rate of Reminder 2 is relatively low, the ‘clicked on as a % of opened’ rate was the second highest in the schedule, suggesting that for graduates who saw and opened the reminder, the content itself was engaging. This example shows the importance of inbox placement and should be a continued focus for future collections.

Reminders later in the schedule generally had lower ‘clicked on link as a % of opened’ rates, yet Reminders 9 and 10 had a higher general open rate than the three preceding emails. Reminder 9 (*‘Share your feedback to help future graduates’*) featured an altruistic theme and was the lowest performing email in terms of ‘clicked on link as a percentage of opened’ rates. Not all emails with an altruistic theme performed poorly, with Reminder 1 (*‘10 minutes to help future graduates’*) performing better than other emails in the schedule on this metric. Conversely, Reminder 9 also had a higher open rate compared to other late-cycle emails, suggesting that the subject line may have caught respondents’ attention but didn’t incentivise them to click the link to complete the survey. Reminder 9 featured an experiment which displayed an in-language subject line to some Chinese and Indian graduates, and the uniqueness of this may have contributed to the relatively high open rate. The relative performance of emails by theme will be taken into consideration as part of preparing email content for the 2022 GOS-L.

The proportion of bounced emails (sent emails that return with a server response indicating non-delivery) was high, particularly on the Invitation and again at Reminder 6, when messages were sent to email addresses 3 and 4 for the first time. Many of the emails that bounced had an institution domain name, likely due to the email address being deactivated at some point after the graduate completed their studies three years prior. A review of how email addresses are sourced and the process for checking validity of emails should be undertaken ahead of the 2022 GOS-L to minimise the number of emails bouncing, which can potentially harm future sends by damaging the sender’s reputation.

Table 6 Email send outcomes by round of activity

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total** | **Invite** | **R1** | **R2** | **R3** | **R4** | **R5** | **R6** | **R7** | **R8** | **R9** | **R10** |
| Total sent (n) | 86,639 | 76,819 | 71,034 | 66,476 | 63,409 | 55,372 | 53,546 | 51,375 | 49,713 | 46,005 | 45,014 |
| Opened (%) | 42.4 | 41.6 | 28.9 | 35.2 | 34.6 | 30.2 | 22.1 | 21.3 | 18.7 | 25.8 | 29.7 |
| *Clicked on link (%)* | 16.7 | 9.7 | 7.3 | 5.2 | 7.0 | 3.9 | 3.8 | 2.6 | 3.3 | 2.3 | 3.3 |
| *Opt-out from link (%)* | 0.4 | 0.6 | 0.7 | 0.9 | 0.7 | 0.6 | 0.7 | 0.7 | 0.5 | 0.6 | 0.6 |
| *Opened email (%)* | 25.3 | 31.2 | 21.0 | 29.1 | 26.8 | 25.7 | 17.6 | 18.1 | 14.9 | 23.0 | 25.8 |
| Unopened (%) | 41.3 | 56.5 | 68.8 | 62.8 | 63.3 | 67.5 | 68.7 | 74.7 | 77.3 | 70.6 | 66.8 |
| Soft bounce (%)1 | 1.8 | 1.8 | 2.2 | 2.0 | 2.1 | 2.3 | 3.7 | 3.9 | 4.0 | 3.5 | 3.4 |
| Hard bounce (%)2 | 14.5 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 5.4 | 0.0 | 0.1 | 0.0 | 0.0 |
| *Clicked on link as % opened* | 39.5 | 23.4 | 25.1 | 14.9 | 20.3 | 12.8 | 17.2 | 12.0 | 17.7 | 8.8 | 11.2 |

1 A soft bounce occurs when an email could not be delivered because of a temporary issue, such as the recipient’s mailbox being full or inactive.

2 A hard bounce occurs when an email could not be delivered for permanent reasons, for example when the recipient’s email address does not exist or the recipient’s email server has blocked delivery.

Analysis was undertaken to compare sample characteristics of graduates who did not open any emails to help further understand the impact of email as a response maximisation activity (refer to Table 7).

Overall, 18.4 per cent of the total graduates approached did not open any emails. Graduates with the following characteristics were marginally less likely to have opened their emails:

* international graduates,
* those who speak a language other than English at home,
* those aged 30 years or under,
* indigenous graduates,
* graduates from an undergraduate degree, and
* females.

These findings will be used to inform message intent and tailoring of the contact strategy for future iterations. This will help ensure communications used during fieldwork are engaging for a diverse range of graduates to help maintain the representativeness of the achieved sample.

Table 7 Characteristics of graduates who did not open emails against the total in-scope sample

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Total sample approached n** | **Unopened email sample n** | **Unopened email sample %** |
| **Base** | 86,641 | 15,982 | 18.4 |
| **Course type** |  |  |  |
| Undergraduate | 49,449 | 9,557 | 19.3 |
| Postgraduate coursework | 32,542 | 5,786 | 17.8 |
| Postgraduate research | 4,650 | 639 | 13.7 |
| **Gender** |  |  |  |
| Male | 33,618 | 5,927 | 17.6 |
| Female | 52,884 | 10,042 | 19.0 |
| No information | 139 | 13 | 9.4 |
| **Aboriginal and Torres Strait Islander** |  |  |  |
| Non-Indigenous | 85,844 | 15,824 | 18.4 |
| Indigenous | 797 | 158 | 19.8 |
| **Disability** |  |  |  |
| No disability | 82,061 | 15,210 | 18.5 |
| Disability | 4,494 | 766 | 17.0 |
| No information | 86 | 6 | 7.0 |
| **Age** |  |  |  |
| 30 years or under | 49,706 | 9,828 | 19.8 |
| Over 30 years | 36,907 | 6,150 | 16.7 |
| No information | 28 | 4 | 14.3 |
| **Mode of attendance** |  |  |  |
| Internal and mixed mode | 72,271 | 13,387 | 18.5 |
| External | 13,773 | 2,502 | 18.2 |
| No information | 597 | 93 | 15.6 |
| **Type of attendance** |  |  |  |
| Full-time | 59,702 | 11,023 | 18.5 |
| Part-time | 26,816 | 4,946 | 18.4 |
| No information | 123 | 13 | 10.6 |
| **Home language** |  |  |  |
| English | 58,881 | 10,440 | 17.7 |
| Language other than English | 25,091 | 5,018 | 20.0 |
| No information | 2,669 | 524 | 19.6 |
| **Born in Australia** |  |  |  |
| Yes | 51,101 | 9,244 | 18.1 |
| No | 30,388 | 5,757 | 18.9 |
| Unknown | 5,152 | 981 | 19.0 |
| **Citizenship indicator** |  |  |  |
| Domestic | 66,260 | 11,824 | 17.8 |
| International | 20,317 | 4,156 | 20.1 |

### Tailored email contact strategy for international graduates

A key objective of the 2021 GOS-L was to increase response from international graduates who have historically been under-represented among respondents in both the GOS and GOS-L. More details about this objective can be found in the *International Engagement Strategy* prepared by the Social Research Centre in 2020. One of the strategies deployed in 2021 was a tailored email contact strategy. Subtle changes were made to the language and messaging used in the communications to target international graduates, as well as use of tailored imagery. The intention was to send an international themed email for each round of email activity, however, analysis of completion rates by Reminder 4 suggested this was having an adverse impact on response and a decision was made to abort this experiment mid-field. An in-language subject line experiment targeting Chinese and Indian graduates was conducted at Reminder 9. This did not result in an increase in response from either of these sub-groups. For more details about these targeted emails, refer to Appendix 3.

