



The workplace experience of hospitality apprentices

February 2021

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The trial was pre-registered on the BETA website and the American Economic Association registry:

<https://behaviouraleconomics.pmc.gov.au/projects/improving-workplace-experience-apprentices>

<https://www.socialscienceregistry.org/trials/4607>

Who?

Who are we?

We are the Behavioural Economics Team of the Australian Government, or BETA. We are the Australian Government's first central unit applying behavioural economics to improve public policy, programs and processes.

We use behavioural economics, science and psychology to improve policy outcomes. Our mission is to advance the wellbeing of Australians through the application and rigorous evaluation of behavioural insights to public policy and administration.

What is behavioural economics?

Economics has traditionally assumed people always make decisions in their best interests. Behavioural economics challenges this view by providing a more realistic model of human behaviour. It recognises we are systematically biased (for example, we tend to satisfy our present self rather than planning for the future) and can make decisions that conflict with our own interests.

What are behavioural insights and how are they useful for policy design?

Behavioural insights apply behavioural economics concepts to the real world by drawing on empirically-tested results. These new tools can inform the design of government interventions to improve the welfare of citizens.

Rather than expect citizens to be optimal decision makers, drawing on behavioural insights ensures policy makers will design policies that go with the grain of human behaviour. For example, citizens may struggle to make choices in their own best interests, such as saving more money. Policy makers can apply behavioural insights that preserve freedom, but encourage a different choice – by helping citizens to set a plan to save regularly.

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Executive summary

The Fair Work Ombudsman (FWO) is the national workplace relations regulator. Its role and responsibilities are set out in the Fair Work Act 2009 and include educating employers and employees to understand their rights and responsibilities at work. The fast food, restaurants and cafes sector is a priority sector for the FWO due to both disproportionately high levels of non-compliance and its vulnerable workforce. Within this sector, the hospitality industry has consistently had the highest number of disputes the FWO assisted with for the last six financial years.

Apprenticeships are critical to the hospitality workforce and are important for building a skilled workforce. Many hospitality apprentices are young workers and can be more vulnerable to workplace exploitation, which can discourage them from completing their apprenticeship.

BETA partnered with the FWO to better understand this problem. We found many hospitality employers and apprentices appear to have low knowledge of their rights and obligations under workplace law. For employers, the large volume of information can sway good intentions. By contrast, apprentices who are unsure of their rights shy away from difficult conversations.

We designed a series of clear and timely education messages targeted at both the employer and the apprentice with information about their workplace rights and obligations. We sent the messages at a time when the information would be most impactful—at the beginning of the apprenticeship—and in their preferred communication medium. The aim was to address employers' and apprentices' limited understanding of their workplace rights and obligations, and encourage employers to double-check their own compliance. We thought this could result in better workplace experiences for apprentices and higher apprentice retention rates.

There was a high level of engagement with the messages: the average click-through rate on links provided in the messages was 19 per cent, and as high as 31 per cent for the link to the FWO's pay calculator. This is five times higher than global benchmarks for the government sector (Campaign Monitor 2020). This suggests the messages were an effective medium for providing information to apprentices and their employers about their workplace rights and obligations; a typically hard to reach cohort. To this end the intervention ensured the FWO delivered on its education mandate for this priority industry and cohorts.

We conducted a randomised controlled trial to test the impact of the messages but we did not find evidence of an impact on short-term retention rates: 83.6 per cent of apprentices who received the messages remained in their apprenticeships three months later, compared with 82.9 per cent of the control group. While there were higher retention rates in the intervention group, this difference was small and not statistically significant.

Due to the significant impact of COVID-19 on the hospitality industry, we ceased the trial early—reducing our sample size by approximately 40 per cent and restricting our focus to short-term retention rates. It also meant we were unable to conduct surveys on apprentice’s workplace experiences as originally planned. Consequently, the absence of evidence of an impact on short-term retention rates may be because:

- they had a small effect but we lacked sufficient sample size to detect this,
- the messages had a delayed effect on drop-out decisions not detected in our short-term measure, or
- the messages had no impact on retention rates.

Why we did this

Apprentices are vulnerable to workplace exploitation, which can discourage them from completing their apprenticeship

Hospitality apprentices are a critical part of Australia's skilled future

The hospitality sector is one of Australia's largest industries by turnover and proportion of the workforce employed. As at June 2019, there were over 90,000 businesses operating in the hospitality sector (ABS 2020a). The hospitality industry has been among the hardest-hit by the COVID-19 pandemic, with an overall 25 per cent decline in revenue from 2018–2019 to 2019–20 (IBISWorld, 2020), and over half of hospitality businesses reporting a 50 per cent or greater decrease in revenue (ABS 2020b).

Apprenticeships and traineeships make an important contribution to a skilled and productive workforce (Mangan and Trendle, 2017).¹ **Apprenticeship non-completion results in losses** for:

- **students**, who invest time and effort;
- **businesses**, who invest resources in the individual; and
- **taxpayers**, who subsidise the training courses.

Apprentice non-completion was forecast to cost an estimated \$149 million between 2010–2020 in New South Wales alone (NCVER 2019b).

Apprenticeships are critical to the hospitality workforce. In 2019, there were approximately 24,000 students studying vocational food and hospitality courses. In this study we focused on students completing apprenticeships in commercial cookery—to become a chef, chef de partie or cook—or hospitality, a more general qualification relating to food and beverage services as well as accommodation services. Approximately 10,600 students either commenced or recommenced these apprenticeships in 2019.

Hospitality apprenticeships experience high rates of non-compliance with workplace laws

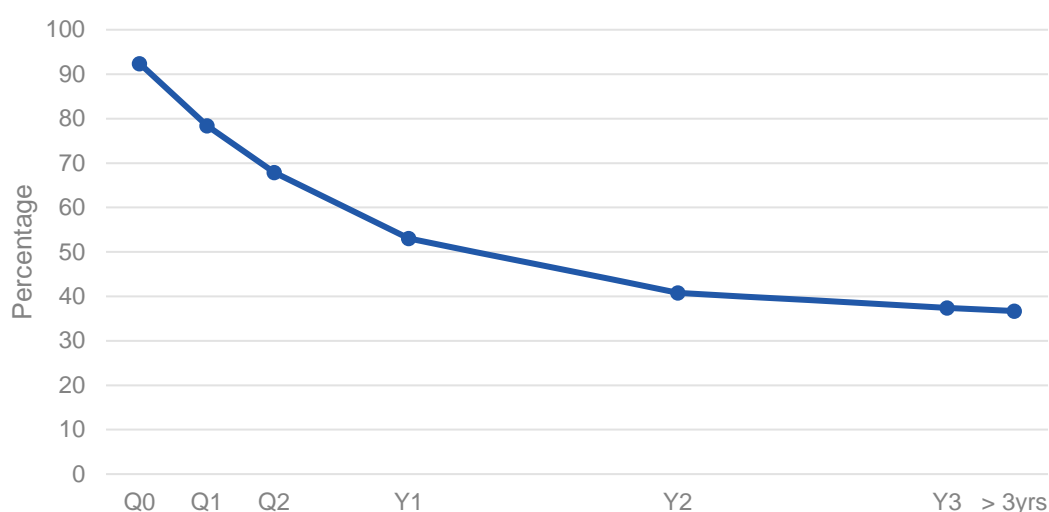
Apprentices are young workers; often it is their first time in the workforce. Often unaware of their rights and obligations, apprentices are vulnerable to exploitation. This is particularly common in the hospitality industry. The hospitality industry accounted for 36 per cent of all

¹ From here on, we use 'apprentices' and 'apprenticeships' to refer to both apprentices and trainees.

anonymous reports made on the FWO’s online reporting tool in 2018–19 despite only accounting for seven per cent of the labour force.

The hospitality industry has among the highest rates of apprentice non-completion. Completion rates for hospitality apprenticeships are as low as 32 per cent, compared with an average of 40 per cent across all trades (NCVER, 2020).² Moreover, drop-outs or contract changes were most likely to occur in the first year of an apprenticeship, with almost 50 per cent of contracts cancelled or withdrawn within one year of commencement (Figure 1; NCVER 2020).

Figure 1: Apprentice continuation rates for food trade workers, 2015–2018



Note 1: ‘Continuation rates’ include cases where apprentices have changed employer, where there is no record of contract cancellation, or where apprentices take longer than four years to complete. The ‘individual completion rate’ of 32 per cent refers to apprentices who complete a contract within four years.

Note 2: Q0 refers to the calendar quarter in which the apprentice commenced (for example, if they commenced in May, Q0 refers to apprentice continuation through to 30 June of that year. Likewise for subsequent quarters.

Source: NCVER (2020)

A supportive work environment increases apprentices’ level of competence and persistence in completing their apprenticeship (Powers, 2015). However, many apprentices leave their job due to poor working relationships, bullying, issues with pay and being treated like cheap labour (Snell and Hart, 2008). Poor work conditions and bullying are associated with intention to leave for apprentices generally (McCormack et al., 2012) and for hospitality workers (Kellner et al. 2017), who are particularly likely to experience insecure wages and long, antisocial, irregular or unpredictable working hours (Bohle et al., 2017).

Apprentices who leave their roles most often do so due to employment-related reasons (Bednarz 2014). A survey conducted in 2019 by the National Centre for Vocational Education Research (NCVER) found 14 per cent of apprentices who did not complete their course cited poor pay or conditions as their reason for non-completion, while another 12 per cent left due

² Recommencements are not included in these completion rates.
Behavioural Economics Team of the Australian Government

to not getting on with the boss or other people at work. Hospitality apprentices who did not complete their apprenticeship were almost 20 percentage points more likely to say they had observed bullying in the workplace (NCVER 2019a).

The role of the Fair Work Ombudsman

The Fair Work Ombudsman (FWO) provides information and advice to employers and employees about their workplace rights and obligations. The FWO offers a range of free products and services to help employers and employees comply with workplace laws. These include information and resources on www.fairwork.gov.au (for example, the Pay calculator, an Online learning centre, and myth busting videos), the Fair Work Infoline, and compliance and enforcement activities.

To enhance these existing products and services, the FWO asked BETA to design and test targeted education interventions to improve the employment experiences of hospitality apprentices.