### SMS reminders

SMS reminders were used during fieldwork to compliment the email contact strategy. If an institution provided mobile numbers in their sample return, it was considered consent to contact graduates via SMS. Two SMS were sent during fieldwork as part of the standard QILT survey methodology. Both SMS were sent to all in-scope sample members with a mobile number who had yet to complete the survey. Those who had already completed the survey or unsubscribed from email activity were washed out of the SMS sends.

For sample members who had updated or confirmed their mobile phone number during 2019 GOS-L panel maintenance activity, the SMS included a direct link to access the online survey, bypassing the need to access the survey via an email. This was the first time that a direct survey link was included in a SMS for GOS-L and approximately 20 per cent of the in-scope sample were eligible. Sample members that did not participate in panel maintenance activity received an SMS with content aimed at driving graduates to email reminders.

In compliance with the Australian Privacy Principles and the ACMA Spam Act, all SMS messages identified the Social Research Centre as the sender, noted the study the SMS was referring to and had the functionality for recipients to unsubscribe. Sample members who replied ‘STOP’ to the SMS were opted-out of future communications. SMS content for all rounds is provided in Appendix 3.

### Additional SMS

In 2021, institutions were offered the opportunity to opt-in to an additional third SMS (‘SMS 3’) on a fee-for-service basis. The SMS was sent on the day of the final prize draw and featured an abbreviated version of the institution’s name/ Institutions could choose to send the message to either all survey non-respondents with a valid mobile number, or a specific sub-group of their sample that they wished to target within a set budget. In total, five institutions opted-in to SMS 3.

A breakdown of SMS send outcomes by round of activity is provided at Table 8. Of note is the relatively strong performance, in terms of open rate, of SMS 2. This may be due to the fact that approximately 10 per cent of messages sent in SMS 1 bounced and were subsequently excluded from SMS 2 resulting in a cleaner list of valid mobile numbers and therefore a higher proportion of graduates receiving and opening the message. A review of mobile phone number cleaning processes will be undertaken ahead of the 2022 GOS-L collection to reduce the number of messages sent to deactivated mobile numbers.

Table 8 SMS based follow-up activity outcomes

|  |  |  |
| --- | --- | --- |
| **Contact activity** | **n** | **%** |
| **SMS 1** |  |  |
| Sent | 51,420 | 100.0 |
| Opened | 42,082 | 81.8 |
| Unopened | 7,737 | 15.0 |
| Unsubscribed | 1,601 | 3.1 |
| **SMS 2** |  |  |
| Sent | 32,337 | 100.0 |
| Opened | 29,240 | 90.4 |
| Unopened | 1,490 | 4.6 |
| Unsubscribed | 1,607 | 5.0 |
| **SMS 3** |  |  |
| Sent | 1,417 | 100.0 |
| Opened | 1,143 | 80.7 |
| Unopened | 205 | 14.5 |
| Unsubscribed | 69 | 4.9 |

### Reminder calls

Reminder calls were undertaken in field and post field as part of a ‘push to web’ response maximisation strategy. Reminder calls involved attempting to contact graduates who had not completed or opted out of the online survey. Upon contact, updated email address details were collected, with a survey invitation automatically emailed within 30 minutes of the reminder call. Up to two call attempts were made and a voicemail left where possible. Calls were placed over different days of the week and times of day.

Reminder calls used ‘contacts’ as the sample outcome metric. Contacts included outcomes such as consent to complete, refusal, request to remove number from list, claims to have already completed and away for the duration of the study. Once a contact was achieved, no more calls were placed to the sample record.

### In field telephone reminder calls

In field telephone reminder calls were undertaken from 4 to 21 March 2021. To qualify for the in field telephone reminder calls, a graduate had to meet the following criteria:

* phone number available in the sample,
* not completed the survey,
* not opted-out of the 2021 GOS-L (i.e. either via the unsubscribe link in emails, an SMS or by submitting an opt-out request via the GOS-L helpdesk), and
* not received an SMS reminder in the previous 48 hours.

In field reminder call activity was attempted for 32.3 per cent of the total in-scope sample for the 2021 GOS-L. As part of an effort to boost response from international graduates, all eligible international graduates were prioritised in the reminder activity, with remaining budget used to follow up eligible domestic graduates. This strategy formed part of the *International Engagement Strategy* developed in 2020. Further analysis of the effectiveness of boosting response from international graduates through targeting during the in field reminder call phase will be undertaken as part of a review of the *International Engagement Strategy* in 2021.

Table 9 provides a summary of in field telephone reminder outcomes. Of note is the high proportion of unusable sample. This is due to the fact that international graduates were prioritised and there is a greater likelihood that these phone numbers were no longer active if graduates had returned to their home countries since completing their studies. As mentioned in regards to SMS in Section 3.3.1.1, a review of phone number collection and cleaning methods should be undertaken ahead of the 2022 GOS-L to reduce the number of deactivated phone numbers in the sample and maximise the use of budget allocated for these response boosting activities.

Of the 5,140 graduates whose emails were collected or confirmed, 1,436 or 27.9 percent completed the survey from a direct link in the in field reminder email. There may also be an unreported indirect effect on response from in field reminder calls that has been attributed to another source of response (refer to Section 7.3). For example, a graduate may have been prompted to complete the GOS-L via a prior email invitation or SMS link after speaking with an interviewer, listening to a voicemail, or receiving a missed call.

The proportion of contacts achieved continued to decline in the 2021 collection, down from 33.7 per cent in 2019, 25.0 per cent in 2020 to 21.2 in 2021. Contact rates will continue to be closely monitored and consideration given to other methods of boosting response if this trend continues.

Table 9 In field telephone reminder outcomes

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Undergraduate n** | **Undergraduate %** | **Postgraduate n** | **Postgraduate %** | **Total n** | **Total %** |
| **Total sample initiated** | **14,690** | **100.0** | **13,296** | **100.0** | **27,986** | **100.0** |
| Unusable sample1 | 1,830 | 12.5 | 1,892 | 14.2 | 3,722 | 13.3 |
| No contact | 9,816 | 66.8 | 8,517 | 64.1 | 18,333 | 65.5 |
| **Total contact** | **3,044** | **20.7** | **2,887** | **21.7** | **5,931** | **21.2** |
| Collected graduate’s email | 2,650 | 18.0 | 2,490 | 18.7 | 5,140 | 18.4 |
| Other call outcome | 394 | 2.7 | 397 | 3.0 | 791 | 2.8 |

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

### Post field telephone reminder calls

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. Four institutions opted for post field reminder calls.

Post field reminder calls were conducted following the close of the main online fieldwork, with the online survey remaining open for a two week period (refer to Table 2) to allow for graduates of participating post field 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.

To qualify for the post field reminder calls, a graduate was required to meet the following criteria:

* phone number available in the sample,
* not completed the survey,
* not have a ‘contact’ outcome from in field reminder calls, and
* not opted-out of the 2021 GOS-L (i.e. either via the unsubscribe link in emails, an SMS or by submitting an opt-out request via the GOS-L helpdesk).

As with in field reminder calls, the purpose of post field reminder call activity was to confirm or update the best contact email address for graduates and ask graduates to complete the survey online. Interviewers would note the extension of the fieldwork period for the graduate’s specific institution if queried by the graduate. Table 10 provides a summary of post field reminder call outcomes. Email addresses were confirmed or updated for a third of cases (32.9 per cent). Contact rates were higher for post field reminder calls than in field reminder calls. Contact rates may have been higher because the call cycle deployed was customised to the institutions’ budget and quoted target but could also be due to the fact that international graduates were prioritised during in field reminder activity and as discussed above, resulted in high rates of unusable sample.

Around one in five graduates (21.4 per cent) completed the survey directly from the reminder email sent after the email address was collected during a post field reminder call. Similar to in field reminder calls, there are likely survey completions unattributed to post field reminder calls that were influenced by the attempted post field contact.

Table 10 Post field telephone reminder outcomes

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Undergraduate n** | **Undergraduate %** | **Postgraduate n** | **Postgraduate %** | **Total n** | **Total %** |
| **Total sample initiated** | 2,196 | 100.0 | 1,392 | 100.0 | 3,588 | 100.0 |
| Unusable sample | 43 | 2.0 | 47 | 3.4 | 90 | 2.5 |
| No contact | 1,398 | 63.7 | 861 | 61.9 | 2,259 | 63.0 |
| **Total contact** | 755 | 34.4 | 484 | 34.8 | 1,239 | 34.5 |
| Collected graduate’s email | 712 | 32.4 | 467 | 33.5 | 1,179 | 32.9 |
| Other call outcome | 43 | 2.0 | 17 | 1.2 | 60 | 1.7 |

### Interviewer briefing

All interviewers selected to work on the 2021 GOS-L in field and post field reminder calls attended a briefing session delivered by the Social Research Centre project management team. The interviewer briefing covered:

* Project background,
* Reminder call ~~survey~~ procedures (i.e. sample management protocols, response maximisation procedures),
* privacy and confidentiality issues,
* targeted refusal aversion techniques,
* strategies to maintain co-operation, and
* comprehensive practice interviewing, role play and group discussion of example call recordings.

The briefing slides are provided at Appendix 4.

### Quality control

The in field quality monitoring techniques applied to the telephone components of the GOS-L included:

* Listening-in validations conducted in accordance with existing ISO 20252 procedures.
* Field team de-briefing after the first shift, and thereafter, whenever there was important information to impart to the field team in relation to data quality, consistency of interview administration, or project performance.
* Maintenance of an ‘interviewer handout’ document addressing any respondent liaison or data quality issues.
* Monitoring (listening in) by the Social Research Centre project manager and supervisory staff.
* Maintenance of a question and answer log on the Social Research Centre’s intranet to assist interviewers with responses to queries.

### Social media

A social media advertising campaign was conducted to support the broader GOS-L response maximisation strategy. A content calendar was created to plan and schedule posts in advance. Multiple platforms were used, with paid ads appearing on Facebook and Instagram alongside organic posts on the QILT Facebook (<https://www.facebook.com/QILT1>) and Instagram (@qilt\_src) pages. Organic posts matched the themes of the email reminder plan, highlighting prize draw dates and survey open and close dates. A range of relevant hashtags were included in each post to strengthen the QILT brand across the platform. The purchased ads were also designed to coincide with key fieldwork dates. The audience for the ads (23-40 years old with higher education experience) was selected based on prior research undertaken by the Social Research Centre to ensure the ads were as effective as possible.

Campaign outcomes for the 2021 GOS-L are shown in Table 11. This table presents data for ‘impressions’, 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 link included in the ads (<http://www.gos.edu.au/l>) [[1]](#footnote-1). Males were generally more likely to see the ad (*impressions*) and click on the link (*link clicks*) compared to females.

Across paid ads displayed on Instagram, the most common placement was on the Explore page. This allows for people who might not regularly interact with QILT social media posts to discover specific QILT content. The Instagram ads displayed in the last week of fieldwork were the most wide-reaching, with 14,264 impressions and 3 unique link clicks for posts shown on the Explore page.

Table 11 Facebook campaign outcomes by gender

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Audience** | **Impressions n** | **Impressions %** | **Reach n** | **Reach %** | **Link clicks n** | **Link clicks %** |
| Female | 71,178 | 37.6 | 43,839 | 40.5 | 41 | 41.4 |
| Male | 115,797 | 61.2 | 62,975 | 58.2 | 58 | 58.6 |
| Unknown | 2,292 | 1.2 | 1472 | 1.4 | N/A | N/A |
| Total | 189,267 | 100.0 | 108,286 | 100.0 | 99 | 100.0 |

## Data collection

### Online survey

The online survey could be accessed by clicking on the link in the email invitation or reminders, or by clicking the link in the SMS (for selected graduates only, refer Section 3.3.1.1).

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

* optimisation for small screen devices (refer to Appendix 7),
* 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, and
* 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-L logo and colour scheme. This ensured consistency with email communications, advertisements placed on social media and the QILT website. A copy of the questionnaire is included at Appendix 5 with screenshots of the online survey included in Appendix 6.

### Progress bar

Historically, a percentage based progress bar has been displayed to respondents as they progress through the online survey. In 2021, an experiment was conducted whereby a third of respondents were presented with the progress bar, a third of respondents were presented with a modularised progress bar that displayed the names of section themes (e.g. ‘employment history’, ‘further study’) and the remainder were not presented with any form of progress bar. None of the three experimental conditions performed better than the others, in terms of increased completion rates. For the 2022 GOS-L, no progress bar will be displayed, a decision based on results of the same experiment conducted in the 2020 Student Experience Survey (SES).

### Survey testing

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

Institutions with additional items (refer to Section 4.4) were sent a range of test links to enable their review of these additional questionnaire items. Institutions were asked to conduct final testing on the items and provide sign off prior to field launch.

The survey was soft launched with 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. 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-L were undertaken in accordance with the Privacy Act (1988) and the Australian Privacy Principles contained therein, the Privacy (Market and Social Research) Code 2014, 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. All sensitive or personally identifiable information such as sample and data were transferred using the QILT secure file exchange.

### 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 previous year’s results. The department was provided with weekly updates covering survey launches, in field milestones and the response rate of institutions overall. For the purpose of the fieldwork updates, week one was calculated as survey launch to midnight the following Sunday. Each week after was calculated as Monday to Sunday inclusive.

### 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 counts of completes, out-of-scopes and opt-outs for each institution.

Institutions were also able to monitor their progress through a subset of the same live reporting module made available to the department. Each institution was provided with their own login which allowed institutions to track their own responses and instantly view a summary of their progress information.

The standard reporting module also allowed survey managers at institutions to track responses across the following variables:

* course level,
* gender,
* domestic / international student flag,
* offshore international student flag,
* faculty name,
* campus name,
* survey entry / exit type,
* study area,
* course of study type code,
* additional populations if applicable.

Raw data could also be downloaded from the reporting module, which displayed the response status for each graduate. The reporting module enabled monitoring of response rates and the early identification of poor-performing study areas.

## Graduate support

The Social Research Centre established a GOS-L 1800 helpdesk to provide graduates an avenue to establish contact with the GOS-L team. This 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 between 9am and 8:30pm on weekdays and between 11am and 5pm on weekends. All out of hours callers were routed to a voicemail service, with calls returned within 24 hours.