What our behavioural research found

Limited knowledge leads to poor employment practices

To better understand when apprentices' have unsatisfactory workplace experiences, we conducted a literature review and field research with apprentices and their supervisors. **We found both supervisors and apprentices had a limited awareness of workplace laws.** For employers trying to comply with workplace laws, the large volume of information can sway good intentions. And some employers mistakenly perceive they are compliant by referring to prevailing industry norms. Apprentices, too, can be confused by workplace laws and may shy away from difficult conversations with their employer if they lack a clear understanding of their rights.

Wages matter, but so do communication, relationships and reciprocity

An apprentice's ability to communicate openly with their supervisor is associated with better workplace experiences, which in turn supports apprentice retention (Kemmis et al. 2012). An interview study of young Australian apprentices showed poor psychosocial work environments, where people experience bullying and harassment in the workplace, often resulted when there was inadequate support, training or supervision (Conway and Foskey 2015). While employers were well-intentioned and wanted to provide a positive experience for their apprentices, short-term, day-to-day cash-flow considerations were often front of mind, and drove unrealistic expectations of apprentice productivity.

Good working conditions and correct entitlements are associated with successful completion (Harris and Simons, 2005). Apprentices who are paid better feel they have higher status in the workplace and are granted more respect (Snell and Hart 2008). In addition, higher wages reduce apprentices' financial pressure and therefore intention to leave (Bohle et al. 2017). For example, apprentices who have second jobs due to financial necessity have a higher intention to quit than those who do not (Seidel 2019).

A sense of mutual obligation, reciprocity and commitment between employer and apprentice is also important for apprentice retention. Apprentices are more motivated and perform better when they feel their hard work is recognised and reciprocated through adequate pay rates (Smith, Walker and Brennan Kemmis 2011). But reciprocity is not limited to pay—wages are only part of the equation in improving training outcomes and improving apprentice satisfaction. Some apprentices are willing to accept low pay if they feel the opportunity for skills development is 'worth it' (Dickie et al. 2011).

We also looked for examples of interventions designed to help apprentices in their work or training. A small trial with Australian apprentice chefs found a series of information sheets in the first two weeks of training decreased risky behaviour and improved their ability to talk with supervisors about work issues (Pidd, Roche and Fischer 2015). A trial conducted by the UK Behavioural Insights Team showed SMS interventions can support adult learners and reduce drop-out, improving attendance by 7.3 per cent (Department of Education 2018). Monetary incentives for workers to undertake long-term vocational training resulted in them completing significantly more courses than a control group (Ho & Yeung 2015; Messer & Wolter 2009). A 2008 apprenticeship bonus program in Germany subsidised employers who hired ‘hard-to-place’ apprentices (those who had previously failed to find an apprenticeship). However, it had no impact on apprentice retention (Fries et al. 2014).

Hospitality apprentices expected to be underpaid despite not being aware of their rights and entitlements, while employers thought they were doing the right thing

We conducted interviews with 15 hospitality apprentices and 15 employers/supervisors, and a survey of 108 apprentices to better understand the behavioural factors affecting employers and apprentices in the hospitality industry. The full survey questionnaire and sample interview questions are available in the appendix.

Our **interviews with hospitality apprentices** suggested they expected to be underpaid, overworked or denied superannuation as part of their involvement in the industry.

{ ‘Apprentice chefs are conditioned to expect poor treatment’ (apprentice) }

Apprentices were often not aware of the award applying to them, making it difficult to determine if they knew they were being paid correctly.

Our **diagnostic interviews with supervisors** found they believed they had good general knowledge about workplace laws and were confident about where they could find more information. But they, too, had limited specific understanding of the award their apprentices were employed under—suggesting a degree of overconfidence. Businesses who are reminded of the FWO’s compliance activities use this as a prompt to review their own compliance (Howe and Hardy 2017). This suggests overconfidence among well-intentioned employers could be addressed by reminders to check they are compliant.

Our **survey of apprentices** complemented and corroborated the findings of the interviews, showing a significant proportion of apprentices thought they were underpaid at work, while most were relatively ignorant about what workplace conditions applied to them.

Apprentice interviews: key findings

Interpersonal relationships are critical: Team atmosphere and interpersonal relationships were extremely important to many apprentices. Apprentices said, even when they thought they were being underpaid, they would feel guilty leaving or complaining because they liked their boss as a person. While employees who didn't feel they had a good relationship with their boss or colleagues said they were more likely to change employers or drop out of their apprenticeship entirely.

Widespread experience of non-compliance: Many apprentices reported they had been underpaid, overworked, or denied superannuation at some point in their apprenticeship. Apprentices generally preferred to try to resolve things directly, before thinking about complaining to an external body like the FWO. But 'speaking up' can be hard in an industry where our field research suggests non-compliance with workplace law is seen as the norm. Many apprentices stated they would feel more confident and comfortable having a conversation with their employer about their rights if they knew they had the correct information.

Ignorance about workplace rights: While some apprentices said they were aware of their workplace rights, most were unable to recall accurate information—for example, none could name the specific award they were covered by. Most apprentices reported waiting until there was a problem before they did any research

Supervisor interviews: key findings

Industry norms: Employers—particularly owners—reported a generally high level of compliance, in contrast to apprentices' reports of widespread non-compliance. This suggests employers rate their own performance against a prevailing industry norm (how they perceive other businesses to behave), rather than workplace relations laws.

Overconfidence: Employers and supervisors interviewed generally claimed it was easy to find accurate information about workplace law. However, most interviewees could not readily identify their apprentice's award, and seemed unsure about what pay and conditions applied. This suggests some employers may be overconfident about their understanding of workplace law.

Motivation to do better: A number of themes drive good behaviour among employers. Supervisors who remembered how it was to be an apprentice saw the value of treating apprentices well for staff retention. Media attention on underpayments in the hospitality industry also increased awareness of the possibility of getting caught for doing the wrong thing.

Survey of apprentices: key findings

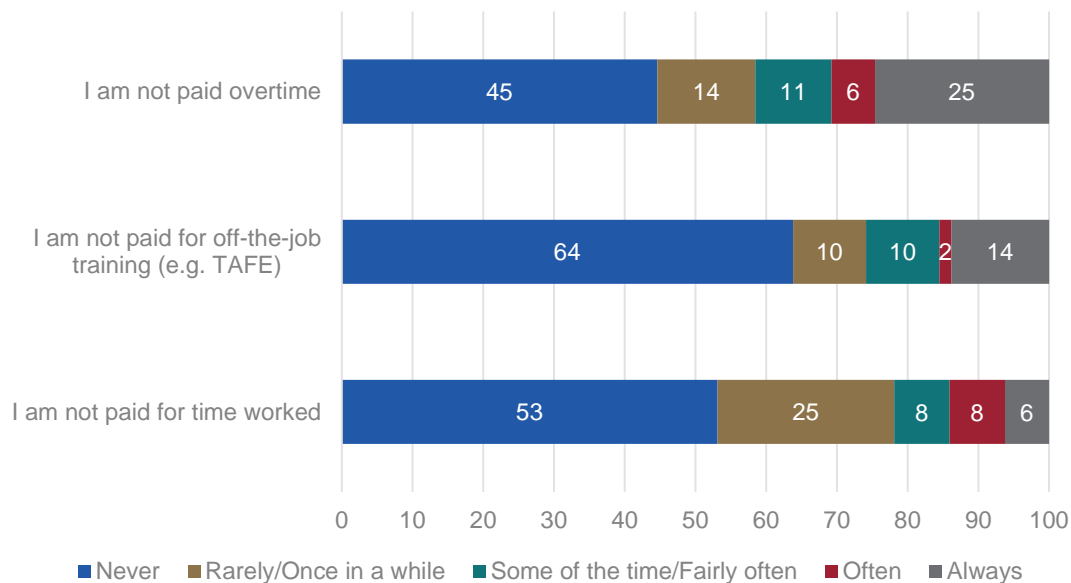
Pay and entitlements: A large minority (43 per cent) were dissatisfied with their pay. Approximately one in four apprentices reported they were never paid overtime, with similar proportions reporting they were never paid the correct hourly rate, or correct allowances (see Figure 2 below).

Bullying: Over a third reported experiencing bullying or harassment, either by a supervisor or co-worker.

Award: The majority (59 per cent) were not sure about the award they were employed under.

Awareness of the FWO: 52 per cent said they would go to the FWO for information on their workplace rights, with about the same proportion seeking information from an internet search. The vast majority (81 per cent) wanted to receive information about their workplace rights before or at the point of starting their apprenticeship.

Figure 2: Pay and entitlements for hospitality apprentices, survey results



N=108, survey conducted in June 2018.

Non-compliant practices were influenced by a reliance upon inaccurate information sources

In the interviews and survey, we found apprentices and employers often had a limited understanding of workplace laws relating to apprenticeships. Combining our field research with a review of the existing literature, it appears a number of behavioural factors led to apprentices not receiving all of their minimum employment entitlements. They include:

Industry norms and information availability

Employers perceive they are compliant with workplace law since they are behaving in line with what they consider to be industry norms. The behaviour of others can have a significant impact on our own behaviour; seeing others bending (or breaking) rules can make people more comfortable with breaking the rules too, particularly when they are from a relatable social group (Gino et al. 2009). Furthermore, if information and stories about a norm become prevalent, people tend to overestimate the pervasiveness of the behaviour.

Complexity

For hospitality employers trying to comply with workplace laws, the large volume of information across numerous areas of their business operations can sway good intentions. Qualitative research with three café franchisees concluded the complexity of industrial relations law as well as their heavy workload led to them misinterpreting or overlooking their responsibilities (Kellner et al. 2016). This accords with our research, which found employers found it difficult to stay up-to-date with their obligations, instead outsourcing their compliance to others such as accountants.

Procrastination and ambiguity aversion

Apprentices, too, can be confused and overwhelmed by workplace laws. Wages and entitlements differ based on a range of factors, which can include their specific employer, industry, age, work hours and days, experience and geographic location. An apprentice may shy away from difficult conversations with their employer, particularly where the apprentice does not have a clear and specific understanding of their rights. Evidence on procrastination (DellaVigna 2009) and ambiguity aversion (Fox and Tversky 1995) shows people avoid tasks with uncertain outcomes. For apprentices, this means confronting their employers for a *suspected* case of non-compliance will be much harder than for a clear and unambiguous case.