In addition to the 1800 helpdesk, a GOS-L inbox and QILT inbox were also available for graduates to email with any queries throughout the fieldwork period. The GOS-L inbox was managed by the GOS-L helpdesk team and staffed for the same hours as the 1800 helpdesk. The QILT inbox was managed by the QILT administration team and staffed between 9am and 5pm on weekdays.

The GOS-L helpdesk team was briefed on the GOS-L background, procedures and questionnaire to enable 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 sample member information and survey links, as well as providing a method for logging helpdesk activities and outcomes.

A summary of graduate enquires to the GOS-L helpdesk is provided at Table 12. The helpdesk responded to 119 phone calls with the majority of these being a specific survey query (n=80). The helpdesk fielded 267 email queries with the most common types of enquiries being a specific survey query (n=108), graduates wanting to opt-out of the survey (n=70) or update their contact details (n=43).

All refusals and out-of-scopes received via the helpdesk or inboxes were removed from the reminder email sample on a regular basis to avoid future reminders being sent to these sample members. Sample contact details revised via the helpdesk or inboxes were also updated before each reminder email for those requesting an update to their details.

Table 12 Graduate enquiries to the GOS-L helpdesk

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of enquiry** | **1800 Number** | **GOS-L Inbox** | **Total** |
| **Total** | 119 | 267 | 386 |
| Survey query | 80 | 108 | 188 |
| Opt-out | 17 | 70 | 87 |
| General query | 9 | 24 | 33 |
| Out-of-scope | 1 | 4 | 5 |
| Change of contact details | 8 | 43 | 51 |
| Follow-up call | 1 | 13 | 14 |
| Other query | 3 | 5 | 8 |

## Prize draw

All completing respondents were entered into a five-week rolling prize draw, 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 graduate would be entered into all five prize draws). The terms and conditions of the prize draw were available on the Social Research Centre’s website and provided in all email communications sent to sample members.

There were five prize draws in total, with one $1,000, two $500 and five $100 prepaid Visa gift cards to be won each week. The total prize pool was valued at $12,500.

Table 13 provides the schedule of prize draws across the fieldwork period.

Table 13 Prize draw schedule

|  |  |
| --- | --- |
| **Activity** | **Date (2021)** |
| Prize draw period opens / Fieldwork starts | Tue 16 Feb |
| Prize draw 1 close | Mon 22 Feb |
| Prize draw conducted | Wed 24 Feb |
| Prize draw 2 close | Mon 1 Mar |
| Prize draw conducted | Wed 3 Mar |
| Prize draw 3 close | Mon 8 Mar |
| Prize draw conducted | Wed 10 Mar |
| Prize draw 4 close | Mon 15 Mar |
| Prize draw conducted | Wed 17 Mar |
| Prize draw 5 close | Mon 22 Mar |
| Prize draw conducted | Wed 24 Mar |
| Fieldwork closes | Sun 28 Mar |

In compliance with state and territory gaming and lottery legislation, prize draw winners were notified by phone, in writing and published and on the QILT Facebook and Instagram accounts. Winners were published on the QILT Facebook and Instagram accounts on the same day as the prize draw was conducted. Prepaid VISA e-gift cards were sent to the winners’ confirmed email addresses. The Social Research Centre was responsible for all aspects of prize draw administration, including securing permits, drawing prizes, contacting winners, and advertising winners.

# Questionnaire

## Development

The 2021 GOS-L questionnaire was based on the 2020 instrument. Standard operational updates were made to align the questionnaire with current reference periods.

A new item plus a number of new response options for specific questions were added to the core questionnaire to capture insights into the effect of COVID-19 on the respondent’s employment situation. Two items related to the respondent’s employment details were reordered within the questionnaire to allow for prefilling and automatic coding of responses.

In addition to the core questionnaire changes, institutions were able to add, modify or remove their specific items (refer to Section 4.4).

## Overview

Table 14 outlines the thematic areas of the eight main modules in the questionnaire. The core design of the GOS-L was modular and longitudinal so that information collected in the GOS could be followed up on. A copy of the generic survey instrument (i.e., excluding any institution-specific items) is included at Appendix 5 with screen shots of the online survey at Appendix 6.

Table 14 GOS-L module themes

|  |  |
| --- | --- |
| **Module** | **Themes** |
| Module A | Screening and confirmation |
| Module B | Labour force |
| Module H | Employment history |
| Module C | Further study |
| Module D | Graduate attributes |
| Module E | Graduate preparation |
| Module F | Additional items |
| Module G | Contact details |

## Changes from 2020

The main changes to the core questionnaire were as follows:

* Added an acknowledgment of the impact of COVID-19 on employment situations at the Labour Force module introduction and reiterated that the Australian Government was still interested in understanding current employment situations.
* Added instructional text at *AWAYWORK* (away from work)for respondents who were stood down from their job due to COVID-19, advising them that they should select ‘Yes’ to the item.
* Added new item, *STARTWKFU*, to gain more insight from respondents who answered ‘No’ at the previous item (“If you had found a job, could you have started last week?”).
* Mapped occupation to industries commonly associated with that occupation, so that for a given response to *OCC* (current occupation), appropriate response options were displayed at *INDUSTRY* (industry of employer/business), with an option to capture industry as free text, where the respondent’s industry was not displayed. The association of industries to occupations was developed from historical coded QILT data and is reviewed after each round of data collection.
* Implemented a searchable list of common responses at *EMPLOYER* (name of employer/business) to reduce respondent burden and improve consistency of collected employer data. If an employer was not listed, the employer name was collected as free text. *EMPLOYER* was mapped to industry, as appropriate. *EMPLOYER* was also repositioned to be asked before *INDUSTRY,* to allow auto-filling of *INDUSTRY*.
* If a response to *OCC* did not map to *INDUSTRY,* and a response from *EMPLOYER* mapped to a specific industry, the response from *EMPLOYER* was used to auto-fill *INDUSTRY.* When *INDUSTRY* was auto-filled, the *INDUSTRY* item was not shown in the survey.
* If *INDUSTRY* was not pre-filled with mapping from *OCC* or auto-filled with mapping from *EMPLOYER*, a free text response was collected.
* Altered the codes displayed at *RSOVRQ* (reason working in job that does not utilise skills/education), *RSNOMORE* (reason not looking for more hours), and *RSMORE* (reason working current number of hours). New codes were added to each item to address the impact of COVID-19 on employment situations. Other codes were removed, and new ones added, based on a review of the frequency of responses to these items in the 2020 GOS-L.
* Added free text response item *CATCH* to collect any additional contextual information.

## Additional items

A total of ten institutions (nine universities and one NUHEI) included institution-specific items in the 2021 GOS-L. Institution-specific items can be the same or a variation on questions included in prior rounds of GOS-L, or new questions entirely. Some of the content covered by institution-specific items included questions relating to work preparedness, small business ownership, volunteering, current employment and lifestyle.

These institution-specific items were only presented to graduates after they had completed the core questionnaire, resulting in a clear demarcation between the two survey modules. A statement was also added before the institution-specific items to further emphasise this: “The following items have been included by <INSTITUTION NAME> to gather feedback from graduates on issues important to their institution.”

# Data preparation

## Definition of the analytic unit

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

In the 2021 GOS-L data set, a record was considered complete and valid if the graduate had:

* completed the 2018 GOS, and
* provided a response as to whether they had worked in the last week, or
* responded that they were in further study.

## 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 ABS standards (derivations are documented in the *2021 GOS-L* *Data Dictionary*,made available to institutions on the QILT provider portal),
* re-coding value labels where required,
* re-coding of ‘no answers’ to the missing values conventions, and
* cleaning of employer name and coding of occupation, industry, further study field of education and other free text answers.

## Coding and processing of free text responses

Spell checking and light cleaning of free text responses were applied, seeking to remove identifiers and expletives. Code frames were developed in conjunction with, and approved by the department, and remained largely unchanged in 2021 (except for the COVID-19 codes noted in Section 4.3). Table 15 summarises those items which were coded using an external code frame as a source.

Table 15 Items coded and source for coding decisions

|  |  |
| --- | --- |
| **Item coded** | **Source** |
| 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 2021 GOS-L cycle:

* institution data files in CSV and SPSS format as a standard, and in SAS format for institutions specifically requesting this format,
* department national data file in SAS format,
* data dictionary and data map,
* files in Tableau packaged workbook format at the national (department), institution, Universities Australia (UA) and Independent Higher Education Australia (IHEA) level,
* an institution fieldwork summary and data package summary in MS Word format,
* files of free text responses to open-ended questions in MS Excel, at the national (department) and institution level, and
* *GOS-L National Report Tables*.

## Weighting

As was the case for previous surveys in the series, no weights were applied to the GOS-L data. Refer to Section 7.2.3 for analysis related to the decision not to weight the data.

# Final dispositions and response rates

Table 16 shows the final survey outcomes for the 2021 GOS-L.

For the purpose of the QILT suite of surveys, ‘response rate’ is defined as completed surveys (as described in Section 5.1) as a proportion of final sample, where final sample 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 of response rates).

The final response rate for the 2021 GOS-L was 49.0 per cent, with the response rate higher for universities (49.4 per cent) relative to NUHEIs (43.1 per cent).

When reviewing response rate by course type, postgraduate research had the highest response rate (61.0 per cent) followed by postgraduate coursework (48.9 per cent) and undergraduate (47.9 per cent).

Final response rates by institution are provided at Appendix 8.

Table 16 Final survey outcomes

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Institution** | **Sample approached1** | **Unusable sample** | **Out-of-scope** | **Opted-out** | **Final sample** | **Surveys completed** | **Response rate (%)** |
| **Total** | 86,641 | 356 | 27 | 9,397 | 76,861 | 37,650 | 49.0 |
| Universities | 81,124 | 305 | 25 | 8,667 | 72,127 | 35,609 | 49.4 |
| NUHEIs | 5,517 | 51 | 2 | 730 | 4,734 | 2,041 | 43.1 |
| **Course type** |  |  |  |  |  |  |  |
| Undergraduate | 49,449 | 169 | 15 | 5,656 | 43,609 | 20,886 | 47.9 |
| Postgraduate | 37,192 | 187 | 12 | 3,741 | 33,252 | 16,764 | 50.4 |
| Postgraduate coursework | 32,542 | 158 | 9 | 3,396 | 28,979 | 14,157 | 48.9 |
| Postgraduate research | 4,650 | 29 | 3 | 345 | 4,273 | 2,607 | 61.0 |

1 National in-scope population approached.

# Response analysis

## Response by time

Table 17 shows the daily and cumulative response rate by day, overlaid with each successive component of the contract strategy (i.e. email invitation and reminders, SMS reminders and in field reminder calls).

As expected, the first element of the contract strategy (Invitation) received a particularly strong response and was the best performing email in terms of generating online survey completes. The success of the invitation could be due to the fact that it is the first email that respondents see about the survey, with successive reminders arriving in their inbox potentially causing a sense of fatigue or burden.

Each reminder activity resulted in a clear and consistent ‘lift’ in response rates, but the impact of reminders in the middle of the schedule (Reminder 5, Reminder 6 and Reminder 7) was low compared to emails sent at the beginning of the collection and where an SMS was sent the same day as an email reminder. Further review of the content of these messages may be needed to find new ways of encouraging sample members to open emails and complete the survey.

Table 17 Response rates by day

|  |  |  |  |
| --- | --- | --- | --- |
| **Fieldwork date** | **Daily fieldwork activity** | **Daily Technical completes (%)** | **Cumulative Technical completes (%)** |
| 16/02/2021 | Soft launch invitation (NUHEIs) | 428 | 0.5% |
| 17/02/2021 |  | 86 | 0.6% |
| 18/02/2021 | Main launch invitation (Unis) | 7982 | 9.9% |
| 19/02/2021 |  | 1458 | 11.6% |
| 20/02/2021 | Email Reminder 1 | 4747 | 17.2% |
| 21/02/2021 |  | 1312 | 18.7% |
| 22/02/2021 | Email Reminder 2 | 4569 | 24.2% |
| 23/02/2021 |  | 535 | 24.8% |
| 24/02/2021 | Prize draw 1 drawn | 153 | 25.0% |
| 25/02/2021 | Email Reminder 3 | 2108 | 27.6% |
| 26/02/2021 |  | 383 | 28.1% |
| 27/02/2021 |  | 140 | 28.3% |
| 28/02/2021 |  | 139 | 28.4% |
| 1/03/2021 | Email Reminder 4 + SMS1 | 4186 | 34.9% |
| 2/03/2021 |  | 242 | 35.3% |
| 3/03/2021 | Prize draw 2 drawn | 69 | 35.4% |
| 4/03/2021 |  | 62 | 35.5% |
| 5/03/2021 | Email Reminder 5 | 1136 | 37.0% |
| 6/03/2021 |  | 278 | 37.4% |
| 7/03/2021 |  | 185 | 37.6% |
| 8/03/2021 | Email Reminder 6 | 1082 | 39.1% |
| 9/03/2021 |  | 237 | 39.5% |
| 10/03/2021 | Prize draw 3 drawn | 177 | 39.7% |
| 11/03/2021 | Email Reminder 7 | 714 | 40.8% |
| 12/03/2021 |  | 285 | 41.2% |
| 13/03/2021 |  | 211 | 41.5% |
| 14/03/2021 |  | 166 | 41.7% |
| 15/03/2021 | Email Reminder 8 + SMS2 | 1496 | 44.5% |
| 16/03/2021 |  | 241 | 44.9% |
| 17/03/2021 | Prize draw 4 drawn | 201 | 45.2% |
| 18/03/2021 | Email Reminder 9 | 633 | 46.1% |
| 19/03/2021 |  | 176 | 46.4% |
| 20/03/2021 |  | 56 | 46.5% |
| 21/03/2021 |  | 75 | 46.6% |
| 22/03/2021 | Email Reminder 10 + SMS3 | 937 | 47.9% |
| 23/03/2021 |  | 126 | 48.1% |
| 24/03/2021 | Prize draw 5 drawn | 39 | 48.2% |
| 25/03/2021 |  | 13 | 48.2% |
| 26/03/2021 |  | 10 | 48.2% |
| 27/03/2021 |  | 9 | 48.2% |
| 28/03/2021 | Online fieldwork closes | 5 | 48.3% |
| 29/03/2021 | Telephone follow-up nominated by institutions starts | 2 | 48.3% |

All SMS performed relatively well in terms of generating additional online completes on the day of the send, with SMS1 a particular standout. The volume of SMS sent in the 2021 GOS-L collection was a significant increase over the year prior, where only approximately 20 per cent of sample members received an SMS. In 2021, all eligible sample members received both SMS 1 and SMS 2. This performance provides a strong basis for increasing the use of SMS as a contact strategy and potentially replacing in field telephone reminders in future GOS-L collections, especially for sub-groups that respond well to SMS.