Design

We designed education messages for apprentices and employers with clear and timely information about workplace laws

Through our research we discovered employers and apprentices often lacked information about correct pay and conditions, at the time they needed it. This uncertainty led apprentices to feel uncomfortable raising workplace issues with their employers. Apprentices told us they felt more confident and comfortable having a conversation with their employer about their rights if they knew they had the correct information.

To close this information gap, we designed a series of education messages for apprentices and their employers. We hypothesised **reducing confusion through clear and timely messages about workplace laws** would empower apprentices to initiate discussions to resolve workplace issues before disputes happened. This, in turn, would lead to better apprenticeship experiences and, we hoped, a lower likelihood of drop-out.

Our intervention involved a series of four messages, sent about two to four weeks apart to newly-commencing apprentices and their employers. The **messages focused on the workplace rights and responsibilities of apprentices and employers**, providing information on where to find correct pay rates (including penalty rates and overtime) and conditions (such as required breaks). Employers received messages in an email format, while apprentices received SMS messages one week later.

The intervention **messages reflected the behavioural elements identified in the diagnosis phase**. These included: timely reminders to address cognitive overload; salient and simple messages to address uncertainty and ambiguity aversion; calls to action; and links to make it easy to find further information. We present the full text of each message sent to employers and apprentices in Figures 3 and 4 below.

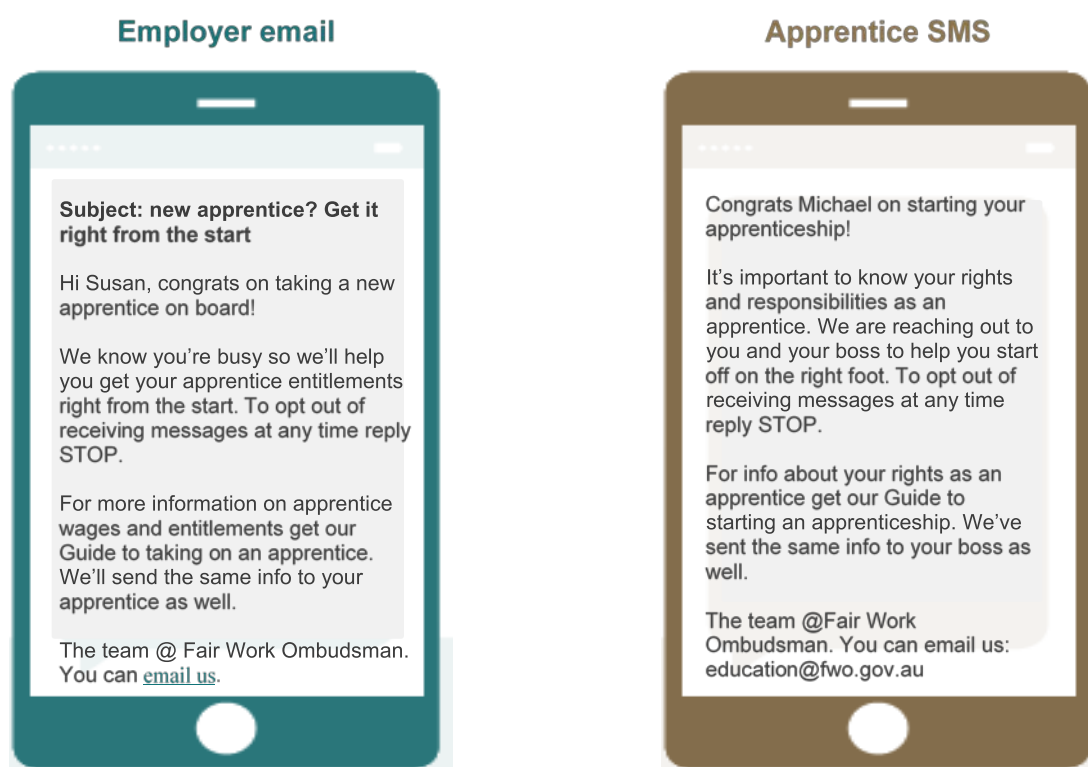
Reducing cognitive overload by providing clear, timely and accurate messages

A strong theme in our field research was **apprentices' lack of awareness of their workplace rights and entitlements**. Personalised messages with links to specific information can help give apprentices the confidence and certainty they need to start a conversation about their rights and entitlements. Relevant, salient messages should also help employers meet their compliance obligations.

Timely reminders can also reduce cognitive overload. Apprentices consistently reported they would like to receive key information either before they begin their apprenticeship, or as soon as possible after commencement. We sent our first message as soon as possible after apprenticeship commencement (in practice, about 1–3 months later). We sent further

messages over the following months to provide additional information and to reinforce the earlier messages.

Figure 3: First education message to employers and apprentices



We used email as our primary communication channel for employers but SMS for apprentices. The latter was because many apprentices did not have email addresses recorded in their training contract, and we felt SMS might be a preferred contact method for this younger cohort. By contrast, it was difficult to know if the employer contact details on the training contract reflected the apprentice's immediate supervisor. If not, we felt there was a better chance an email might be forwarded on to the relevant supervisor. In the event of an email or SMS 'bounce', the other channel was used as a backup, if available.

Reducing information asymmetry through paired messages

We sent messages to both parties in the relationship to reinforce the message and reduce information asymmetry. Emphasising the fact employers have the same information, we hypothesised, would give apprentices more confidence to raise an issue with their employer.

Figure 4: Full text of subsequent education messages

Employer email	Apprentice SMS
#2 - Award pay rates	
<p><i>Subject: Check your apprentice's pay rate</i></p> <p>Hi <name>, Thanks for supporting your apprentice. Doing the right thing by your apprentices means they are more likely to stay on and contribute to the success of your business.</p> <p>Our popular Pay Calculator can help you check minimum award pay rates that may apply to your apprentices.</p> <p>We'll also share this link with your apprentices so they can understand their pay rates.</p> <p>The Team @FWO</p>	<p>Hi <name>, make sure you are getting paid right. Did you know you can use our Pay Calculator https://bit.ly/2zp3bJF to check award pay rates? We've shared this info with your boss as well.</p> <p>The Team @FWO</p>
#3 - Weekend penalty rates	
<p><i>Subject: Have you checked weekend penalty rates?</i></p> <p>Hi <name>, You're an important role model for your apprentices. They're looking to you for career direction.</p> <p>Have you checked if weekend penalty rates apply to your apprentices?</p> <p>Don't let a simple mistake affect your business, our Penalty rates page can help you.</p> <p>We'll send the same info to your apprentice as well.</p> <p>The Team @FWO</p>	<p>Hi <name>, We hope you are enjoying your apprenticeship! Keep up the good work :-)</p> <p>Btw, did you know you may be entitled to penalty rates https://bit.ly/2LewHay if you work on weekends?</p> <p>Have concerns and need help starting a conversation with your employer?</p> <p>For advice on how to talk to your boss about it, take our free short online course https://bit.ly/2TYCqED.</p> <p>The Team @FWO</p>
#4 - Final tips and sign off	
<p><i>Subject: Some final tips before we sign off</i></p> <p>Hi <name>, Well done on committing to your apprentices.</p> <p>Have you checked if you're required to pay overtime and are allowing for required breaks?</p> <p>Our advice on hours of work, breaks & rosters can help.</p> <p>FWO Team signing off for now</p>	<p>Hi <name>, getting through the first few months of your apprenticeship can be hard. But it's worth it, so stick with it!</p> <p>If you ever need info about your workplace rights please visit our Apprentices page https://bit.ly/2Zu2wp4.</p> <p>FWO Team signing off for now</p>

Note: Message Two was changed during the trial after feedback from trial participants. The text shown here is from the updated version.

Other design features

Our field research suggested many hospitality employers want to do the right thing, but they think non-compliance is the norm in their industry. Drawing attention to the pervasiveness of non-compliance can sometimes backfire (Cialdini et al., 2006), as it can reinforce the

perception it is the norm. Instead, our messages to employers portrayed compliance as a **moral norm**: ‘*doing the right thing by your apprentice...*’.

Our research found employers are well intentioned when an apprentice commences but are distracted by the day-to-day costs of running a business. We tried to address this by **highlighting the long-term returns** from early investment in their apprentice: ‘*Doing the right thing by your apprentices means they are more likely to stay on and contribute to the success of your business*’.

We appealed to **altruism**, reminding employers of why they chose to take on an apprentice and their obligation towards their apprentices with the message: ‘*They’re looking to you for career direction*’.

People are more likely to respond to legitimate and credible authority figures—this is known as the ‘**messenger effect**’ (Dolan et al., 2012). In our field research, we found many apprentices saw the FWO as a helpful ally and information source on workplace rights, and employers recognised the FWO as a source of reliable information on workplace law. When prompted, over 80 per cent of firms in the hospitality sector were familiar with the FWO, while knowledge of the FWO’s work encourages employers to proactively check their compliance with workplace legislation (Howe and Hardy, 2017). Consequently, messages were sent under the FWO’s name.

In a nutshell:

Informed by our behavioural diagnosis and field research, we designed clear, timely and accurate messages for employers and apprentices with authoritative, accurate information about workplace law. Focusing on compliance as a moral norm, our messages were designed to be received when the information would be most relevant and reinforced through a series of reminders. We hypothesised this would lead to lasting behavioural change, by encouraging apprentices and employers to seek out information and have conversations about workplace rights and entitlements.

Implementation and evaluation

We sent a series of education messages to 566 employers and 1,241 hospitality apprentices (while others, in the control group, did not receive a message).³ This summed a total of almost 6,000 education messages (via SMS and email) sent to this priority cohort by the FWO over the 2019-20 financial year.

We derived some valuable lessons during the project implementation: few apprentices or employers chose to opt out of receiving the messages, and the contact information held in administrative records was largely accurate. We conducted a randomised controlled trial (RCT) to assess the impact of the messages however, due to the impact of COVID-19 on the hospitality sector, we decided to halt the study early. As a result, we had a smaller sample size than intended and did not collect surveys as originally planned.

Implementation

Message delivery relied on a regular data exchange between the Department of Education, Skills and Employment (DESE) and the FWO. DESE collects contact details from apprentices and employers when the training contract is signed. For this trial, DESE provided a Privacy Notice to apprentices and employers, informing them their contact details may be shared with the FWO for the purpose of inviting them to participate in education programs. At this point, apprentices and employers were provided the opportunity to opt out of the trial entirely. DESE received no opt-outs at this stage.