## Non-response analysis

This section examines response propensity, supplementary measures such as R-indicators, characteristics associated with non-response and the implications for key GOS-L measures.

### Characteristics associated with propensity to respond

For a number of waves, the GOS-L has made use of predicted response rates to target sub-groups of graduates for response maximisation activities. Response propensity is defined as the modelled expected likelihood of a graduate responding to the survey, conditional on their characteristic

Response propensity is calculated by predicting survey completion conditional upon the characteristics available for both respondents and non-respondents, including:

* study area,
* age,
* higher education provider,
* higher education provider type (Group of 8, Other university or NUHEI),
* institution size,
* course of study type,
* type of attendance,
* citizenship,
* language spoken at home (NESB indicator),
* country of birth,
* course level,
* gender,
* Aboriginal or Torres Strait Islander status, and
* disability.

Using a random forest model (Breiman, 2001; Valliant, Dever and Kreuter, 2013) we are able to predict the response propensity for all sample members. The variable importance plot shown in Table 18 summarises the relative importance of these characteristics in predicting non-response to the surveys, where a longer bar indicates higher importance. To simplify interpretation, we have replaced the original scale (the Gini index) with one where the most important predictor is set to 100 per cent and the least to 0 per cent.

The variables that were consistently the most important predictors of non-response were study area, age, provider and citizenship indicator. This information will be considered in the refinement of the contact strategy for future iterations.

Table 18 Relative importance of graduate characteristics in predicting survey response in 2021

|  |  |
| --- | --- |
| **Report label** | **Scale of importance** |
| Study area | 100 |
| Age grouping | 92.4636893 |
| Higher Education Provider name (binned) | 81.8988787 |
| Citizenship indicator | 65.9340981 |
| Course of study type code | 49.6437709 |
| NESB indicator | 39.4089991 |
| Birthplace | 35.7308528 |
| Institution size | 34.6060154 |
| Level of study categorised - with HDR | 21.1748351 |
| Gender | 17.5511726 |
| Type of attendance code | 15.9132214 |
| Institute type | 12.1851019 |
| Disability indicator | 10.9230107 |
| Indigenous indicator | 2.83799012 |
| Higher Education Provider Type | 0 |

### 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 overall survey quality. It has well known limitations, however (see, for example, Shlomo, Skinner and Schouten 2012), 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 (Groves et al. 2009). 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, Cobben and Bethlehem 2009; Schouten, Shlomo and Skinner 2011). 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 in the analysis in this section is expressed as follows:

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 GOS-L, response propensities were predicted using a random forest model as described above. From there, the above formulae were used to calculate the R-indicator for the survey overall.

Table 19 shows the response rate and the R-indicator over the last three years of the GOS-L. As can be seen, the change in the R-indicator is smaller than the change in response rate. In 2021, the R-indicator was steady, relative to 2020, despite a one percentage point drop in the response rate.

Table 19 Comparison of representativeness over past three GOS-L rounds

|  |  |  |
| --- | --- | --- |
| **Year** | **Response rate (%)** | **R-indicator (%)** |
| 2019 | 55.9 | 74.64 |
| 2020 | 50.0 | 71.04 |
| 2021 | 49.0 | 71.19 |

For context, R-indicator values for the other surveys in the QILT suite will be calculated and presented in future methodological reports.

### Characteristics associated with non-response

Further to the response propensity analysis at Section 7.2.1, an alternative method of checking whether there is any systematic pattern of non-response is to compare the profile of respondents with that of non-respondents. The presence of extensive differences between the two groups may suggest that some adjustments (weighting) may be necessary.

Table 20 compares the distribution of respondents with the distribution of non-respondents for selected characteristics. A positive difference indicates that the relative incidence of the specified category was lower among respondents than among non-respondents and a negative difference indicates that the relative incidence of the category was lower among non-respondents.

Given the number of cases involved, the notion of ‘statistically significant differences’ is generally not helpful for the GOS-L. Standard statistical tests will typically declare significance for all but the most minute of differences between estimates. Instead, the well-known concept of ‘effect sizes’ (Cohen 1988, 1992) is used to identify sub-groups where the differences may be of practical importance, classified into ‘small’, ‘medium’ or ‘large’[[2]](#footnote-2). Results without a stated effect size were ‘so small as to be trivial’ (Cohen 1992).

As an example, persons in the 25 to 29 year old age group made up 35.96 per cent of respondents and 45.14 per cent of non-respondents. The difference of 9.19 per cent indicates that this sub-group was under-represented among respondents compared to non-respondents, but the effect size (0.19) was negligible.