The FWO sent SMS messages to apprentices and email messages to employers. Specific details of the SMS delivery can be found in the Technical Appendix.

Apprentices and employers were provided with a further opportunity to opt out when they received the first message. While our intervention was designed to promote communication by sharing information with both employers and apprentices, in the event one or other opted out, we continued sending a modified version of the message to the other party. This modified version contained the same information except it removed the text stating the other party had received a similar message.

We were concerned a high opt-out rate would undermine the effectiveness of the intervention by splitting up the paired messages, which were intended to promote communication

³ These figures reflect all employers and apprentices who received one or more messages across five delivery 'batches'. As discussed under 'Evaluation' below, we did not use the fifth batch in our primary analysis so the sample size for that analysis differs from these figures.

between the parties. However, our concerns did not eventuate. Of the apprentices, 39 (or 3 per cent) opted out, while only four employers (or 0.7 per cent) did so.

We also had a related concern about message bounces due to incorrect contact details. Again, these numbers were very small: of the 566 employers and 1,241 apprentices contacted in the trial, we only failed to contact 14 employers and six apprentices. In those cases, we proceeded in the same way as for opt-outs, and sent a modified message to the other party.

Evaluation design

We conducted a two-arm cluster randomised controlled trial between August 2019 and March 2020. The unit of randomisation (clusters) were hospitality employers with newly commencing apprentices. Specifically, the trial involved apprentices who were at least 16 years old and who had, as part of their apprenticeship, signed a new training contract in the previous month to undertake a Commercial Cookery III or Hospitality III (general) certificate in NSW, Victoria or South Australia.

Employers of newly-commencing apprentices were randomly assigned into either the treatment or control group. Since apprentices commence their training contracts throughout the year, the randomisation procedure was repeated in monthly batches.

Apprentices and employers in the treatment group each received up to four messages providing information on workplace laws. (The control group received no messages.) We sent out the messages to batches of apprentices and employers, as they were randomised into the trial, resulting in a total of four completed delivery batches.

Our primary outcome was apprentice retention at three months after the first message was sent. This data is routinely collected by DESE. We hypothesised the treatment would increase awareness and understanding of workplace laws among apprentices and employers, which would lead to greater apprentice confidence to initiate conversations about workplace issues, and ultimately to better workplace experiences and improved retention rates.

Potential participants could opt out of the study when they signed their training contract and, as noted above, they had a further option to do so when they received the first intervention message. Participants were not informed they may be part of a randomised controlled trial. This avoided the possibility of participants' changing their behaviour simply due to being aware they were part of a trial, and was subject to ethics review.

See the Technical Appendix for further details on the trial design and ethics review process.

Changes due to COVID-19

In recognition of the impact of COVID-19 on the hospitality sector, we ceased sending further messages from mid-March 2020. Consequently, an additional fifth batch of apprentices and employers only received the first two messages, rather than all four. Furthermore, we stopped recruiting additional apprentices into the trial. As a result, we fell short of our target sample size of 3,000 apprentices: our final sample size was 1,788 apprentices (and

821 employers) in the first four batches, with an additional 659 apprentices in the fifth batch.⁴ This meant we sent approximately 6,000 of the planned 8,000 messages for the project (75 per cent).

We also decided not to proceed with surveys of apprentices and employers as the surveys were due to be rolled out at the time the COVID-19 outbreak occurred. Government restrictions implemented to manage the outbreak resulted in many hospitality businesses having to either shut down or substantially modify their operations (for example, provide take away services only), resulting in many employees being stood down or having their hours significantly reduced. These surveys were intended to explore their experience with the intervention messages, their awareness of workplace law, their confidence raising issues at work, and apprentices' workplace experiences.

⁴ As noted, for our primary analysis, we used the smaller sample of 1,788 apprentices who were in the first four batches. However, to assess implementation and engagement, we included all five batches, giving a total of 2,447 apprentices (of whom 1,241 were in treatment and thus received at least one message).

Results

Apprentices and their employers had high levels of engagement with our education messages however we did not find evidence they had an effect on apprentice retention

Engagement with messages

There was a high level of engagement with the messages, as measured by the click-through rates (CTRs) for links within each message. The overall CTR was 19.3 per cent, with comparable rates for apprentices and employers (Figure 5). In other words, around one in five recipients followed our links to find more information. Benchmark CTRs range depending on industry. During 2019, CTRs for a sample of government organisations globally averaged approximately 4.1 per cent (Campaign Monitor 2020). The average CTR for this project was approximately five times higher than industry averages, validating the behavioural approach underpinning the message design.

Click-through rates varied substantially by message, with higher rates for specific, targeted links in relation to, for example, wage rates, penalty rates, or breaks and overtime. However all project messages achieved above industry-standard CTRs for government messages. Full details of click-through rates by batch and message can be found in Appendix 2.

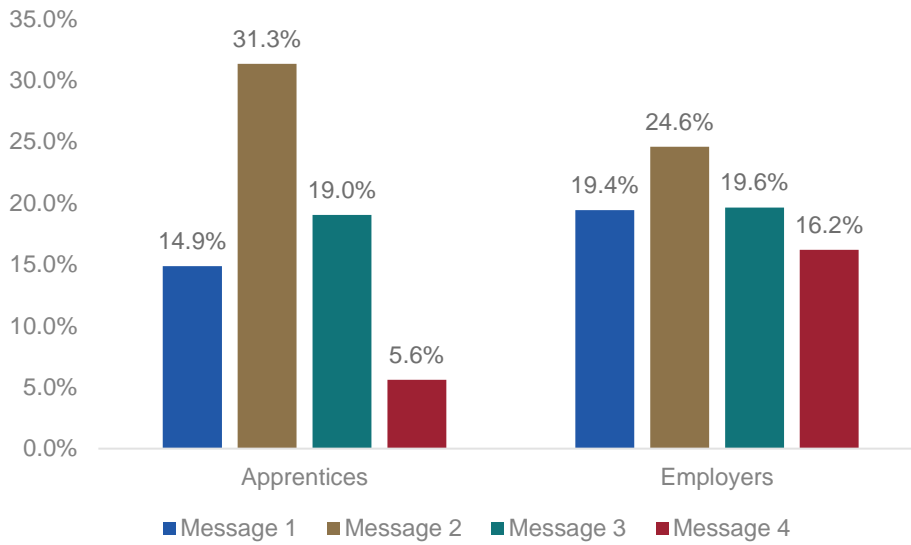
Apprentice retention rates

Due to the impact of COVID-19, we ceased the trial early—reducing our sample size by approximately 40 per cent and restricting our focus to short-term retention rates.

More apprentices in our trial who received the behaviourally informed communications stayed in their apprenticeships 90 days after the first message compared to those who did not. However, the difference was small and was not ‘statistically significant’ according to conventional tests (Figure 6). Robustness checks found similar results. Full details of these results can be found in Appendix 2.

On balance, this leads us to conclude a communication-based intervention designed to educate both parties about their workplace rights and entitlements had, at most, a small impact on short-term apprenticeship retention rates. If there was an effect (positive or negative), it was small, and not detectable within our sample size.

Figure 5: Message click-through rates



N=1,241 apprentices and 566 employers. Details of message links:

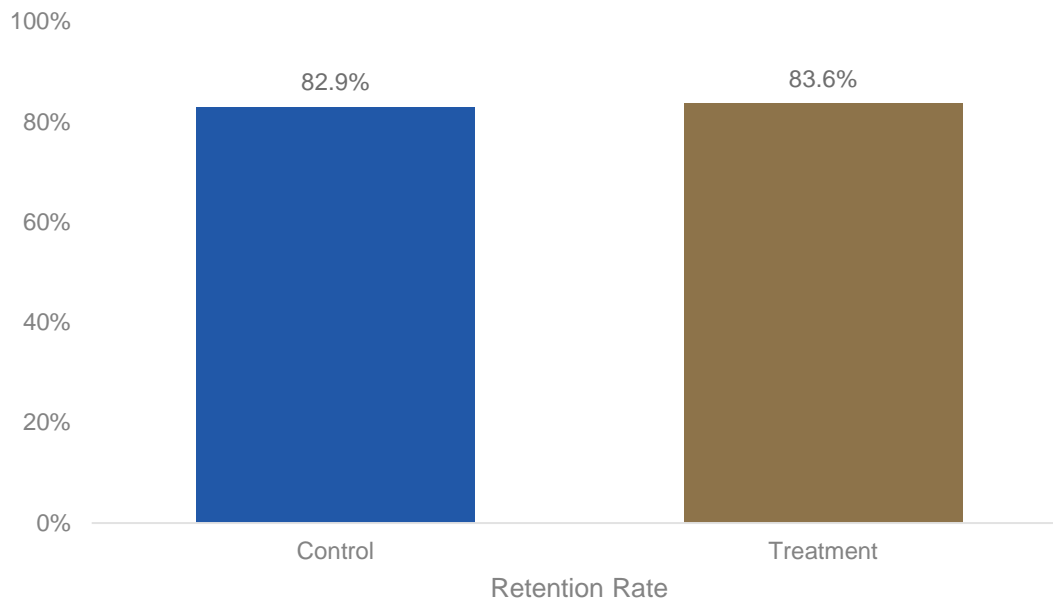
Message 1: apprentices—guide to starting an apprenticeship; employers—guide to taking on an apprentice.

Message 2: both—pay calculator.

Message 3: both—information on penalty rates.

Message 4: apprentices—information on their rights; employers—advice on hours of work, breaks and roster.

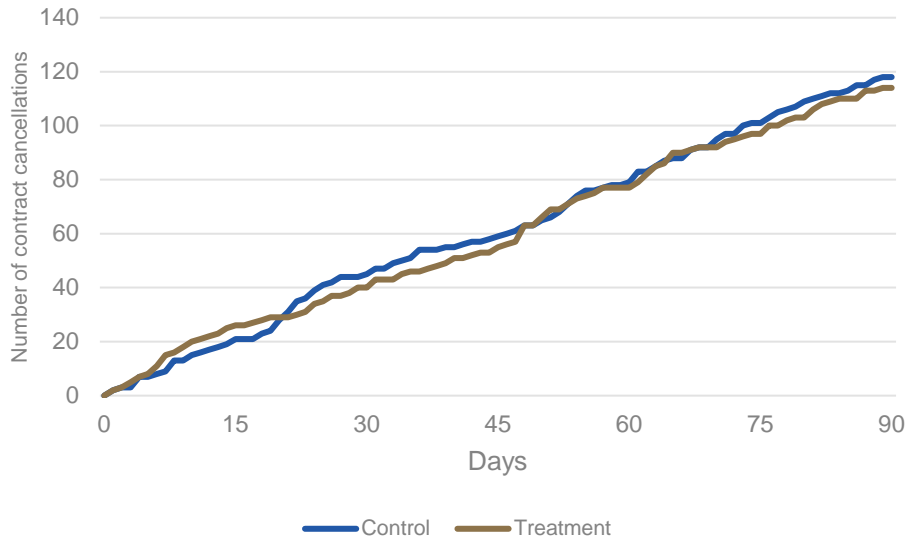
Figure 6: Impact of paired messages on apprentice retention



N=1,788. Primary outcome: apprentice retention 90 days after apprentice's first message. Results from a covariate-adjusted linear probability model. The difference was not statistically significant ($p=0.39$, one-sided test). See Appendix 2 for full details of statistical analyses.

We also studied the number of apprentices who had cancelled their contract at different points in time after the first message was sent (Figure 7). Within the first 90 days, there was no real difference between drop-out rates in the treatment and control groups. A test for a difference between the two curves did not reveal statistically significant results. Full details of the ‘survival rates’ for each group can be found in Appendix 2.

Figure 7: Likelihood of contract cancellation



N=1,788. A log-rank test of the difference between the two ‘hazard functions’ was not statistically significant ($p=0.84$). See Appendix 2 for full details of statistical analyses.

Discussion and conclusion

Low pay and non-compliant working conditions are likely to be important factors in apprentice drop-outs in the hospitality sector. This was reflected in the existing literature and in surveys and interviews we conducted with apprentices and their employers. In particular, apprentices demonstrated difficulty recalling accurate information about their rights and entitlements under workplace law, and most apprentices reported they would wait until there was a problem before seeking this information out.

We designed a series of tailored and targeted messages to improve employers' and apprentices' knowledge about workplace law. We were able to reach apprentices and their employers at a time when the information would be impactful, at the beginning of the apprenticeship. Our intention was to encourage apprentices to initiate conversations about workplace conditions, and to encourage employers to double-check their own compliance. We anticipated this would result in better workplace experiences for apprentices, encouraging more to stay on in their apprenticeships.

The high click-through rates on the links provided in the messages demonstrates a high level of engagement from apprentices and their employers with the information provided. In particular, specific and targeted messages received more attention, and many employers and apprentices visited the links multiple times. This demonstrates behaviourally informed messages targeting both hospitality apprentices and their employers were an effective medium for providing information and education about workplace rights and obligations. This cohort has traditionally been difficult to reach so the engagement with text messages as an educative medium is a promising finding we hypothesise will have further applications for similar hard-to-reach cohorts.

Due to the impact of COVID-19 on the hospitality sector, we did not conduct follow up surveys with apprentices and employers to determine whether this engagement led to increased knowledge of workplace laws or improved workplace experiences. However, given the level of engagement with the messages, we think it is to be expected knowledge of workplace laws improved, and it is plausible workplace experiences also did so.

A randomised controlled trial found apprentice retention was higher in the treatment group than in the control group however this difference was small and not statistically significant. In other words, we did not find evidence of an impact on short-term retention rates. This may be because: the messages had no impact on retention, they had a small effect but we lacked sufficient sample size to detect this, or the messages had a delayed effect on drop-out decisions not detected in our short-term measure.

Limitations

Several significant challenges limited our trial results.

As noted above, we ended the intervention early, in March 2020, due to the COVID-19 pandemic. As a result, we only obtained a sample of 1,788 apprentices rather than our target sample of 3,000. In addition, we adjusted our retention measures to conclude in mid-March, prior to the imposition of COVID-19 related restrictions on the hospitality sector and the introduction of the JobKeeper payment. In particular, this meant we only measured short-term retention outcomes three months after the messages were sent.

There were also complications in the randomisation process. For some employers, the identifier we received in the administrative dataset changed over time and, as a result, these employers were randomised twice (for example, first into control and then treatment). In these cases, some apprentices in control may have received 'spillover benefits' from the messages, either from their employer (who subsequently received the messages once they were assigned to treatment) or from other apprentices in the same business who received the messages. These spillovers may have affected up to 14.5 per cent of apprentices but were likely small so the resulting downward bias in our estimates was probably also small.

Finally, some apprentices in the treatment group did not receive the messages, as some chose to opt out. In addition, the apprentices of a single employer were removed from the trial due to a message error, which was subsequently corrected. This also marginally weakened our ability to detect an effect.

A more detailed explanation of these and other limitations is provided in the Appendices.

Next steps

After we had launched this study, the New South Wales (NSW) and Victorian Behavioural Insights Units published the results of similar studies targeting apprentices and trainees. Unlike our study, these others had a greater focus on the formal training undertaken as part of an apprenticeship, and did not target apprentices' workplace experiences. These studies included: paired messages to employers and apprentices emphasising conversations and goal-setting; paired messages from Training Advisers to learners and their employers; weekly messages to employers regarding TAFE training content; and weekly messages to TAFE students to support student engagement (NSW Government 2019; NSW Government 2020 pp22-26; Victorian Government 2019 pp15-16). These studies generally found null results for course completions or training contract cancellations, with the partial exception of the messages to employers on course content, which increased course attendance by around three percentage points (but did not materially reduce course cancellations).

Taken together, these studies and our results indicate communication—based nudges such as education text messages may be insufficient to drive sizable increases in apprenticeship retention rates. Perhaps these types of measures, commencing early in the apprenticeship and then delivered over an extended period, combined with more intensive approaches such as mentorship programs (Buchanan et al 2016), may be required.

Appendices

Appendix 1 - Research design and method

Overview

We partnered with the Fair Work Ombudsman (FWO) and the Department of Education, Small Business and Employment (DESE) to test the impact of a behavioural intervention on the workplace experiences of apprentices, and their apprenticeship retention rates. Apprentices and employers in the treatment group each received up to four messages providing information on workplace laws.

We conducted a two-arm cluster randomised controlled trial. The unit of randomisation (clusters) were hospitality employers with newly commencing apprentices. Starting in August 2019, DESE provided BETA with a monthly list of newly commencing apprentices and their employers, so randomisation was also done in monthly batches.

The first four monthly batches received the full treatment of all four messages however in mid-March 2020 we ceased messages due to the impact of COVID-19. This resulted in batch five only receiving a half-dosage of two messages. Also, our outcome measure for this final batch was compromised by the advent of COVID-19 (see further discussion below).

For the first four batches, we randomised 821 employers and 1,788 apprentices into treatment or control on a 1:1 basis. Batch 5 comprised 307 employers and 659 apprentices.

Apprentice-level data on apprentice retention was provided by DESE. Retention rates were calculated three months (90 days) after the first message was sent for each batch.

Pre-registration and pre-analysis plans

We pre-registered this trial on the American Economic Association registry on 16 October 2019 and on the BETA website on 15 October 2019. This was after the trial had commenced but before any data had been received. The pre-registration included a detailed pre-analysis plan outlining our research question, trial format, outcome measures, and our method of analysis.

The study was reviewed and approved by a human research ethics committee (Bellberry). The ethics application number is 2018-12-1061-A-3.

Deviations from the pre-analysis plan

We made five deviations from our pre-analysis plan (PAP). Only the first two, which relate to sample size and outcome variable construction, are material. (We also encountered complications in the randomisation process, which are discussed under 'Randomisation' below.)

First, we originally planned to continue delivering messages to new batches until the planned sample size (3,000 apprentices) was met. However, we cut our trial short due to the impact of COVID-19 on the hospitality sector. This meant we only had 1,788 apprentices who received the full treatment. Apprentices in the fifth batch were only delivered two messages rather than all four (and we did not proceed with further batches). We have adjusted our primary analysis to reflect this, as detailed in the *Method of Analysis* section below.

Second, we defined our primary outcome as a binary variable for whether an apprentice was retained *four months* after they received their first message, and again at *seven months*. However, to avoid overlapping with the COVID-19 shutdown period, we adjusted this to *90 days* after the first message was sent, and did not measure again with a longer time period.⁵ For all batches, the 90 day point occurred shortly after the final messages were delivered.

Third, we originally planned to collect survey data on: apprentices' workplace experience; and apprentices' and employers' awareness and understanding of workplace laws. Due to the impacts of COVID-19 on the hospitality sector, we decided it would be inappropriate to proceed with these surveys.

Fourth, we originally planned to complete an additional robustness check using a random effects logistic model however, since it would not differ materially from our other robustness check (a logistic model with cluster standard errors) we chose not to proceed with this analysis.

Finally, we did not undertake several analyses that were contingent on a positive result for our primary outcome. These included subgroup analysis, dose-response analysis, and an estimate of the complier average causal effect (CACE).

Pre-trial interviews and survey

Prior to the trial we ran a survey to explore attitudes of apprentices and employers, which informed the design of the intervention messages. The survey was sent to a random sample of 2,000 apprentices (1,000 each in Commercial Cookery and Hospitality Certificate III) drawn from a list of apprentices who commenced between May 2017 and April 2018. The FWO sent an email with a link to the survey on 8 June 2018 and a reminder email on 14 June. There were 108 apprentices who responded to the survey (5.5 per cent response rate).

We also interviewed 15 apprentices and 15 employers of apprentices about their workplace experiences. The findings of the interviews and survey are summarised in the '*Uncovering the problem*' section.

Interventions

Those in the treatment arm received a series of messages from the FWO via email or SMS, while those in the control arm did not receive any intervention (pure control). Messages were

⁵ While COVID-19 should impact treatment and control groups similarly, it would introduce considerable noise into a longer term measure of retention. In particular, in late March, some large employers in the treatment group suspended all their apprentices on the same day. Any comparisons of retention rates after March would therefore have reflected decisions of individual large employers (and which experimental group they were assigned to) rather than effects of treatment.

delivered in pairs to apprentices and their employers. Messages were first sent to the employers before being sent to apprentices a week later. Each pair of messages can be found in Figure 4.