Table 20 Comparison between respondents and non-respondents for selected characteristics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Characteristic** | **Respondents (%)** | **Non-respondents (%)** | **Difference (%)** | **Cohen's effect size** | **Cohen's effect size** |
| **Age grouping** |  |  |  |  |  |
| 15-19 years old | 0.00 | 0.00 | 0.00 | 0.01 |  |
| 20-24 years old | 11.56 | 12.68 | 1.12 | 0.03 |  |
| 25-29 years old | 35.95 | 45.14 | 9.19 | 0.19 |  |
| 30-34 years old | 15.96 | 16.97 | 1.01 | 0.03 |  |
| 35-39 years old | 10.67 | 9.31 | -1.37 | 0.05 |  |
| 40-44 years old | 7.61 | 5.88 | -1.73 | 0.07 |  |
| 45-49 years old | 6.36 | 4.13 | -2.23 | 0.10 |  |
| 50-54 years old | 5.05 | 2.74 | -2.32 | 0.12 |  |
| 55+ years old | 6.82 | 3.15 | -3.67 | 0.17 |  |
| Unable to establish | 0.01 | 0.01 | -0.01 | 0.01 |  |
| **Study area** |  |  |  |  |  |
| Science and mathematics | 9.24 | 7.22 | -2.02 | 0.07 |  |
| Dentistry | 0.32 | 0.36 | 0.04 | 0.01 |  |
| Veterinary science | 0.56 | 0.43 | -0.13 | 0.02 |  |
| Rehabilitation | 1.76 | 1.39 | -0.36 | 0.03 |  |
| Teacher education | 10.16 | 8.42 | -1.74 | 0.06 |  |
| Business and management | 17.20 | 25.93 | 8.72 | 0.21 | Small |
| Humanities, culture and social sciences | 10.36 | 7.81 | -2.55 | 0.09 |  |
| Social work | 2.90 | 1.91 | -1.00 | 0.07 |  |
| Psychology | 5.45 | 3.66 | -1.79 | 0.09 |  |
| Law and paralegal studies | 4.65 | 4.36 | -0.29 | 0.01 |  |
| Creative arts | 3.53 | 3.70 | 0.17 | 0.01 |  |
| Computing and information Systems | 3.66 | 5.06 | 1.40 | 0.07 |  |
| Communications | 3.30 | 3.08 | -0.22 | 0.01 |  |
| Tourism, Hospitality, Personal Services, Sport and recreation | 0.30 | 0.38 | 0.08 | 0.01 |  |
| Engineering | 5.40 | 7.20 | 1.80 | 0.07 |  |
| Architecture and built environment | 1.90 | 2.41 | 0.50 | 0.03 |  |
| Agriculture and environmental studies | 1.99 | 1.56 | -0.44 | 0.03 |  |
| Health services and support | 7.39 | 5.98 | -1.42 | 0.06 |  |
| Medicine | 2.34 | 1.67 | -0.67 | 0.05 |  |
| Nursing | 7.00 | 6.94 | -0.06 | 0.00 |  |
| Pharmacy | 0.57 | 0.55 | -0.02 | 0.00 |  |
| **Birthplace** |  |  |  |  |  |
| Australia | 66.63 | 51.63 | -15.00 | 0.31 | Small |
| Other | 33.37 | 48.37 | 15.00 | 0.31 | Small |
| **Level of study** |  |  |  |  |  |
| Undergraduate | 55.66 | 58.07 | 2.41 | 0.05 |  |
| Postgraduate (Coursework) | 37.33 | 37.62 | 0.28 | 0.01 |  |
| Postgraduate (Research) | 7.01 | 4.32 | -2.69 | 0.12 |  |
| **Gender** |  |  |  |  |  |
| Female | 63.61 | 59.23 | -4.38 | 0.09 |  |
| Male | 36.39 | 40.77 | 4.38 | 0.09 |  |
| **Type of attendance** |  |  |  |  |  |
| Open Universities | 0.00 | 0.00 | 0.00 | 0.01 |  |
| Full-time | 66.98 | 71.25 | 4.27 | 0.09 |  |
| Part-time | 33.01 | 28.75 | -4.26 | 0.09 |  |
| **Indigenous indicator** |  |  |  |  |  |
| Non indigenous | 98.99 | 99.15 | 0.17 | 0.02 |  |
| Indigenous | 1.01 | 0.85 | -0.17 | 0.02 |  |
| **NESB indicator** |  |  |  |  |  |
| English speaking background | 88.05 | 75.58 | -12.47 | 0.33 | Small |
| Non-English speaking background | 11.95 | 24.42 | 12.47 | 0.33 | Small |
| **Citizenship indicator** |  |  |  |  |  |
| Domestic | 84.25 | 68.84 | -15.41 | 0.37 | Small |
| International | 15.75 | 31.16 | 15.41 | 0.37 | Small |
| **Disability indicator** |  |  |  |  |  |
| No disability | 93.81 | 95.55 | 1.74 | 0.08 |  |
| Disability | 6.19 | 4.45 | -1.74 | 0.08 |  |
| **Higher Education Provider Type** |  |  |  |  |  |
| University (Table A-B) | 95.61 | 94.41 | -1.20 | 0.06 |  |
| NUHEI (Private) | 4.39 | 5.59 | 1.20 | 0.06 |  |
| **Institution size** |  |  |  |  |  |
| 1-1000 records | 10.18 | 11.54 | 1.36 | 0.04 |  |
| 1001-1500 records | 22.07 | 20.18 | -1.89 | 0.05 |  |
| 1501-3000 records | 29.55 | 31.30 | 1.75 | 0.04 |  |
| 3001-4000 records | 18.96 | 20.51 | 1.54 | 0.04 |  |
| 4001+ records | 19.25 | 16.48 | -2.77 | 0.07 |  |
| **Institute type** |  |  |  |  |  |
| Group of 8 | 31.96 | 30.43 | -1.53 | 0.03 |  |
| NUHEI | 4.39 | 5.59 | 1.20 | 0.06 |  |
| Other university | 63.64 | 63.98 | 0.33 | 0.01 |  |

Based on Table 20, citizenship, NESB indicator (language spoken at home), birthplace (arguably each measuring broadly similar concepts), and study area 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’.

Although not shown here, there were no notable differences between respondents and non-respondents for course of study type or higher education provider.

### Characteristics associated with outcomes

An important consideration when assessing representation is the extent to which unit characteristics are also associated with survey outcomes (Peytchev, Presser and Zhang 2018). For example, if a particular sub-group of the population is under-represented among respondents, any non-response error may be compounded if the sub-group 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, characteristics with strong associations with outcome variables were determined. First, a random forest model was run to predict the outcome measures from respondent characteristics at the overall level.

The relative importance of variables was largely consistent across key survey outcome measures in 2021 and is shown in Table 21.

Table 21 Relative importance of graduate characteristics in predicting survey outcomes in 2021

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Demographic Variable Label** | **Scale of Perceived Over-qualification (SPOQ) indicator** | **GAS-G(C) Collaborative skills indicator** | **GAS-G(A) Adaptive skills indicator** | **GAS-G(F) Foundation skills indicator** | **General employment indicator** | **Part-time employment indicator** | **Full-time employment indicator** |
| Study area | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Higher Education Provider name (binned) | 66.11 | 85.15 | 85.99 | 88.70 | 73.10 | 68.66 | 65.35 |
| Age grouping | 56.05 | 79.08 | 78.70 | 75.06 | 73.66 | 65.35 | 75.78 |
| Course of study type code | 39.66 | 49.12 | 50.80 | 53.11 | 52.79 | 45.33 | 48.46 |
| Institution size | 27.68 | 35.76 | 36.11 | 38.28 | 31.29 | 28.23 | 26.99 |
| Level of study categorised - with HDR | 11.27 | 18.79 | 12.30 | 13.75 | 14.68 | 11.17 | 13.28 |
| Birthplace | 11.18 | 14.45 | 14.63 | 14.34 | 11.95 | 13.70 | 9.34 |
| Gender | 9.88 | 17.98 | 14.13 | 17.38 | 16.42 | 29.95 | 19.14 |
| Type of attendance code | 8.92 | 27.67 | 17.34 | 11.60 | 13.23 | 14.13 | 12.16 |
| Institute type | 6.77 | 9.36 | 9.64 | 9.48 | 8.78 | 6.88 | 7.61 |
| Disability indicator | 6.55 | 10.07 | 11.27 | 11.38 | 17.42 | 9.73 | 12.58 |
| Citizenship indicator | 6.28 | 22.75 | 6.41 | 5.26 | 8.44 | 6.94 | 7.04 |
| NESB indicator | 5.43 | 10.23 | 6.31 | 4.86 | 7.28 | 6.70 | 4.93 |
| Indigenous indicator | 0.96 | 1.90 | 2.44 | 1.30 | 1.05 | 1.35 | 0.14 |
| Higher Education Provider Type | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Note: 100 = most important.

It is noted that citizenship, language spoken at home, and country of birth, which had notable differences between the responding and non-responding sample, are not strongly associated with core outcomes.

## Sources of responses

Table 22 summarises the breakdown of online survey completion methods and includes sources of response by gender, age and citizenship indicator due to the variation in methods of accessing the survey within these groups. Only minimal differences were observed when reviewing source of response by institution type, study mode or course level, so these groups are not displayed.

The majority of respondents completed via the direct link in email communications, accounting for 93.2 per cent of the total surveys completed. Completing via in field reminder calls was the second highest method for completing the survey, accounting for 3.8 per cent, followed by the direct link in the SMS which accounted for 2.2 percent of total surveys completed.