Employers and apprentices were able to opt out of receiving further messages. If either of them opted out the pairing of the messages was broken. In these cases, we continued to send messages to the consenting party only, with the messages adjusted to remove references to the other party. In total, we ceased sending messages to 127 apprentices and 48 employers. Almost half of the apprentice opt-outs (76) came from a single employer, who asked for all their apprentices to be removed from the trial as their employees derived their workplace entitlements from an enterprise agreement rather than the relevant Award (which was the basis for the information in the messages). There were 39 apprentices who chose to opt out while the remainder came from: undelivered messages and incorrect contact details (8), or apprentices no longer in their roles (4).

Outcomes and Hypotheses

Primary Outcome (retention rate) – The main primary outcome was the apprentice retention rate, measured as a binary variable: whether the apprentice was still in a training contract or not, 90 days after the delivery of the first message. We hypothesised the apprentice retention rate in the treatment group would be higher than in the control group.

The date of the first message and the date retention rates were calculated are outlined in Figure 8.

Figure 8: Dates for retention rate calculations, by batch

Batch Number	Date of first message	Date retention rate was calculated
1	18 September 2019	17 December 2019
2	17 October 2019	15 January 2020
3	12 December 2019	11 March 2020
4	12 December 2019	11 March 2020
5	19 February 2020	11 March 2020

Note: Because we ceased the study early, midway through the delivery of messages to Batch 5, only the first four batches were used in the primary analysis.

Primary Outcome (likelihood of contract cancellation) – We also conducted analysis of the likelihood of contract cancellation by measuring the time to drop out. This was determined using the date of contract cancellation as the ‘failure’ date. We hypothesised the risk of contract cancellation at the end of the follow up period would be lower for apprentices in the treatment group compared to apprentices in the control group. We also hypothesised the median time to drop out would be higher in the treatment group compared to the control group.

Study population and sample size

The sample from this trial consisted of apprentices aged 16 years or over who were undertaking Commercial Cookery III or Hospitality III certificates in New South Wales, Victoria or South Australia, and who had recently commenced their training contract. Employers of these apprentices were also included in the trial.

Over the course of our trial, we initially expected to enrol 3,000 apprentices and their employers (approximately 1,000) into the trial, and planned to continue enrolling new batches until reaching this sample size. However, as outlined above, the impact of COVID-19 meant we ceased sending messages in March 2020. For the first four batches—who received the full message treatment—we randomised 821 employers and 1,788 apprentices into treatment and control groups on a 1:1 basis. Batch 5—who received two out of four messages—comprised 307 employers and 659 apprentices.

Randomisation, and complications in the randomisation process

Messages were sent in monthly batches starting in September 2019. Once an eligible apprentice was identified, their employer was randomised into either the treatment or control group. Randomisation was undertaken on each of these monthly batches, with an allocation ratio for the two arms of 1:1.

Prior to randomisation, employers were stratified by business size at baseline: small (1-14 employees) or medium to large (15 or more employees). Stratification and randomisation were conducted using the statistical package STATA. The randomisation code utilised a set seed for reproducibility and was verified by another BETA staff member not directly involved in the project.

The trial was clustered at the employer level to minimise the risk of spillovers amongst apprentices in the same workplace. We intended that an employer with several apprentices in the trial should be randomised only once and, if assigned to treatment, should only receive the set of four messages once. However, the employer identifier we received from DESE was not stable over time and consequently some employers were randomised more than once.

In batches 1-4, 29 employers were randomised more than once. Of these, 16 were randomised into the same group as before and therefore were not at risk of spillovers. The remaining 13 employers (1.6 per cent) contained 359 apprentices (20.1 per cent) across both treatment arms. There were 260 apprentices in the control group and 99 in the treatment group. These control apprentices (14.5 per cent of the total) may have received a spillover in treatment effects from their colleagues who received messages however we consider these spillovers were likely to be small.

We considered two options to address this randomisation error. Option 1 was to leave apprentices' treatment assignment unchanged. For example, suppose an employer was initially allocated to treatment in Batch 1 but subsequently allocated to control in Batch 3. Then the first batch of apprentices working for that employer would remain in treatment and the later batch would remain in control *even though their employer had previously received the treatment messages*. That is, some apprentices in the control group might experience spillover effects from the messages sent to their employer or to other apprentices in their workplace.

Option 2 was to assign all apprentices to their employers' original allocation when they were first randomised, meaning some apprentices who received messages would be in the control group, while some who never received messages would be in the treatment group. (In the example above, the Batch 3 apprentices would have had their allocation changed to the treatment group even though they never received any messages.)

For our primary analysis, we chose option 1 and left the apprentices' treatment assignment unchanged. We decided this was the preferable option because we judged this would introduce less bias to our estimates than the alternative. That is, the bias from potential spillovers described above was likely to be less than the bias resulting from including some apprentices in control when they had received the messages, and moving other apprentices into treatment when they had not. While this means that spillover effects may have biased our estimates downwards, we believe it does the best job of maintaining the integrity of the analysis.

Power calculations

Our power calculations were prepared as part of our pre-analysis plan and provided the basis for our target sample size of 3,000 apprentices.

For our primary outcome (retention rates), we based our power calculations on: an alpha of 0.05, cluster sizes of three apprentices per employer for both the treatment and control group, intra-cluster correlation coefficient (ICC) of 0.2, and a sample size of 2,998 apprentices. We used a retention estimate of 66 per cent for the control group. This was based on the attrition rates for food workers after two quarters (see NCVET 2017, Table 6).

This gave us 80 per cent power to detect a standardised effect of 0.1 (one-sided test), equivalent to increasing retention rates from 66 to 71 per cent.

For our secondary outcome (likelihood of contract cancellation), the same assumptions gave us 80 per cent power to detect a hazard ratio of 0.898 (one-sided log rank test).

Power calculations were conducted in STATA SE Version 15.1.

Data sources and data cleaning

We received implementation and engagement data from the FWO. This included click-through rates, number of sessions, the number who opted out, and email/SMS bouncebacks.⁶ We also collected any responses to the messages that the FWO received from apprentices or employers.

We received apprentice level administrative data on apprentices' training contracts from DESE, who routinely collects and holds data on Australian apprenticeships. There were several steps in cleaning this data prior to analysis.

First, the raw data from DESE included an additional batch of apprentices who were randomised into treatment or control groups but who never received any messages because,

⁶ 'Click-through rates' refer to the number of people who clicked the link at least once whereas 'sessions' measure the total amount of times links were clicked. These may be different as some people may click on a link more than once.

due to the impact of COVID-19 on the hospitality sector, we chose to end the trial early. These apprentices were removed from the data prior to analysis.

Second, the raw data included apprentices in the ACT however they were not part of our sample frame and so were also removed prior to analysis.

Third, 31 apprentices had two apprenticeship contracts during the trial period due to them ending one contract and then commencing in another. Consistent with our pre-analysis plan, we only included the first contract in the analysis and so data relating to any additional contracts was removed prior to analysis.

Finally, there were 48 apprentices who had a missing status for the retention outcome. DESE reviewed these cases manually and we then updated their status appropriately.

Due to lags in updates, the data also contained some contracts which had been initiated in error, or where the apprentice had already completed their apprenticeship prior to the trial. While these apprentices' outcome could not have been influenced by the messages, the contracts were kept in the analysis to maintain consistency with our trial's intention to treat design.

Method of Analysis

Our primary analysis used an intention to treat design (ITT). The baseline covariates included in the main analysis were age group, apprentice gender, business type and size, number of apprentices and month of commencement. We also conducted the analysis in two forms, firstly on Batches 1-4 only, and secondly on Batches 1-5. Since Batch 5 only received two messages rather than four, we included a dummy variable for them and interacted this with treatment to distinguish the full effect of the earlier four batches from the half-dosage effect for the final one.

For the retention outcome we undertook an Ordinary Least Squares (OLS) regression in the form:

$$Y_{ij} = \alpha + \beta T_i + \gamma X_i + \delta X_i T_i + v_j + \omega_{ij}$$

Where T_i indicates whether it is the treatment group or the control group. X_i indicates the set of mean-centred covariates, including strata included in the linear model. These covariates were also interacted with the treatment variable. v_j explains the group level error term and ω_{ij} is the individual error term. We also calculated cluster standard errors and confidence intervals. A logistic regression was used as a robustness check.

We conducted survival analysis to compare the median time taken to drop out of the apprenticeship between the treatment and control groups. This involved calculating the survival and hazard functions for each group as well as calculating a Kaplan-Meier estimate. The hazard functions of the treatment group and control groups were compared using the log-rank test.

Appendix 2 - Key statistical tables

Overview

This appendix presents the results of statistical analysis undertaken for the trial and is structured as follows:

- Sample frame details
- Message implementation and engagement (such as delivery rates and click-through rates)
- Results from the main analysis and robustness checks.

Sample frame

Overall we had a sample consisting of 2,447 apprentices across 1,128 unique employers (Figure 9). Employers were randomised in monthly batches into the two groups on a 1:1 basis. For the main analysis, we only used batches 1-4, consisting of 1,788 apprentices (896 in control and 892 in treatment) and 821 employers.

The characteristics of our sample frame were generally well balanced across the treatment and control groups (Figure 10). The notable exception to this is gender, with a higher proportion of females in the control group (47.3 per cent) compared to the treatment group (41.8 per cent). This did not affect our results, however, because we included gender as a covariate in our analysis (as pre-specified).

Figure 9: Apprentice and employer numbers, by batch and treatment status

	Apprentices			Employers		
	Control	Treatment	Total	Control	Treatment	Total
Batch 1	162	250	412	115	113	228
Batch 2	208	199	407	106	101	207
Batch 3	237	241	478	109	114	223
Batch 4	289	202	491	80	83	163
Sub-total	896	892	1,788	410	411	821
Batch 5	310	349	659	152	155	307
Total	1,206	1,241	2,447	562	566	1,128

Note: This treatment allocation reflects the allocation used in the primary analysis, where apprentices whose employers were later randomised into a different group have been given their original treatment allocation. Employers are only recorded once, even if they were later re-randomised into a different treatment group. There were 17 employers where this occurred, who together held 441 apprentices.

Figure 10: Sample frame characteristics

Age Group	Control		Treatment	
	Proportion	n	Proportion	n
20 and under	60.0%	(724)	58.6%	(727)
21-30	29.2%	(352)	30.3%	(376)
31-40	5.0%	(60)	6.4%	(79)
Over 40	5.8%	(70)	4.8%	(59)
Gender				
Female	47.3%	(570)	41.8%	(519)
Male	52.7%	(636)	58.2%	(722)
Business Type				
Commonwealth Government	4.6%	(56)	0.6%	(8)
Government Business Enterprise	0.3%	(4)	0.1%	(1)
Group Training Organisation	2.3%	(28)	4.6%	(57)
Private Sector	92.7%	(1118)	94.7%	(1175)
Business Size				
Medium to Large	79.4%	(957)	79.0%	(981)
Small	20.6%	(249)	21.0%	(260)
State				
NSW	39.9%	(481)	39.8%	(494)
VIC	54.1%	(652)	53.3%	(661)
SA	6.1%	(73)	6.9%	(86)

Note: A Group Training Organisation is a registered organisation that hires apprentices and places them with host employers for on-the-job training during their apprenticeship. In our trial, business size is defined based on the number of employees in a business. A small business has 1-14 employees. A medium to large business has 15 or more employees.

Message implementation

We monitored message implementation by tracking delivery and opt-out rates.

Figure 11: Message implementation – delivery and opt-outs

Message implementation			
Batch 1	Delivered	Opt-out	Undeliverable
Apprentices	191	56	3
Employers	103	5	5
Batch 2			
Apprentices	174	25	0
Employers	91	6	3
Batch 3			
Apprentices	223	16	2
Employers	109	13	1
Batch 4			
Apprentices	187	13	2
Employers	77	5	2
Batch 5 (messages 1 and 2 only)			
Apprentices	339	9	1
Employers	149	5	3

Note: One employer asked for all their apprentices to be removed from the trial after an error was found in one of the messages. The 76 apprentices affected (and the one employer) are reflected in the 'opt-out' column.

Message engagement

Each message included a link to a web page or downloadable document on the FWO website at www.fairwork.gov.au. In some instances links were different for apprentices and employers, although covered similar content but from a different perspective. We assessed engagement with the messages using click-through rates. The total number of click-throughs represents the number of apprentices or employers who interacted with the link at least once. However, an apprentice or employer may use a link multiple times, which is reflected in the number of sessions (the total number of times the links were used).

The links for each message were:

- Message 1 (employers; guide to taking on an apprentice): <https://www.fairwork.gov.au/ArticleDocuments/712/guide-to-taking-on-an-apprentice.pdf.aspx>
- Message 1 (apprentices; guide to starting an apprenticeship): <https://www.fairwork.gov.au/ArticleDocuments/712/guide-to-starting-an-apprenticeship.pdf.aspx>
- Message 2 (employers and apprentices; pay calculator): <https://calculate.fairwork.gov.au/FindYourAward>
- Message 3 (employers and apprentices; penalty rates and allowances): <https://www.fairwork.gov.au/pay/penalty-rates-and-allowances>
- Message 3 (apprentices; online course on difficult conversations in the workplace): <https://www.fairwork.gov.au/how-we-will-help/online-training/online-learning-centre/difficult-conversations-in-the-workplace-employee-course>
- Message 4 (employers; hours of work, breaks and rosters): <https://www.fairwork.gov.au/employee-entitlements/hours-of-work-breaks-and-rosters>
- Message 4 (apprentices; basic information for apprentices and trainees): <https://www.fairwork.gov.au/find-help-for/apprentices-and-trainees>

Figure 12: Message engagement summary, all messages

Overall message engagement					
	Delivered	Click-throughs	Click-through rate	Sessions	Sessions per click-through
Apprentices	4,004	752	18.8%	1,117	1.5
Employers	1,843	374	20.3%	563	1.5

Note: Message delivery data is for all five batches.

Figure 13: Apprentice message engagement, by message

Apprentice message engagement				
Message (excerpt)	Delivered	Click-Throughs	Click-Through Rate	Sessions
1. 'For info about your rights as an apprentice get our Guide to starting an apprenticeship [LINK]'	1,232	183	14.9%	282
2. 'Did you know you can use our Pay Calculator [LINK] to check award pay rates?'	1,174	368	31.3%	558
3. 'Btw, did you know you may be entitled to penalty rates [LINK] if you work on weekends?'	830	158	19.0%	218
4. 'If you ever need info about your workplace rights please visit our Apprentices page [LINK]'	768	43	5.6%	59

Note: Message delivery data is for all five batches, consequently the delivery numbers are higher for messages 1 and 2. Data for 'Click-through rates' refer to the number of people who clicked the link at least once whereas 'sessions' measure the total amount of times links were clicked.

Figure 14: Employer message engagement, by message

Employer message engagement				
Message (excerpt)	Delivered	Click-Throughs	Click-Through Rate	Sessions
1. 'For more information on apprentice wages and entitlements get our Guide to taking on an apprentice [LINK]'	551	107	19.4%	172
2. 'Our popular Pay Calculator [LINK] can help you check minimum award pay rates that may apply to your apprentices.'	533	131	24.6%	168
3. 'Don't let a simple mistake affect your business, our Penalty rates page [LINK] can help you.'	382	75	19.6%	122
4. 'Have you checked if you're required to pay overtime and are allowing for required breaks? Our advice on hours of work, breaks & rosters [LINK] can help.'	377	61	16.2%	101

Note: Message delivery data is for all five batches, consequently the delivery numbers are higher for messages 1 and 2. 'Click-through rates' refer to the number of people who clicked the link at least once whereas 'sessions' measure the total amount of times links were clicked.

Results: apprentice retention

In Figure 15 we present the results for the primary outcome (apprentice retention). We used an OLS regression model with covariate adjustment (age, gender, business type, business size, number of apprentices and commencement month). Cluster standard errors were calculated with clustering at the employer level. We also conducted a logistic regression as a robustness check for the main result (Figure 16). We present results for batches 1-4 (our primary analysis) but also provide results including batch 5 (which only received the first two messages before we stopped further message delivery). All statistical analyses were conducted using the statistical software R.

As described in Appendix 1 (in the ‘Randomisation, and complications in the randomisation process’ section) we had problems with our randomisation process which resulted in contamination within some employers. This resulted in employers holding apprentices in both the treatment and control group. For our main analysis we decided to leave apprentices in the treatment group they were originally assigned to. We also conducted a robustness check where we change their assignment to align with the treatment group the employer was first assigned to. Results from this are found in Figure 17. If we took those results at face value, they suggest the messages backfired and *increased* the likelihood of drop out. However, for the reasons discussed in Appendix 1, we consider these results are likely to reflect the misallocation of individuals between treatment arms, rather than giving an accurate reflection of the impact of the messages.

Figure 18 presents results for the other primary outcome measure (likelihood of contract cancellation). The survival analysis was conducted only on batches 1-4 and for the first 90 days after treatment began, to remain consistent with the other main analysis and prevent cancellations due to COVID-19 from influencing the results. In the pre-analysis plan we specified we would compare median time to drop-out between the two groups (that is, the time it takes for half the trial population to drop out). As neither group reached a survival rate of 50 per cent (that is, in neither group had more than half the population had dropped out), we could not conduct this analysis. Instead, we use the log-rank test to measure if there is a difference between the survival functions of the control and treatment groups. Figure 19 presents these results.

Figure 15: Apprentice retention — primary analysis

H1: Apprentice retention rate							
		n	Mean	Effect	95% CI - Lower	95% CI - Upper	p-value
Batches 1-4	Control	896	82.9%				
	Treatment	892	83.6%	0.0069	-0.0415	0.0553	0.3864
All Batches	Control	1,206	83.2%				
	Treatment	1,241	83.7%	0.0043	-0.0404	0.0489	0.4237

Note: The primary analysis is derived from a covariate-adjusted OLS regression with cluster standard errors and report p-values for one-sided tests, as pre-specified. The estimated difference for All Batches (0.43 percentage points) does not exactly match the difference in means due to rounding error.

Figure 16: Apprentice retention — logistic regression

H1: Apprentice retention rate					
		n	Mean	Effect	p-value
Batches 1-4	Control	896	82.9%		
	Treatment	892	83.8%	0.0086	0.3406
All Batches	Control	1,206	83.2%		
	Treatment	1,241	83.6%	0.0039	0.4153

Note: The analysis is derived from a covariate-adjusted logistic regression with cluster standard errors and report p-values for one-sided tests, as pre-specified. The results were converted to average marginal effects.

Figure 17: Apprentice retention — robustness check for randomisation issues

	n	Mean	Effect	95% CI - Lower	95% CI - Upper	p-value
Control	718	86.8%				
Treatment	1,070	81.1%	-5.7%	-0.1058	-0.0084	0.9885

Note: This analysis uses the same covariate-adjusted OLS regression as the primary analysis, and so it also reports the p-value from a one-sided test. In this robustness check we allocated apprentices to the treatment group their employer was first randomised into. This means for some apprentices, whilst they were assigned to treatment and received messages they may be included in the control group because of their employer. Similarly there are some apprentices who were assigned control and didn't receive messages but are included in the treatment group.

Figure 18: Likelihood of contract cancellation

H2: Likelihood of contract cancellation					
Days since treatment	Total Drop-outs	Survival Rate	Std.error	95% CI - Lower	95% CI - Upper
Control Group					
15	21	0.9744	0.0055	0.9636	0.9852
30	45	0.9451	0.0080	0.9296	0.9608
45	59	0.9280	0.0090	0.9104	0.9458
60	79	0.9035	0.0103	0.8835	0.9240
75	101	0.8767	0.0115	0.8544	0.8995
90	118	0.8559	0.0123	0.8322	0.8803
Treatment Group					
15	26	0.9679	0.0062	0.9559	0.9801
30	40	0.9507	0.0076	0.9359	0.9657
45	55	0.9322	0.0088	0.9150	0.9496
60	77	0.9051	0.0103	0.8851	0.9255
75	97	0.8804	0.0114	0.8583	0.9030
90	114	0.8594	0.0122	0.8358	0.8837

Note: The survival rates at 90 days (85.6% and 85.9%) differ from the group means reported in Figure 15 (82.9% and 83.6%) because the latter includes covariate adjustment whereas the former does not.