Table 22 Sources of response

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total %** | **Gender Female (%)** | **Gender Male (%)** | **Age 30 and under (%)** | **Age Over 30 (%)** | **Citizenship indicator Domestic (%)** | **Citizenship indicator International (%)** |
| *Final response rate* | *49.0* | *50.7* | *46.2* | *44.0* | *55.5* | *54.1* | *32.7* |
| **Survey completion method breakdown** |  |  |  |  |  |  |  |
| Type in | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Survey link (email) | 93.2 | 93.6 | 92.6 | 92.7 | 93.7 | 93.8 | 90.3 |
| Survey link (SMS) | 2.2 | 2.5 | 1.8 | 2.1 | 2.4 | 2.4 | 1.4 |
| In field reminder calls | 3.8 | 3.2 | 4.9 | 4.3 | 3.3 | 3.1 | 7.7 |
| Post field reminder calls | 0.7 | 0.7 | 0.6 | 0.8 | 0.5 | 0.7 | 0.6 |

Survey completion via a link from an email communication was most popular for all sub-groups. As discussed at Section 3.3.3, as part of an effort to boost response from international graduates in the 2021 GOS-L, this cohort were prioritised in the in field reminder call activity which is why response from an in field reminder call is much higher for this group than any other sub-group.

Direct survey links were introduced in SMS communications for the first time in this year’s GOS-L collection, as discussed in Section 3.3.1.1. Survey completions via this method for international graduates was much lower than for other groups, 1.4 per cent compared to 2.2 for the total. However, international graduates were less likely to be eligible to complete the survey via a survey link in SMS than domestic graduates, 14.9 per cent compared to 20.7 per cent, respectively.

It should be noted that only completed surveys directly attributable to the in field and post field reminder email are recorded as such in Table 22. It is possible, for example, that reminder call activity may prompt a sample member to click on the survey link in an email they had previously received. Similarly, only 19.4 per cent of eligible sample members received an SMS with a unique survey, the remainder received an SMS asking them to check their email. In this context, the analysis presented should be considered indicative.

# Considerations for future surveys

## International graduate engagement

Despite employing a number of strategies outlined in the *International Engagement Strategy*, including tailored email communications and increased targeting in in field reminder calls, the international graduate cohort continued to be underrepresented in the 2021 GOS-L (refer to Section 7.2.1). The various strategies attempted during the 2021 GOS-L will be reviewed and refined ahead of the 2022 iteration. In addition to this, consultations with the sector and graduates through focus groups should be undertaken to better understand reasons for non-response and to gain more insight into what types of messages may resonate with this cohort, as well as the best channels for communicating. Boosting response from international graduates would also help improve representativeness among the Business and management study area cohort, of which close to half (44.7 per cent) of the in scope population in 2021 were international graduates.

## Panel maintenance activity

A review of panel maintenance activity, including timing and communications should be undertaken. This is a particularly important opportunity to collect up to date contact information from international graduates who may be more mobile or transient, which would increase the likelihood of engaging with this cohort. By collecting updated emails and phone numbers from graduates, the high number of email and SMS bounces seen in the 2021 GOS-L collection could also be reduced. In addition, the collection of more mobile phone numbers at this stage would allow for more unique survey links to be included in SMS to graduates, providing an easily accessible way to complete the survey.

A formal plan for how to best proceed with panel maintenance activity will be prepared ahead of the 2022 GOS-L.

## Sample contact information

Contact information, including emails and phone numbers, are collected from a number of different sources. Some of this information can be quite dated if sourced from GOS population files, or if institutions have not collected updated contact information when graduates complete their studies. In the 2021 GOS-L collection, high bounce rates were recorded on the invitation email which can potentially harm the sender’s reputation. If a sender’s reputation is damaged early in fieldwork, it may negatively impact successive reminders, resulting in messages being flagged as promotional or spam. To minimise this risk, a review of where emails are sourced from and the order these are prioritised in the sends needs to be undertaken. In addition to this, options to test the validity of email addresses should also be explored.

Similarly, a review of the cleaning and testing of mobile phone numbers in the sample prior to sending SMS or attempting to call during in field reminder calls should also be undertaken. Removing deactivated phone numbers from the sample will allow for more active numbers to be contacted in each of these activities.

## Email deliverability

The 2021 GOS-L collection faced both new and existing challenges related to email deliverability. These challenges included the inbox filtering behaviours of email providers such as Gmail and Outlook, and the increasingly sophisticated spam filters used by these providers.

Various strategies to address email deliverability issues were enacted during the 2021 GOS-L and going forward email deliverability should continue to be treated as an issue of great importance for achieving or improving the expected level of response.

The Social Research Centre has recently employed the expertise of an organisation specialising in monitoring and assessing bulk email deliverability metrics. However, it is clear that further analysis in this space is continually needed in order to inform bulk email process improvement and understanding of best practice.

**List of abbreviations and terms**

**ABS** Australian Bureau of Statistics

**AGS** Australian Graduate Survey

**AMSRS** Australian Market and Social Research Society

**AMSRO** Association of Market and Social Research Organisations

**ANZSIC** Australian New Zealand Standard Industrial Classification

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

**BGS** Beyond Graduation Survey

**CATI** Computer Assisted Telephone Interviewing

**GCA** Graduate Careers Australia

**GCAID** Graduate Careers Australia Identifier

**GOS** Graduate Outcomes Survey

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

**HEIMS** Higher Education Information Management System

**ISO** International Standards Organisation

**NUHEI** Non University Higher Education Institution

**QILT** Quality Indicators for Learning and Teaching

References

American Association for Public Opinion Research. 2016. ‘Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys.’ 9th ed. American Association for Public Opinion Research, Oakbrook Terrace, IL, USA.

Biemer, P.P. (2010). Total survey error: Design, implementation, and evaluation. Public Opinion Quarterly 74(5), 817–848.

Breiman, L. (2001). Random forests. Machine Learning 45(1), 5–32.

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences. 2nd ed. New York: Academic Press.

––––– (1992). A power primer. Psychological Bulletin 112(1), 155–159.

Groves, R.M., F.J. Fowler, M.P. Couper, J.M. Lepkowski, E. Singer and R. Tourangeau (2009). Survey Methodology. 2nd ed. Hoboken: Wiley.

Schouten, B., F. Cobben and J. Bethlehem (2009). Indicators for the representativeness of survey response. Survey Methodology 35(1), 101–113.

Shlomo, N., C. Skinner and B. Schouten (2012). Estimation of an indicator of the representativeness of survey response. Journal of Statistical Planning and Inference 142(1), 201–211.

Valliant, R., J.A. Dever and F. Kreuter (2013). Practical Tools for Designing and Weighting Survey Samples. New York: Springer.

1. https://www.facebook.com/business/help/447834205249495 [↑](#footnote-ref-1)
2. These are based on the magnitude of the difference between responding and non-responding proportions, standardized by the pooled standard deviation, with Cohen (1992) assigning qualitative labels of “small”, “medium” and “large”, with thresholds of 0.2, 0.5 and 0.8, respectively. He states that his “intent was that medium ES [effect size] represents an effect likely to be visible to the naked eye of a careful observer … I set small ES to be noticeably smaller than medium but not so small as to be trivial, and I set large ES to be the same distance above medium as small was below it.” [↑](#footnote-ref-2)