Figure 19: Survival analysis (log-rank test)

	n	Observed drop-outs	Expected drop-outs	Chi-Squared	p-value
Control	819	118	116.51	0.0384	0.8447
Treatment	811	114	115.49	0.0384	0.8447

Note: The log-rank test calculates if there is a significant difference between the survival functions of the two groups. A low chi-square value indicates the functions are similar, while a high chi-square indicates they are different.

Appendix 3 - Survey and interview questions

Diagnostic survey instrument

The survey was distributed to a random sample of 2,000 current or former apprentices completing or having completed a Certificate III in Commercial Cookery or Certificate III in Hospitality, on 8 June 2018. We received 108 responses (response rate 5.5 per cent).

1. What is your age?
2. What is the highest year of primary or secondary school you have completed?
 - a. Year 12 or equivalent
 - b. Year 11 or equivalent
 - c. Year 10 or equivalent
 - d. Year 9 or equivalent
 - e. Year 8 or equivalent
 - f. Did not go to school
3. Have you completed any qualifications above a Year 12 Certificate?
 - a. Yes
 - b. No

If No, SKIP to Question 5

4. What is the level of the highest qualification you have completed?
 - a. Trade certificate
 - b. TAFE Associate Diploma
 - c. TAFE Advanced Diploma
 - d. Bachelor's degree
 - e. Master's degree
 - f. PhD
 - g. Other (please specify)
5. What is your gender?
 - a. Male
 - b. Female
 - c. Other
 - d. Preferred not to answer
6. What were your reasons for starting your Commercial Cookery apprenticeship? (multiple responses)
 - a. Wanted to work in that type of job
 - b. Wanted a job (any type)
 - c. To gain a recognised qualification or certificate
 - d. Get paid to learn
 - e. It was a requirement of my job
 - f. It had good job prospects
 - g. It had good pay once qualified
 - h. To start my own business
 - i. Didn't get into uni/didn't want to go to uni
 - j. Opportunity to further my knowledge and skills

- k. Recommended/offered by company (not mandatory)
- l. Other reasons (please specify)

7. What was the main reason for starting your Commercial Cookery apprenticeship? (tick one only)

- a. Wanted to work in that type of job
- b. Wanted a job (any type)
- c. To gain a recognised qualification or certificate
- d. Get paid to learn
- e. It was a requirement of my job
- f. It had good job prospects
- g. It had good pay once qualified
- h. To start my own business
- i. Didn't get into uni/didn't want to go to uni
- j. Opportunity to further my knowledge and skills
- k. Recommended/offered by company (not mandatory)
- l. Other reasons (please specify)

Current apprentices, or if completed your apprenticeship SKIP to Q8

8. Why did you decide not to continue your apprenticeship? (Multiple responses)

- a. Got offered a better job
- b. The pay was too low
- c. Poor working conditions
- d. I was not happy with the job prospects in the industry
- e. I didn't like the type of work
- f. I didn't get on with my boss
- g. I didn't get on with other people at work
- h. I lost my job/I was made redundant
- i. I transferred to another apprenticeship
- j. Left job/changed career
- k. I wasn't happy with the on-the-job training
- l. I wasn't happy with off-the-job training
- m. I found the study too difficult
- n. Personal reasons (issues with transport, health reasons, family reasons, lack of time, moved)
- o. Other reason (please specify)

9. And what was your main reason for choosing not to continue your Commercial Cookery apprenticeship? (choose one only)

- a. Got offered a better job
- b. The pay was too low
- c. Poor working conditions
- d. I was not happy with the job prospects in the industry
- e. I didn't like the type of work
- f. I didn't get on with my boss
- g. I didn't get on with other people at work
- h. I lost my job/I was made redundant
- i. I transferred to another apprenticeship
- j. Left job/changed career
- k. I wasn't happy with the on-the-job training
- l. I wasn't happy with off-the-job training (e.g. at TAFE)
- m. I found the study too difficult

- n. Personal reasons (issues with transport, health reasons, family reasons, lack of time, moved)
 - o. Other reason (please specify)
10. How many hours per week do/did you typically work in your apprenticeship?
11. What was/is your occupation in this apprenticeship? (e.g. Apprentice chef)
12. What are/were the main tasks that you perform in this occupation? (e.g. preparing food, cleaning dishes)
13. What kind of industry, business or service was/is carried out by your employer during your apprenticeship? (E.g. fast food outlet, restaurant, café, pub, hotel etc.)
14. Including yourself, how many people are employed by your employer at this location, including full-time, part-time or as a casual? (Your best guess is fine)
- a. Less than 5
 - b. 5 to 19
 - c. 20 to 199
 - d. 200 or more
15. How satisfied or dissatisfied are/were you with the following aspects of your employment as an apprentice? (answer categories: *Extremely dissatisfied; moderately dissatisfied; slightly dissatisfied; neutral; slightly satisfied; moderately satisfied; extremely satisfied*)
- a. The type of work you are/were doing
 - b. The working conditions
 - c. The pay
 - d. The hours of work
 - e. Receiving adequate supervision
 - f. Relationships with co-workers
 - g. Training provided by your employer
 - h. The skills you learnt on the job
 - i. Getting released from your normal work duties to attend off-the-job training
 - j. The pay received for undertaking off-the-job training
 - k. Being able to practice the skills I learned at TAFE
16. The following concerns various aspects of your apprenticeship. (answer categories: *Never; Rarely; Once in a while; Some of the time; Fairly often; Often; Always; Don't know*)
- a. I have a choice in deciding what I do at work
 - b. I have some say over the way I get the job done
 - c. I have a say in my work speed
 - d. I am pressured to work long hours
 - e. I am not paid for time worked
 - f. I am not paid for offsite training
 - g. I am not paid overtime
 - h. I am not paid the correct hourly rate
 - i. I am not provided with a pay slip
 - j. I am not paid the correct penalty rates
 - k. I am not paid the correct allowances
 - l. I am not provided breaks
 - m. I am not paid on time

- n. I have unachievable deadlines
- o. I have unrealistic time pressures
- p. I have to neglect some tasks because I have too much to do
- q. I can rely on my supervisor to help me out with a work problem
- r. If work gets difficult, my supervisor will help me
- s. I get the help and support I need from my supervisor
- t. My supervisor is willing to listen to my work-related problems
- u. I do things which are accepted by one person but not by another
- v. Different groups at work demand things from me that are difficult for me to do at the same time
- w. Different people at work expect conflicting things from me
- x. I receive incompatible requests from two or more people
- y. Does your work need your undivided attention?
- z. Do you have to keep track of more than one process at a time?
- aa. Do you have to concentrate all the time to watch for things going wrong?
- bb. I can rely on my co-workers to help me out with a work problem
- cc. If the work gets difficult, my co-workers will help me
- dd. I get the help and support I need from my co-workers
- ee. My co-workers are willing to listen to my work-related problems
- ff. I am bullied/harassed by my boss/supervisor

17. During your apprenticeship, what are/were your main sources of support for work-related problems? (tick as many as apply)

- a. Your supervisor at work
- b. Your co-workers (including other apprentices at work)
- c. Your teachers from formal training you are undertaking/undertook
- d. Other apprentices who are/were doing similar apprenticeships
- e. Other students at TAFE
- f. Your friends
- g. Your family

18. During your apprenticeship how aware of your workplace rights are/were you? (E.g. award rates, reasonable hours of work, leave entitlements etc.)

- a. Not at all aware
- b. Slightly aware
- c. Somewhat aware
- d. Moderately aware
- e. Extremely aware

19. If you were unsure about your workplace rights, where would you go for help?

- a. Family
- b. Friends
- c. Supervisor
- d. Co-workers
- e. Internet search
- f. Fair Work Ombudsman
- g. Other (please specify)

20. From who would you prefer to receive information about your workplace rights and obligations?

- a. Family
- b. Friends

- c. Supervisor
 - d. Co-workers
 - e. Internet search
 - f. Fair Work Ombudsman
 - g. Other (please specify)
21. How would you prefer to receive information about your workplace rights and obligations?
- a. In person
 - b. Text message
 - c. Email
 - d. Social media
 - e. Printed
 - f. Other (please specify)
22. Ideally, when would you have preferred to have received information about your workplace rights and obligations?
- a. Before starting your apprenticeship
 - b. First day of your apprenticeship
 - c. First week of your apprenticeship
 - d. First month of your apprenticeship
 - e. First six months of your apprenticeship
 - f. Other (please specify)
23. Are you aware of the Fair Work Ombudsman?
- a. Not at all aware
 - b. Slightly aware
 - c. Somewhat aware
 - d. Moderately aware
 - e. Extremely aware
24. Would you contact the Fair Work Ombudsman about a workplace issue?
- a. Yes
 - b. No
 - c. Unsure
25. If no or unsure, why?

Sample interview questions

Apprentices

- What made you decide to do an apprenticeship?
- How did you find the apprenticeship? E.g. through word of mouth, family, friends?
- Did you do any research/ seek any information before beginning your apprenticeship?
- Did/do you feel like you were/are aware of your workplace rights and obligations? Could you provide an overview of what they are?
- If you were/are unsure about your workplace rights and obligations, where did/do you go for help? Why?
- Have you heard of the Fair Work Ombudsman? Did you know what the Fair Work Ombudsman does? Would you approach it for help? If not, why not?
- Did / have you had negative experiences or workplace issues in your apprenticeship?
- If you could, what would you do to help apprentices complete their apprenticeship? What else?

Employers/Supervisors

- What do you know about businesses' obligations under workplace relations laws? (E.g. award rates, hours of work, entitlements etc.) How easy is it to find out about these?
- Are your workplace obligations easy to comply with? What challenges do you face in complying with workplace laws? What are the most difficult workplace obligations to comply with?
- What is the hospitality industry's compliance culture like?
- Where would you go for advice and information on workplace relations?
- Do you receive information about your workplace rights and obligations? If so, who do you receive it from? Is this information easily accessible, clear and sufficient? What would be the best way to communicate information about your workplace rights and obligations?
- How informed was your apprentice(s) about their obligations and rights? If they are unsure about what they need to do, do they come to you? Where else would you direct them for advice and information?

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